COLCHESTER

Infrastructure Delivery Plan

Final Report

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Prepared on behalf of: Colchester Borough Council

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1 Introduction

1.1 This Infrastructure Delivery Plan (IDP) has been undertaken by Troy Planning and Design with Navigus Planning to inform Colchester Borough Council's ('the Council') emerging Local Plan.

1.2 The term 'infrastructure' covers a wide range of services and facilities provided by public and private organisations. The definition of infrastructure is outlined in section 216(2) of the Planning Act 2008 (as amended). The Colchester IDP covers the following infrastructure areas:

- Schools and other educational facilities
- Health and social wellbeing
- Utilities
- Transport, including pedestrian facilities
- Flood defences
- Managing the impact of unstable land
- Emergency services
- Waste
- Social and community (including libraries, allotments and community halls)
- Leisure and recreational facilities (including children's play, youth and sports facilities)
- Open space/green infrastructure

1.3 The requirement is to create an infrastructure plan which will show the following:

- What infrastructure is required and how it will be provided (e.g. co-location, etc).

- Who is to provide the infrastructure.
- How will the infrastructure would be funded.
- When the infrastructure could be provided.

1.4 Discussions have taken place with a variety of infrastructure providers both within the Council and external organisations in order to ensure a comprehensive understanding of what is needed. This process has enabled these infrastructure providers to think more strategically in terms of future provision and the challenges brought about by significant growth in the long term. This IDP brings all these agencies' plans together in one document. This should encourage inter-relationships between parties and provides an opportunity to share information and possibly infrastructure.

1.5 This document has been written during a time of significant change, with the Government reforming many of the public services that are responsible for providing and planning infrastructure. This is likely to have an impact on provision, delivery, funding and how the relevant organisations are able to respond in relation to future growth. In addition, it is often difficult to be certain about infrastructure requirements so far into the future, as the detail of many development schemes is not currently known. Therefore, this IDP is intended to be a document which is regularly updated given the uncertainty and fluid nature of planning for infrastructure. Where funding sources are known to be secured, this has been indicated. Other possible funding sources are identified but, at this stage, these are only possible sources and no funding has been secured from them. The funding gap therefore identifies the extent of funding required that has not been secured and made available.

Status and purpose of IDP

1.6 The IDP is a supporting document for the emerging Local Plan. The IDP covers the plan period up until 2033 although its content will be annually monitored and periodically reviewed. The document will also form an important part of the evidence base for any CIL Charging Schedule that the Council may publish.

1.7 The document includes details of the infrastructure identified by the Council and other service providers as being needed to support the delivery of the emerging Local Plan. It explains the approach the Council has taken to identifying this infrastructure, how it will be delivered, and an assessment of the potential risks associated with doing so.

Approach

1.8 There are certain important principles regarding the approach and issues that the IDP has to recognise.

1.9 Not all housing and employment growth planned for individual sites will attract specific additional infrastructure requirements that can be addressed through the development of that site alone. In most cases, the infrastructure needs that have been identified reflect the cumulative impact of growth in a wider area, e.g. Central Colchester, south Colchester, Tiptree, Mersea, etc. Where possible, a consistent approach has been adopted to assigning sites to particular areas. However, certain infrastructure providers, such as the Essex County Council Education Authority has a well-established approach to grouping together different areas of the borough that need to be reflected in the IDP but which may differ from the approach to other infrastructure uses. The IDP has sought to be clear, in each case, about which sites sit within which area being referred to for a particular infrastructure type. Appendix A shows the list of sites by area and their relevant Local Plan reference. Appendix B shows the quantum of development tested in each case.

1.10 The main exceptions are the Garden Communities which largely, if not exclusively, create infrastructure needs which are most appropriately addressed on their own.

1.11 The sites in the IDP do not reflect all the growth in the emerging Local Plan. There are a number of locations where smaller sites will also contribute to delivering the overall requirements. It is not possible to accurately reflect the needs from these sites – some of which will be identified outside the emerging Local Plan process, for instance through neighbourhood plans – but they will have a cumulative impact. The only infrastructure area where it has been possible to identify any specific impacts and consequential infrastructure requirements has been education, and this is reflected in Section 3. The locations where growth is expected are shown on the maps in Section 2 as ‘Neighbourhood Plan/Sustainable Settlements’.

1.12 The IDP, for most infrastructure items, presents the ‘worst case scenario’ in terms of needs. In the case of social, community, leisure and green infrastructure needs, this is because the methodology for

establishing the scale of need is based on calculations per head of the population. In reality, much of the infrastructure that is provided in most locations will be provided either in the form of improvements to existing facilities or as co-located facilities. In particular the latter will become a growing trend which recognises the limited amount of funding available and, in many more urban locations such as central Colchester, a lack of land to provide all the requirements individually.

1.13 Co-location is likely to take many forms. Schools are increasingly looking to raise revenue by hiring out sports pitches and other facilities outside of school hours. Equally, the shift in primary healthcare provision to larger health hubs means larger buildings that could share facilities with other health providers – opticians, dentists, physiotherapists, etc – but also equally with a range of other uses, both commercial and community, e.g. retail, community centres, libraries, etc. Indeed, the limited resources available for provision of, for example, library and community services has spawned many excellent examples of alternative types of provision with different management structures to those traditionally use. This is highlighted in the case studies below.

Case Study 1: EcoHub, Gamlingay, Cambridgeshire

One of the most successful modern community spaces that collocates a number of community uses is the EcoHub in Gamlingay, Cambridgeshire. Designed by Dan Smith of Civic Architects, it is an excellent example of blending space but in a way that the community has been able to shape and govern for its practical needs. The building was opened in 2014.

The EcoHub also provides a good example of how space needs to be configured to maximise the potential to generate revenue from its hire.

This bespoke building is designed to a high energy efficient standard. It creates an energy surplus to the tune of £5,000 per year from photovoltaic cells on the roof. It has won several build and design awards. Internally a suite of halls of varying sizes, together with commercial catering facilities provides 1,000m² of community floorspace.

Two large halls, one with sprung floors (for up to 250 people standing) and another (up to 500 people standing) can be sub-divided into two smaller spaces. A demountable stage caters for wide range of events. The building provides a community room, IT suite, reception, nursery and offices for the Parish Council. The nursery has its own entrance and doubles as a dance studio in the evenings. The facility provides outdoor play space, a surfaced sports area and a skate park.

The total project cost was £2.3m including car park, changing rooms and external skate park. Running costs are circa £70,000 per annum. Space hire ensure that the buildings makes a financial surplus.

Case Study 2 – Frampton Park Baptist Church

Frampton Park Baptist Church is a multifunctional building. Recently constructed this building provides a community hub, providing a community crèche café and events space to its ground floor, hireable meeting rooms to its first floor and an indoor sports hall and worship space to its second floor.

The site was developed privately by Frampton Park Baptist Church in 2015. An existing single storey 1930's era church and church hall has now been replaced with this new purpose built facility.

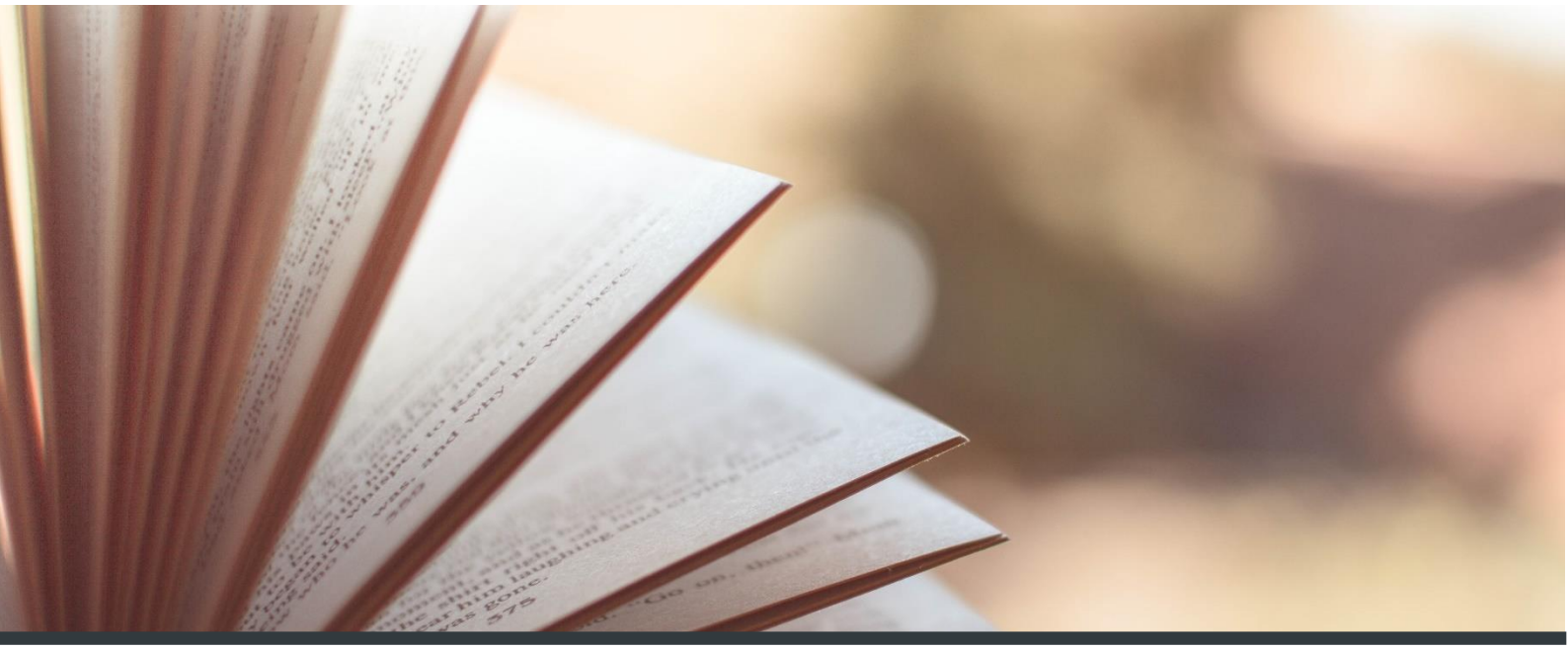
The design has successfully incorporated 45 individual apartments which helped to fund the delivery of the facility.

Although privately run by the Baptist Church the building provides a good example of how building can co-locate community facilities in a flexible and accessible manner. In this instance the facility provides space for the wider community, sports playing space, social meeting space and hireable event space in the heart of an existing residential estate.

1.14 Whilst it is important to recognise such changing ways of providing services, it is extremely difficult for an IDP to be definitive about what these could be. There are too many options open as to how this is provided and this could therefore have a significant impact on needs and costs. However, such provision, particularly on larger strategic sites such as the Garden Communities where new health hubs and schools are to provided, should be recognised as the way such infrastructure needs will be provided over the plan period.

1.15 The infrastructure detailed within the IDP has been categorised as either:

- **critical** to the delivery of the emerging Local Plan (i.e. must happen to enable growth);
- **essential** and necessary to mitigate the impacts arising from development;
- **policy high priority** as it is required to support wider strategic or site-specific objectives which are set out in planning policy or are subject to a statutory duty but would not necessarily prevent development from occurring; and
- **important** for infrastructure that is unlikely to prevent development in the short to medium term but is vital as a part of effective place-making.



2 Relevant planning policy and context for growth

National Policy

National Planning Policy Framework

2.1 The context for this Infrastructure Delivery Plan (IDP) is provided by the National Planning Policy Framework (NPPF). Paragraph 156 states:

> *"Local planning authorities should set out the strategic priorities for the area in the Local Plan. This should include strategic policies to deliver:*
>
> - *the provision of infrastructure for transport, telecommunications, waste management, water supply, wastewater, flood risk and coastal change management, and the provision of minerals and energy (including heat);*
> - *the provision of health, security, community and cultural infrastructure and other local facilities."*

2.2 Paragraph 162 goes on to state that:

> *"Local planning authorities should work with other authorities and providers to:*
>
> - *assess the quality and capacity of infrastructure for transport, water supply, wastewater and its treatment, energy (including heat), telecommunications, utilities, waste, health, social care, education, flood risk and coastal change management, and its ability to meet forecast demands; and*
> - *take account of the need for strategic infrastructure including nationally significant infrastructure within their areas."*

2.3 It is key that the IDP addresses 'strategic' infrastructure priorities as distinct from very localised infrastructure needs arising from individual planning applications. As such, the approach of the IDP is to assess the needs arising from larger identified sites which individually, or in combination, will contribute towards addressing the strategic objectives of the emerging Local Plan. It is acknowledged that there will also be growth arising from small, non-strategic sites which could be significant in certain locations. Such growth could therefore represent a burden on existing infrastructure networks. However, even in such locations it is unlikely that such growth will result in the need for additional strategic infrastructure, e.g. schools, medical facilities, utilities infrastructure. As such, it has not been addressed directly in the IDP although infrastructure providers have, in engaging with the IDP process, identified general burdens on existing infrastructure from growth which have been reflected in the study.

Local plan context and strategy for growth

2.4 Colchester Borough Council is currently preparing a combined strategic Part 1 Local Plan 2017-2033 with Braintree, Colchester and Tendring Councils and Essex County Council. This sets out, amongst other things, the strategy for delivering cross-boundary Garden Communities in East Colchester and West of Colchester. The Part 2 emerging Local Plan will include the allocations to deliver the planned growth within Colchester. Colchester's Local Development Scheme (LDS) sets out that the Examination in Public is planned for September 2017, with adoption programmed for 2018[1].

2.5 The Objectively Assessed Need (OAN) for Colchester for the period of 2017 to 2033 is 920 dwellings per year equating to 18,400 dwellings in the plan period.

2.6 Colchester has developed a strategy to accommodate the levels of housing growth required through a particular focus on the two new garden communities. The East Colchester Garden Community straddles the border with Tendring district. The second, to the west of Colchester, is located on the border with Braintree district.

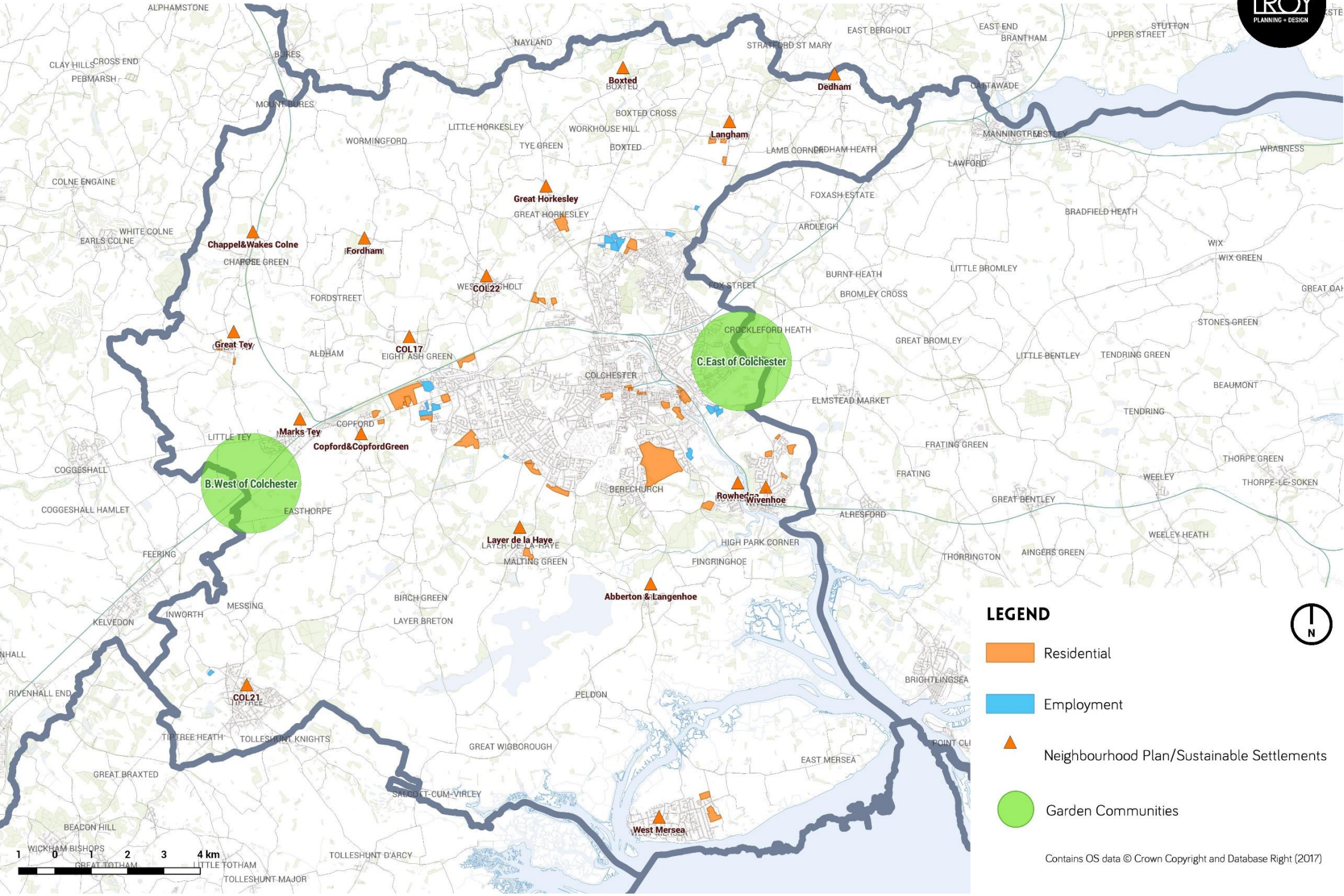
2.7 An employment land assessment carried out in 2015 reviewed the Borough's employment sites[2]. The overall gross employment floorspace need up to 2032 ranged from 60,075m^2 to 247,130m^2 of all types of employment, resulting in a need for between 21.0 hectares and 55.8 hectares of employment land. When compared with available employment space, the employment study identified that the Borough has sufficient employment floorspace in quantitative terms to meet future needs up to 2032 under all future growth scenarios. However, there is still a need to allocate sites for employment development to provide an appropriate mix and spatial distribution of that provision.

[1] Colchester Local Development Scheme, February 2017
[2] Employment Land Needs Assessment, Final Report January (2015)

2.8 The individual sites, residential and commercial, that have been assessed as part of this IDP are shown in Appendix B.

2.9 Due to the long term nature of the delivery of the Garden Communities, the housing growth of these developments beyond the plan period, i.e. post-2033, has been reflected where this has been possible. However, it is not possible or appropriate to identify a trajectory for this growth.

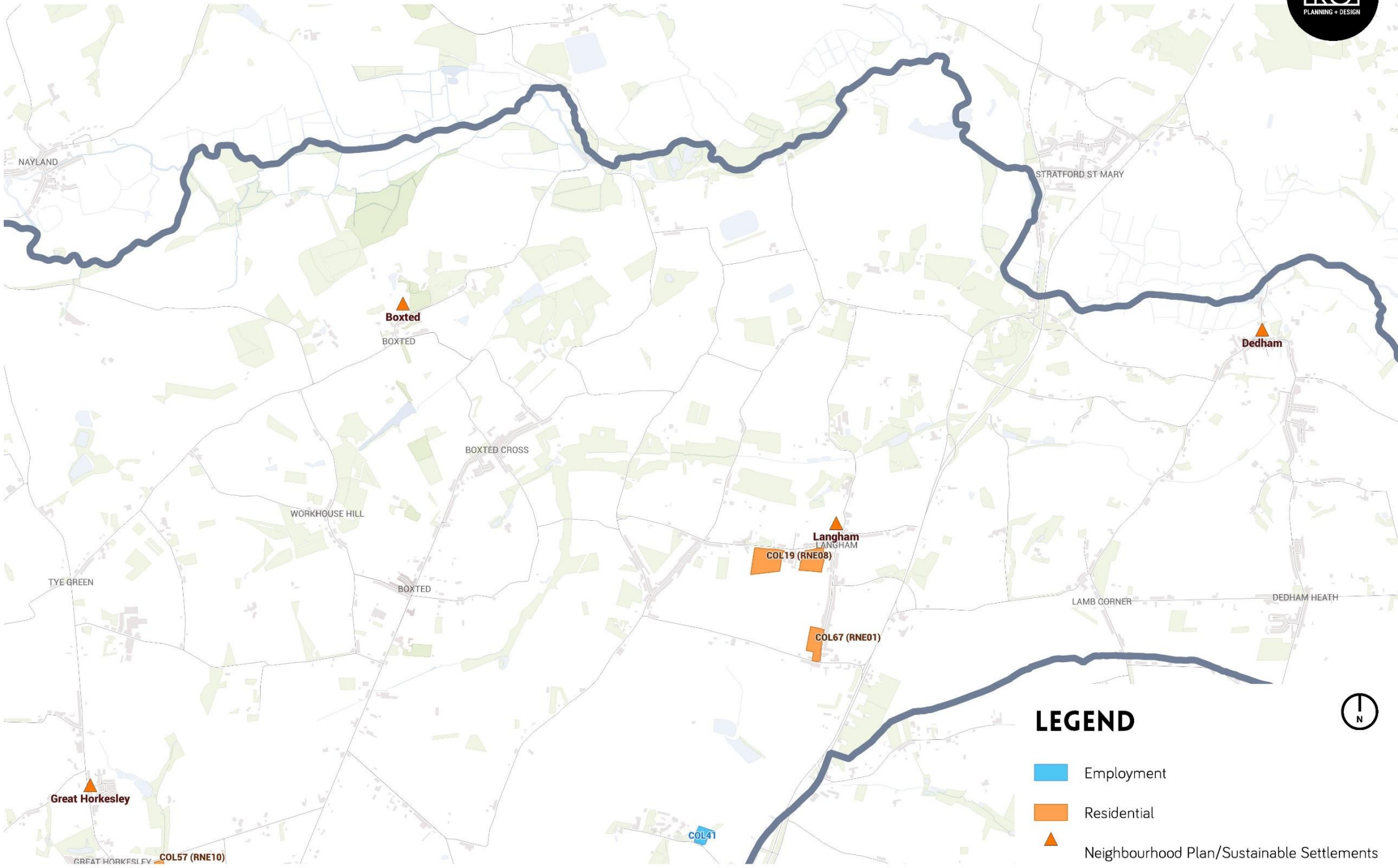
COLCHESTER – GROWTH LOCATIONS



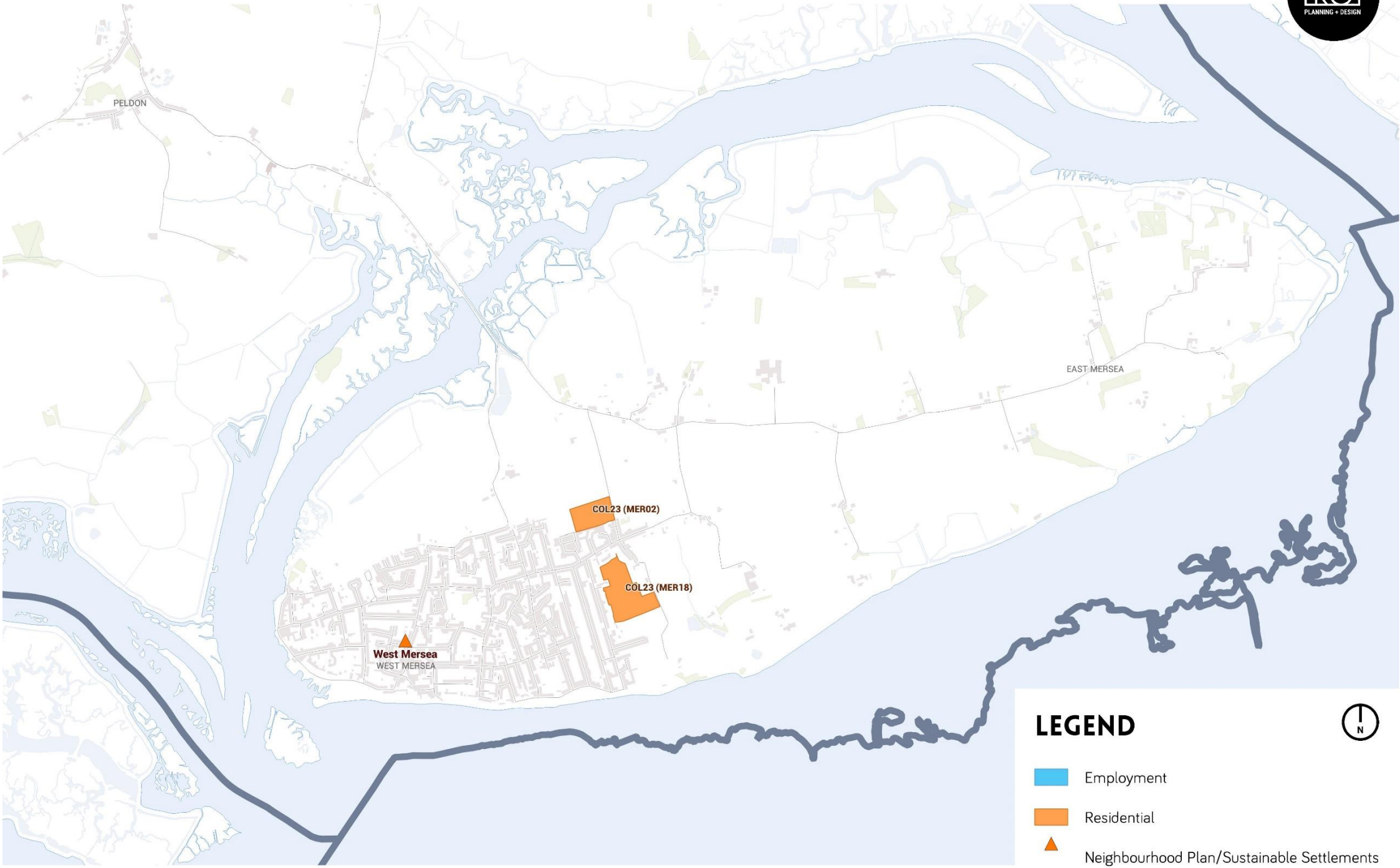
LEGEND

- Residential
- Employment
- Neighbourhood Plan/Sustainable Settlements
- Garden Communities

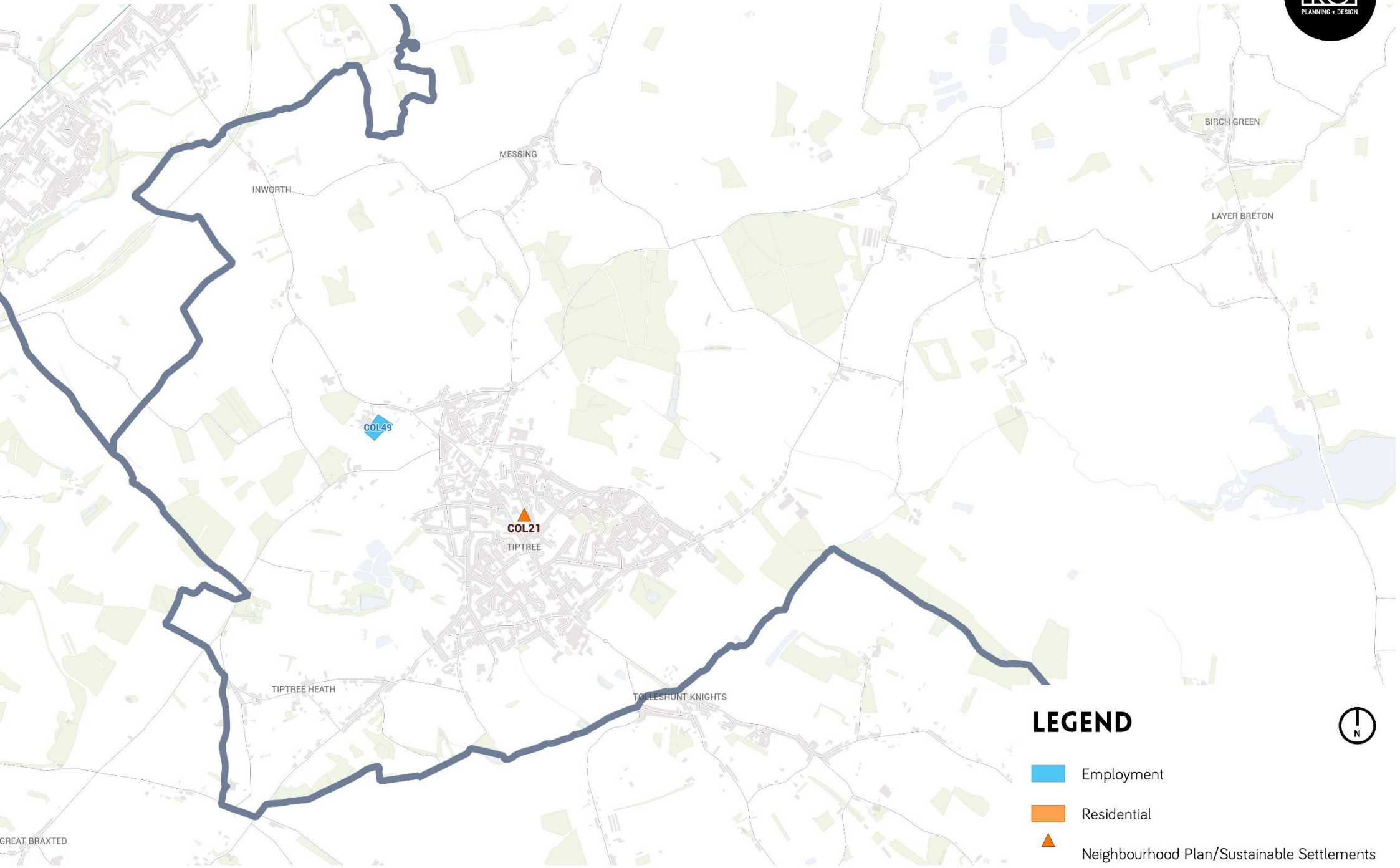
COLCHESTER NORTH EAST – BOXTED, DEDHAM, LANGHAM, GREAT HORKESLEY



COLCHESTER SOUTH - MERSEA



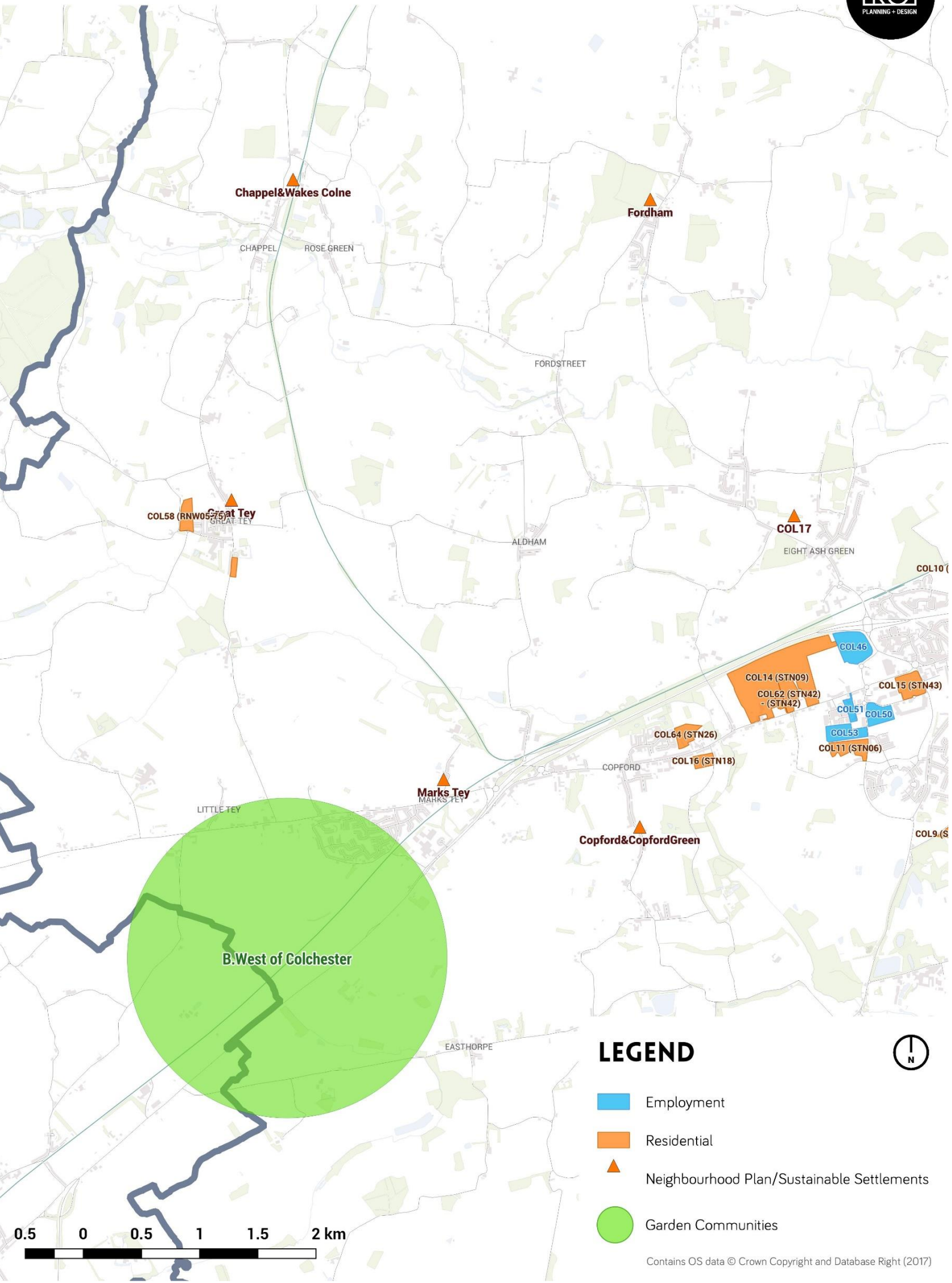
COLCHESTER SOUTH EAST – TIPTREE



LEGEND

- Employment
- Residential
- Neighbourhood Plan/Sustainable Settlements

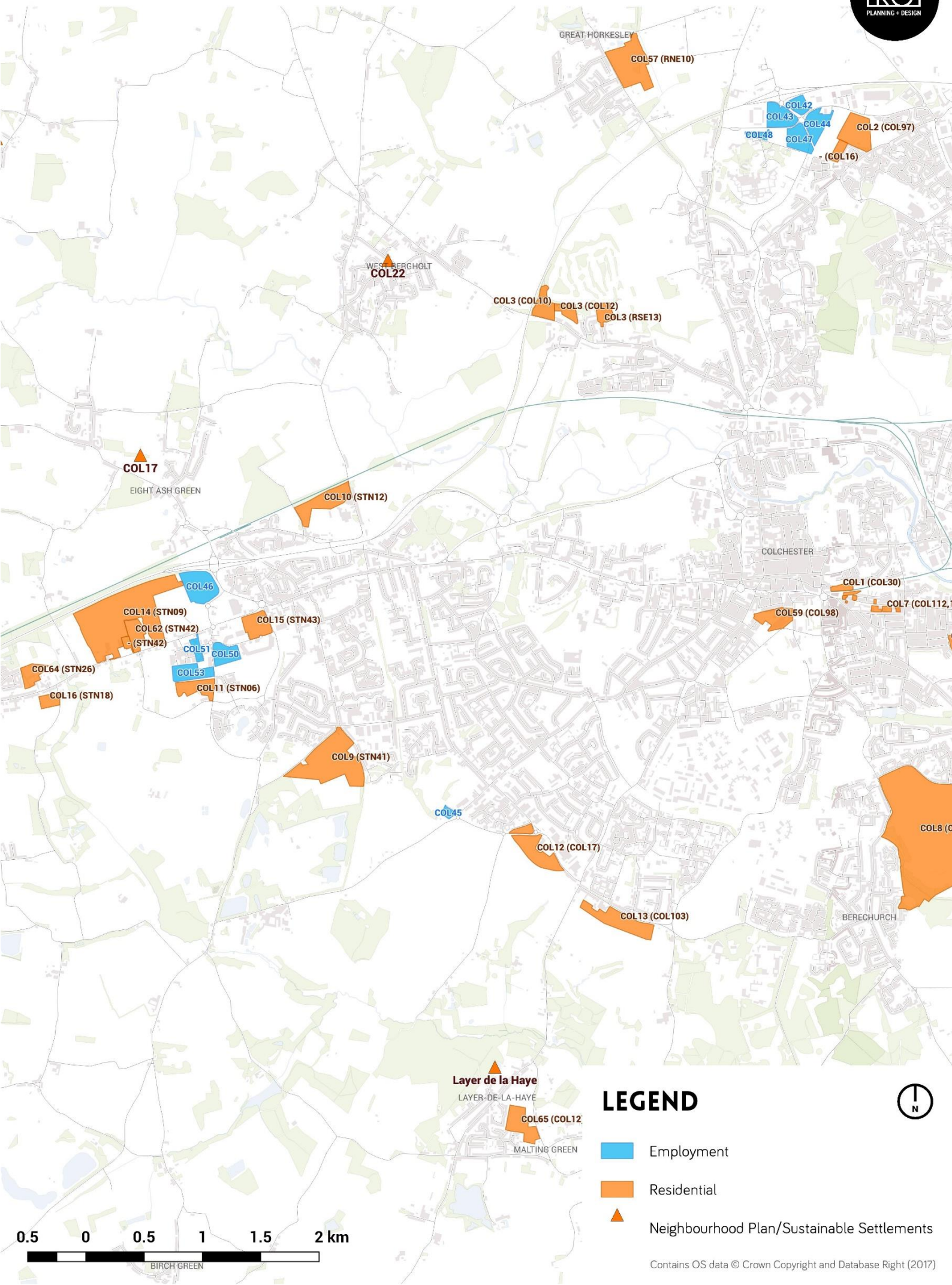
COLCHESTER WEST



LEGEND

- Employment
- Residential
- Neighbourhood Plan/Sustainable Settlements
- Garden Communities

COLCHESTER CENTRAL

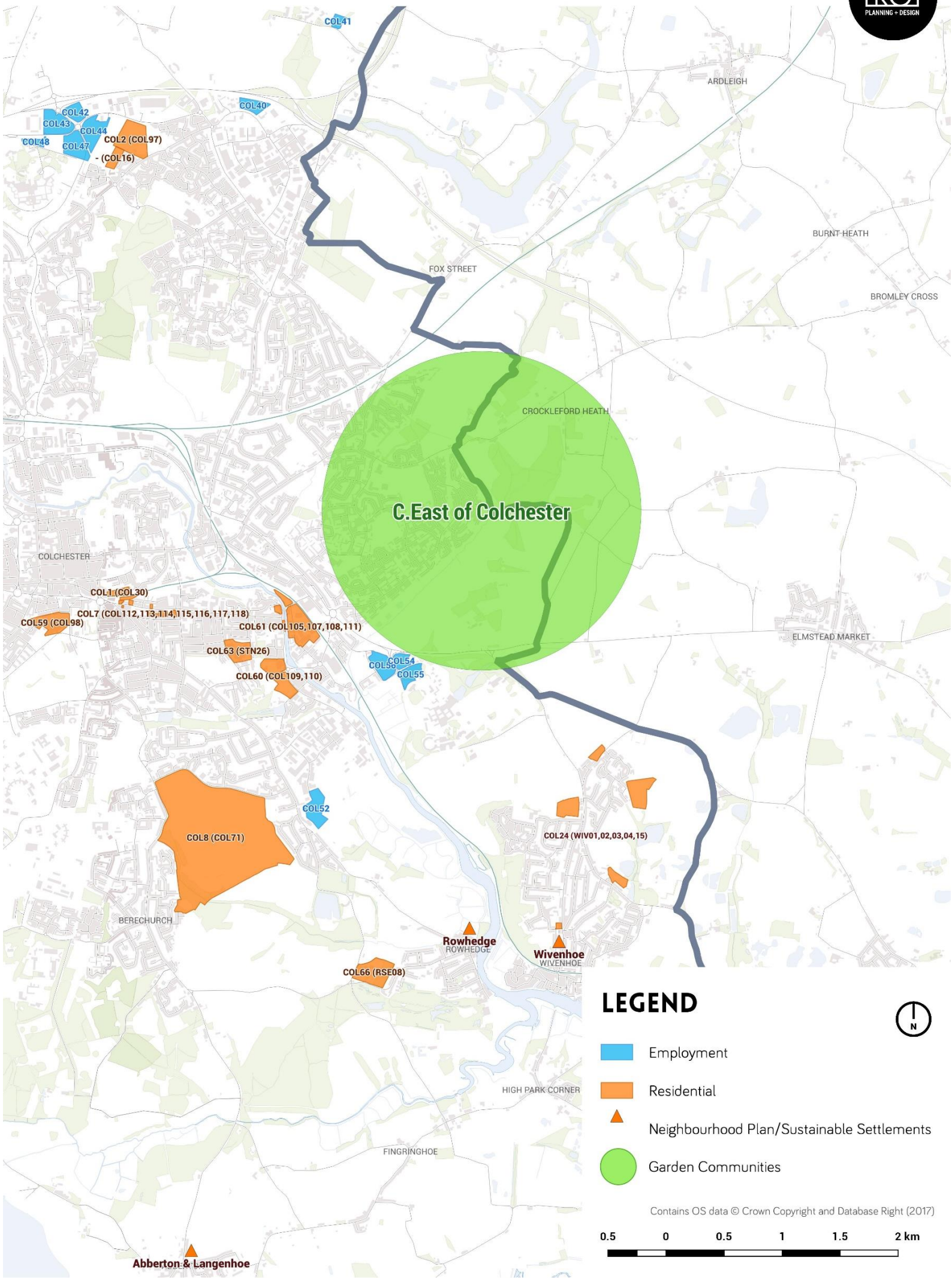


LEGEND

- Employment
- Residential
- Neighbourhood Plan/Sustainable Settlements

0.5 0 0.5 1 1.5 2 km

COLCHESTER EAST



LEGEND

- Employment
- Residential
- Neighbourhood Plan/Sustainable Settlements
- Garden Communities

0.5 0 0.5 1 1.5 2 km

3 Education

3.1 Essex County Council (ECC) has statutory duties to facilitate Early Years and Childcare (EY&C) provision within the area and ensure sufficient primary and secondary school places are available. This section seeks to simplify what is a very complicated subject, based on information provided by ECC and our own research.

3.2 We have included the following education services within our assessment:

- Early Years and Childcare (EY&C);
- Primary education;
- Secondary education;
- Sixth form education;
- Further education; and
- Special Educational Needs (SEN).

3.3 ECC delivers EY&C through a commissioning approach, with a responsibility for providing targeted support and Government funded Free Early Education Entitlement (FEEE) for vulnerable 2-year olds and FEEE for all 3- and 4-year olds, which are commissioned from the private, voluntary and independent sectors. ECC advises on the requirement for new facilities based on the places generated by the new development. Current legislation dictates that whilst the local authority can build the school an Academy or Free School will be selected to run it.

3.4 Free Schools and Academy Schools are outside local authority control but it is still necessary to consider them in pupil place planning. Of relevance to infrastructure planning is that, if there is insufficient capacity in existing schools, the local authority still has a duty to ensure sufficient places but is not able to force Free Schools or Academies to take additional children without the prior approval of these schools or intervention by the Department for Education.

3.5 All dwellings, irrespective of size or type (e.g. retirement homes), are assumed to be qualifying houses thereby providing a 'worst case' scenario. It is likely that the numbers of pupils generated by individual developments may be lower than indicated.

3.6 As part of the provision of new schools and associated sports facilities (indoor and outdoor), it is expected that such spaces will increasingly need to be available for use by the community outside of school hours. However, this will need to be considered on a case-by-case basis for both new and existing school facilities and therefore the IDP does not assume that this will happen in all cases. The assessment of leisure and recreation needs in later sections therefore reflects the overall need and cost which may ultimately be reduced if facilities can be shared.

3.7 It is important to note that the assessment of education needs by location does not necessarily mean that, where additional education infrastructure is identified, it is required solely to address the needs of that area. Particularly in a borough such as Colchester with a large urban area, education needs are best met in a range of ways. This may therefore mean that new or expanded school provision, depending on the precise location and nature of that provision, could address a proportion of the needs of neighbouring areas. This is particularly relevant for the Garden Communities. In the case of the East Colchester Garden Community, the needs identified by ECC have been based on an assessment of the needs in the overall broad location of East Colchester – this not only includes the Garden Community but large parts of the eastern side of urban Colchester. It is important to establish therefore that any specific outputs which the IDP assigns to the Garden Communities may be addressing wider needs and are not necessarily required to solely address the needs of that Garden Community.

Early Years and Childcare

3.8 The section on Primary Education identifies where new primary schools are required. In such circumstances, this provision will also include a 56-place nursery unless otherwise stated.

3.9 In summary, new primary schools will provide new nursery provision in the following locations:

- Hythe and East Colchester – one nursery.
- Stanway, Copford and The Teys – one nursery.
- Colchester South and South East – one nursery.

3.10 The cost of providing each nursery would be included in the overall £7.3m cost of providing the new primary school. It would be misleading to separate out this cost. ECC currently seeks contributions of approximately £13,000 per place to provide additional or expanded facilities.

3.11 In the Garden Communities, new provision will likely be a mixture of provision as part of new primary schools and stand alone facilities.

3.12 In East Colchester, there is an existing shortfall of 40 places. The new growth at the Garden Community will require an additional 260 places, so in total five new 56-place facilities will be required. These will cost £3.9m, although, as explained above, some of this cost will be included in the cost of building a new school where it includes an EY&C setting. There will be an additional requirement of a further four facilities beyond the plan period.

3.13 In West Colchester, the new growth at Garden Community will require an additional 225 places, so in total four new 56-place facilities will be required. These will cost £2.9m, although again some of this cost will be accounted for through the provision of joint primary/EY&C facilities. There will be an additional requirement of a further twelve facilities beyond the plan period.

3.14 In Stanway and the rural north west, there are the following requirements:

Table 3.1: EY&C requirements in Stanway and rural north west

Location	Existing shortfall	Additional needs	New requirement
Stanway	5 places	127 places	2 new 56-place facilities plus expansion of existing facilities
Eight Ash Green	-1 place	13 places	Expansion of existing facilities
Great Tey	0 places	5 places	Expansion of existing facilities
Copford	2 places	10 places	Expansion of existing facilities

3.15 The cost of this provision has been estimated at £3.6m.

3.16 In Wivenhoe there is a surplus of three places and a requirement to support growth of 27 new places. A new EY&C facility will be incorporated into the school expansion project, likely to be at Millfields School (see Primary Education section). The cost of this provision has been estimated at £359,000.

3.17 In Colchester South West there is a shortfall of 19 places and a requirement to support growth of 31 new places. A new EY&C facility will be incorporated into the school expansion project, although it is not clear where this will be at present and could be outside the forecast group area (see Primary Education section). The cost of this provision has been estimated at £403,000.

3.18 In Colchester South and South East there is a shortfall of 53 places and a requirement to support growth of 202 new places. Four new 56-place EY&C facilities will be needed. Some will be incorporated into the school projects (see Primary Education section) and others will need to be on separate sites. Given that one new primary school is proposed for the area, then it is assumed that a further three stand-alone facilities will be required. The cost of this provision has been estimated at £3.54m.

3.19 In Colchester North and Rural North East there is a shortfall of five places and a requirement to support growth of 65 new places. A new 56-place EY&C facility will be needed along with some expansion of existing facilities. The cost of this provision has been estimated at £871,000.

3.20 In Colchester Rural South West there is a shortfall of seven places and a requirement to support growth of five new places. This will be achieved through expansion of existing facilities. The cost of this provision has been estimated at £65,000.

3.21 In Tiptree there is a requirement to support growth of 54 new places. This will be achieved either through expansion of existing facilities or provision of a new facility which could be part of the new primary school provision required. The cost of this provision has been estimated at £702,000.

3.22 In Mersea there is a surplus of five places and a requirement to support growth of 18 new places. This will be achieved through expansion of existing facilities. The cost of this provision has been estimated at £234,000.

3.23 Where expansion of existing provision is required, ECC has reported that many existing settings are not capable of expansion in their existing location. As such, alternative solutions for provision will need to be found and these should be considered on a case-by-case basis. Whilst a significant proportion of provision is made by the private sector and it is assumed that this will continue, it is necessary for the purposes of planning to work on a cautionary basis that the private sector it is not in a position to expand.

Primary Education

3.24 The following principles have been used by ECC to determine the overall needs and costs:

- New primary schools are assumed to be two forms of entry (2fe) with a 56-place nursery unless otherwise stated. The cost of such provision is approximately £7.3m.
- Expansions are costed at £12,218 per primary school place. All costs in this section are quoted at April 2016 prices and all contributions must be index linked to this date.
- Land and site preparation costs are excluded. As per the 2016 ECC Developers' Guide to Infrastructure Contributions[3], it is expected that the developer will provide free, fit-for-purpose sites that are fully serviced and remediated.
- Contributions from development should be secured though s106 agreements unless otherwise stated.

[3] http://www.essex.gov.uk/Environment%20Planning/Development-in-Essex/Documents/Developers-guide.pdf

- Where the need for new schools are identified against a site, other sites that benefit may be required to contribute towards both land and build costs.
- Where school facilities are to be used outside school hours by local communities, e.g. sports facilities, the education authority is not expected to bear any of these additional costs and fees would apply to their use.
- The Local Plan should specifically allocate education land as Class D1 use to avoid projects becoming unviable over the lifetime of the development due to attributing residential land values.

East Colchester (including East Colchester Garden Community)

3.25 Overall, the Garden Community and other sites in East Colchester will generate the need for six schools, two of which will be required within the plan period. The first should be capable of accommodating 3fe (2.8ha). It may be appropriate for it to be co-located with the secondary school that is required.

3.26 It is not possible to determine the exact proportion of growth that will be accounted for within Colchester borough. Moreover, the strategic nature of the site and its delivery means that it would not be appropriate to separate out the infrastructure needs between Colchester and Tendring districts.

3.27 The first, 3fe primary school will cost approximately £10.2m. Each of the subsequent five schools would need to be 2fe, on 2.1ha sites and would cost approximately £7.3m each.

3.28 The first, 3fe primary school should be delivered within two years of commencement of development.

Stanway and Rural North West (including West Colchester Garden Community)

3.29 Overall, the Garden Community will generate the need for twelve schools, two within the plan period. All of these schools would be 2fe.

3.30 Each school would require a 2.1ha site and cost circa £7.3m. Whilst this represents a total investment of £102m, for the plan period the cost would be £14.6m.

3.31 St Andrews Primary School in Marks Tey potentially has a limited number of places to take the first 100 homes but this flexibility may be reduced if places are taken to accommodate growth elsewhere in the Stanway and Rural North West Group area. Therefore, the first 2fe primary school will be required early on in the lifetime of the development, most likely around 2023/24.

3.32 Apart from the Garden Community, capacity within this Group in the Stanway area is under pressure from population growth and development in the planning pipeline. ECC's 10 Year Plan suggests this can be met by the expansion of Stanway Primary and Fiveways. The additional growth required from these sites is circa 2fe. ECC have the option of a new school site at Lakelands.

3.33 To serve the growth across the Stanway area, a new 2fe school is required. This will cost £7.3m. The option of a larger, more flexible site than the one at Lakelands (currently only 1fe) should be

considered. It is recommended that this is explored further with ECC before the Local Plan allocations are finalised.

3.34 In Eight Ash Green, Holy Trinity School has a planned admission number (PAN) of 20 (effectively two-thirds of a form of entry) but exceed this number in most years. The school has available land and therefore could be expanded to 1fe.

3.35 The growth planned at Eight Ash Green should make a contribution of approximately £550,000 towards the expansion of Holy Trinity School to 1fe.

3.36 In Copford, Copford Primary is full and half its capacity is provided by relocatable classrooms - which also roughly equates to its out-of-catchment intake. Overall there is some limited capacity to accommodate growth but this is limited by the fact that other schools in area are under pressure.

3.37 The growth planned at sites in Copford should contribute towards the replacement of the relocatable classrooms at Copford Primary School at a cost of approximately £440,000.

Wivenhoe

3.38 Even without new development, school capacity in Wivenhoe is under pressure. Millfields will take a 'bulge' year in 2017.

3.39 To support growth across Wivenhoe, the area will require a 1fe expansion. Broomgrove, the priority admissions area school for development locally, has the site area to expand but this would make it 3fe. Feasibility work is underway regarding potential expansion of Millfields. A contribution from development of approximately £1m should address the needs arising from growth.

Colchester South West

3.40 Demand in the area is rising and a 1fe expansion of Home Farm is planned. Although this will provide some flexibility with regards to timing, it will not provide sufficient capacity for the additional development. Neither the priority admissions area schools for these development (Gosbecks and Hamilton) have the site area to expand.

3.41 The growth planned will require expansion of an existing school totalling 0.5fe. This may have to be found outside the Colchester South West forecast group, potentially in the Colchester South and South East area. A cost of approximately £1.3m should be allowed.

Colchester South and South East

3.42 This group is already under pressure with a number of expansion projects either planned or in progress. There are few cost effective options that remain for expansion.

3.43 To support the growth of sites in the area, a new primary school is required of at least 3fe. Other minor expansion projects may also be needed. The Middlewick Ranges site would provide the opportunity to establish a new school.

3.44 A school site of 2.8ha should be secured. These development sites should contribute approximately £11m.

Colchester North and Rural North East

3.45 The development of the Colchester Rugby Club site is significant and cannot be accommodated within the capacity of the local schools. However, its proximity to the North Growth Area may provide options to accommodate these needs. A contribution of approximately £1.1m should be secured from this development to provide for additional capacity at schools serving the North Growth Area.

3.46 For development at St Johns, St John's Primary School is full and is using a relocatable classroom to take a bulge class. Its site area, including the detached playing field, are not sufficient for significant expansion. An expansion project will therefore need to be found but at present there are no clear options. A contribution of approximately £500,000 will be required from this site. It will be vital that there is ongoing dialogue with ECC to consider whether there are options to address this shortfall in provision.

3.47 For growth in West Bergholt, Heathlands School cannot be expanded. However, although the school is unable to take the full pupil product of this level of development, over time pupils can be 'pushed back' to other schools[4]. A contribution of approximately £250,000 may therefore be required to fund expansion elsewhere.

Tiptree

3.48 There is some current surplus capacity in the area but the Reception year group will fill from 2022/23. Feasibility work has not been completed by ECC but Baynards or Mildene Schools have a site area to expand by at least half a form of entry each. Full form expansions are preferred and, therefore, a new school could be required.

3.49 Given that the need for a new school has yet to be confirmed, it is appropriate to focus the growth across Tiptree on expansion of the existing schools, for which a cost of approximately £2.2m should be assumed.

Other small sites

3.50 The implications on primary education of a number of smaller sites in the Neighbourhood Plan/Sustainable Settlements were also tested. In summary:

- St Runwald's Street, Colchester, 40 dwellings

[4] 'Pushing back' refers to a situation where children being schooled out of catchment can instead be expected to be educated at their catchment school. In such circumstances where their catchment school is full, this may mean pushing back of pupils from out of catchment that are at this school as well.

- Irvine Road, Colchester, 8 dwellings
- Place Farm, Old Heath Road/Rowhedge Road, Colchester, 30 dwellings

3.51 Given their location these sites will add to pressure already identified but are not that significant as to require an alternative strategy for primary education provision.

- Land west of Peldon Road, Abberton, 50 dwellings
- Land east of Peldon Road, Abberton, 5 dwellings

3.52 These sites are within the priority admissions area of Langenhoe Primary School. The school is full and forecast to remain so. No feasibility work has, to date, been completed but the school does have sufficient site area to expand.

- Swan Grove, Chappel, 30 dwellings
- Plummers Road, Fordham, 20 dwellings

3.53 Neither Chappel Primary School nor Fordham All Saints Primary School will have capacity for these developments according to forecasts. Both are small schools, on small sites, with temporary accommodation that would need to be replaced to accommodate any growth. Neither development is large and some push-back to other schools in the area is considered to be possible.

Secondary Education

3.54 The principles for secondary education are the same as those for primary education. The only amendments and additions are:

- Expansions are costed at £18,561 per secondary school place. This is index linked to April 2016 prices.
- Sufficient land has been allowed at proposed secondary schools for sixth forms but build costs for post-16 provision are excluded.

Colchester and surrounding areas

3.55 Additional demand from population growth and housing already in the planning pipeline is expected to peak around 2023/24 with around 18 extra forms of entry being needed across Colchester. This timing is problematic as the East Colchester Garden Community could have commenced, and around 2fe from other proposed sites could be added to the overall requirements. It would be difficult to open a new school on either the East Colchester and West Colchester Garden Community this early due to the time period for construction and the critical mass of pupils needed. Bulge classes at the new Northern Growth Area school may provide some flexibility. The option of additional capacity at Thomas Lord Audley School may also be considered to provide appropriate capacity in the short term.

3.56 Overall, the East Colchester Garden Community will generate the need for a new secondary school for around 9fe. This will be needed early in the plan period, notwithstanding the issues with early provision identified above.

3.57 The school should be provided on a minimum 9ha site and will cost approximately £30m (excluding 6th form) to build.

3.58 As with primary education it is not possible or appropriate to determine the exact proportion of growth accounted for by growth within Colchester borough compared with growth arising in Tendring district.

3.59 A second school will be required beyond the plan period to serve the Garden Community. This would have the same land requirement and cost, i.e. £30m on a 9ha site.

3.60 On the assumption that the East Colchester Garden Community delivers a new school early in the period but not in the first five years, i.e. around 2023/24, a secondary school on the West Colchester Garden Community may not be required until approximately 2027. A 6fe school may be sufficient during the plan period but a 5% surplus across the area (to manage mid-year admissions and provide choice) is considered best practice. An 8fe school on a 9ha site costing £30m is thereby considered appropriate to ensure the Local Plan is sound.

3.61 Three further secondary schools of the same size will be needed to accommodate the growth beyond the plan period at the West of Colchester Garden Community.

Tiptree/Colchester Rural South

3.62 Thurstable School may expand by a form of entry in approximately 2023. However, the size and timing of this scheme may change if planned growth in Maldon puts pressure on The Plume School (which in part shares a priority admissions area with Thurstable).

3.63 To accommodate growth in Tiptree and Mersea, an additional form of entry at Thurstable School is required. This will cost approximately £3m. Given the needs arising from growth in Maldon district, the overall scale of growth of the school may be greater over the plan period.

Funding of Early Years and Childcare, primary and secondary education

3.64 Funding will predominantly come from developer contributions. Where specific school/EY&C sites are identified and appropriate levels of contribution can be secured from no more than five sites, then S106 contributions can be pooled. Outside of this, other contributions will come from CIL.

3.65 Some limited funding will also come from Central Government Basic Need funding. Although this funding is only expected to address the needs of the population being schooled at the time, i.e. not the needs arising from future growth, in many cases where existing schools are expanded it will be difficult to distinguish between the two in terms of additional provision.

Timing and delivery of Early Years and Childcare, primary and secondary education

3.66 All items are seen as critical to the sustainability of the developments proposed.

3.67 Land should be transferred to ECC prior to first occupation, and subject to an assessment of existing school provision, other sites in the area may need to commence/be phased on delivery of the new facilities. There may be some flexibility to bring forward modest development earlier depending on build and birth rate fluctuations. Smaller projects will be timed once precise unit mix and development phasing is known.

3.68 ECC will take the lead but delivery of schools may be in partnership with an Academy and EY&C with a private provider. Where new sites for education facilities are required, ECC requires that the necessary land is provided for free and is fit for purpose, i.e. is fully serviced and remediated. This requirement is identified in the ECC Developers' Guide.

3.69 ECC has indicated that its requirements would need to be kept under review if these developments did not come forward in the first 10 years of the plan period. This is particularly relevant for the major strategic sites where longer timescales are expected to be the case.

Post-16 Education

Sixth Form Education

3.70 Sixth form education is distinct from Further Education (FE) which is mainly provided by the private sector.

3.71 Of the non-selective schools in the borough, currently only Philip Morant (Colchester town) and Thurstable (Tiptree) have sixth form provision. At present, both of these schools have plenty of capacity to increase the number of sixth form students they admit. However, the majority of academic provision in Colchester borough is currently provided by the two grammar schools and Colchester Sixth Form College. These are all either full or close to capacity and will need support to increase capacity to meet the future needs of the area. These providers (in addition to Colchester Institute) all attract many students who travel to learn into the town from surrounding districts (including Suffolk).

3.72 The Greater Essex Growth Investment Framework 2017[5] identified that between 2016 and 2026, the identified growth in pupil numbers will require 320 additional sixth form places to be provided in Colchester borough. As stated above, the focus for this is in the Colchester urban area.

[5] AECOM (2017) *Greater Essex Growth Investment Framework*, final report

Further Education

3.73 Further Education (FE) addresses vocational post-16 education needs, i.e. people being educated in a setting other than a sixth form. It is provided by the private sector.

3.74 Colchester Institute serves the populations of the towns of Colchester and Braintree and the wider area of North Essex, including Tendring. It does this at its campuses in Colchester (Colchester Institute, Stanway Engineer Training Centre and Minories Gallery), Braintree, Clacton and Harwich Energy Skills Centre.

3.75 Colchester Institute has recently made improvements to its Colchester campus to better focus on growth and priority areas and resources to support Engineering, Construction and Digital Media. £20m has been spent at the Colchester campus in the past four years to improve the learning experience and support skills priorities, and this work will continue in accordance with estates masterplans.

3.76 Key future plans include:

- Introduction of Advanced Manufacturing and Engineering provision to the Braintree Campus opening in Spring 2017 (part of a £6 million investment which will provide the first engineering skills provision in the district).
- Introduction of Digital Media facilities and curriculum to the Braintree Campus from Spring 2017.

3.77 In addition, it is proposed that there will be expansion of apprenticeship provision to include Degree and Higher Level Apprenticeships, in particular in:

- Pharmacy Services
- Software Technician
- Cyber Security
- Care and Leadership Management
- Pharmaceutical Science / Lab Technician
- Network Engineer
- Advanced Manufacturing Technologies
- Engineering Management
- Engineering Design
- Manufacturing Quality Control and Process
- Dental Practice Manager
- Day Care Manager

3.78 No specific other infrastructure needs were identified.

Costs and funding

3.79 It is important to be cautious in the use of these figures. One of the main reasons is that, over the plan period, there are likely to be significant changes in post-16 education provision and demands. In particular there is likely to be increased rigour in academic and vocational Level 3 programmes and the Apprenticeship Levy which is expected to have an impact on the number of young people in post-16 education and the split between sixth form and further education. In addition, it is forecast that students will travel increasing distances to learn, making predictions about demand for places very difficult.

3.80 The same applies to costing provision, as this depends on the types of courses sought and the setting. It is assumed however that any costs associated with further education will be met by private sector sources. Ensuring that additional places are provided is therefore complicated because the decision on whether to expand lies with the provider which is dependent on funding that comes direct from Central Government. In addition it is expected that, in the short term, there will be changes to the existing funding framework.

Special Educational Needs (SEN)

3.81 In the Special Educational Needs Strategy 2014-19, Essex County Council undertook to commission a continuum of provision for pupils with special educational needs.

3.82 Approximately 3% of the Essex pupil population at any one time are designated as high needs pupils requiring additional support over and above that normally available in a mainstream school and require specialist support or provision. The majority of pupils receive this support in their local mainstream school although a small but significant number of pupils require support in specialist settings such as a mainstream enhanced provision, a maintained special school/academy or an independent special school.

3.83 Specialist provision in Colchester borough is configured as follows:

School name	Phase	Enhanced provision type	Places Sept 2017
Cherry Tree Primary School	Primary	Primary Speech & Language	15
Lexden Primary School with Unit for Hearing Impaired Pupils and Nursery	Primary	Primary Hearing Impaired	18
The Philip Morant Hearing Impaired Provision	Secondary	Secondary Hearing Impaired	18

3.84 Essex Special Schools are currently classified in four main funding categories.

- Severe Needs Special Schools

- Complex Needs Special Schools
- Social Emotional and Mental Health Needs (SEMH) Primary day and residential
- SEMH Secondary day and residential

3.85 Special School provision in Colchester borough is configured as follows.

School name	School type	Places Sept 2017
Langham Oaks	SEMH Sec	68
Kingswode Hoe School	Complex Needs	132
Lexden Springs School	Severe Needs	160

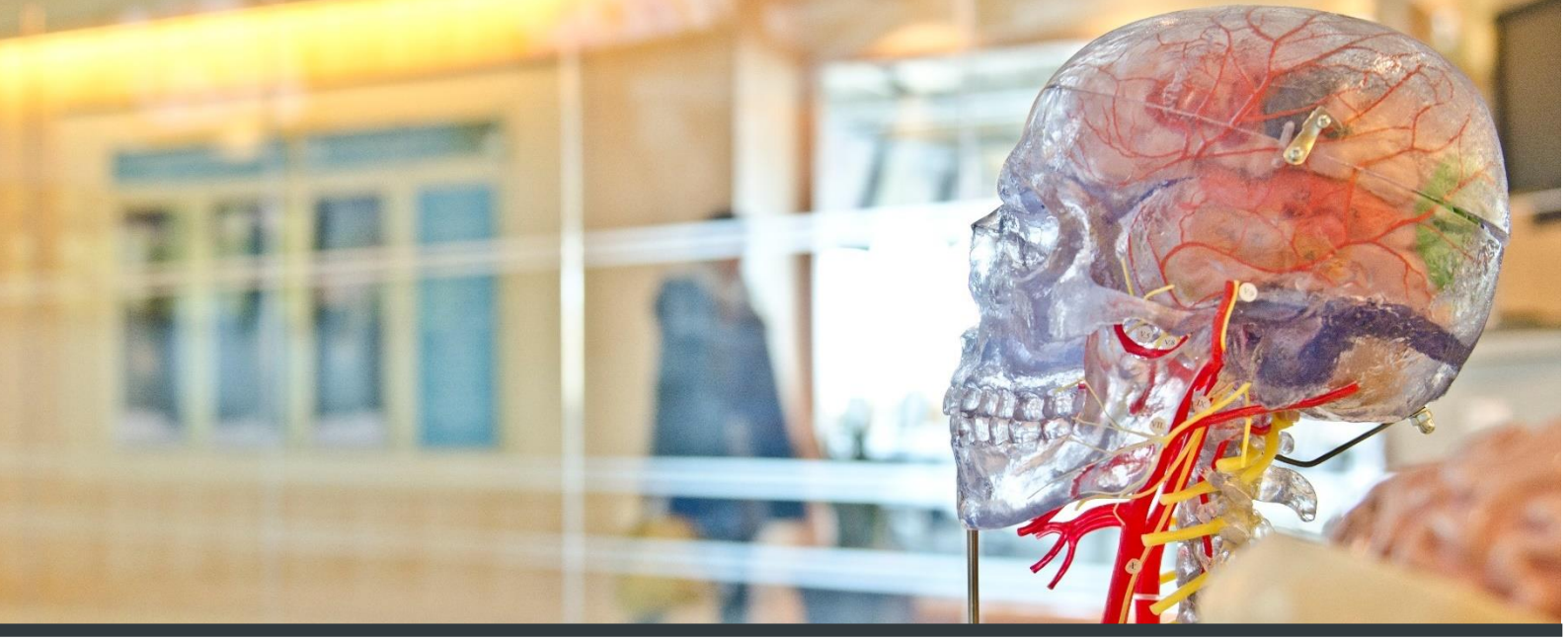
3.86 Due to increased demand for specialist places for pupils with Autistic Spectrum Conditions and Social, Emotional and Mental Health Needs the local authority has supported two free school applications from Education Trusts who are sponsors of outstanding Essex Special Schools to open new schools in Mid Essex.

3.87 These applications have received initial approval from the Department for Education and when established will provide for a further 145 places (20 of which will be Monday to Thursday term time only boarding) for pupils with severe and complex needs, autism and challenging behaviours associated with their autism.

3.88 In addition, Essex County Council has published plans to establish a further 104 places of which 30 will be boarding by expanding existing special schools in Mid and North Essex. One of the two schools in question is Lexden Springs.

3.89 Essex currently has around 130 pupils from Mid and North Essex placed in independent schools. The strategic intention is that future pupils with similar needs will be able to have their needs met in an Essex Special School or specialist provision, meaning they can remain in their local community. A reduced reliance on expensive independent school placements will allow resources currently spent in that area to be spent delivering outstanding outcomes for pupils in their local community.

3.90 All funding for pupils with high needs comes from the High Needs Block of the Dedicated Schools Grant, the Government are currently consulting on fixing the high needs block for each authority as part of the proposed National Funding Formula arrangements. Therefore it is important to maximise outcomes and experiences delivered for pupils with high needs from within that fixed sum.



4 Health and Social Wellbeing

4.1 For the purposes of the IDP, health and social wellbeing consists of the following:

- General Practitioner (GP) services
- Hospitals
- Social care
- Public health

4.2 This analysis does not take into account specific wider primary care service needs such as dentists, pharmacies, opticians, community health (health visiting, school nursing, midwifery, district nursing, etc). All of these services will be impacted by demand from growth and therefore any changes in provision, e.g. a move to provision of fewer, larger primary care hubs, could mean that such services are provided in a similar way. However, with many of these services provided privately, this will be addressed by the providers themselves.

4.3 The Health and Social Care Act 2012 has radically changed the way that primary care services are planned and organised. This has facilitated a move to clinical commissioning, a renewed focus on public health and allowing healthcare market competition for patients. This is primarily provided by the Clinical Commissioning Groups (CCGs), with Colchester covered by the North Essex CCG. The CCG is responsible for planning and buying ('commissioning') local health services.

4.4 Separately, Sustainability and Transformation Plans (STPs), are being prepared for wider areas that incorporate some or all of the CCG areas. The North Essex CCG area is covered by the North East Essex, West and East Suffolk STP. The draft STP, published in October 2016, summarises the work to date and outlines how the system-wide plan can be delivered across organisations, how the known and emerging risks can be managed, and how by working together the quality and safety of care

provision can be improved. The document is currently out for public consultation with a view to finalising it later in 2017.

4.5 Public health services are provided by Essex County Council in partnership with the respective local authorities. These services are focused on prevention and early intervention, specifically developing measures that help to reduce illness and to tackle the causes of poor health at source. This includes initiatives to increase activity and healthy living, such as cycling and walking, as well as provision of green space within developments. The strategic overview of the STPs includes consideration of these issues.

Primary Care Services

4.6 The Primary Care Strategies of the CCGs focus on the following key areas:

- General Practice to be provided at scale aligned to defined neighbourhoods of a minimum of 50,000 practice list size
- The creation of a neighbourhood multi-disciplinary primary care workforce embedded in the Care Closer to Home model of care. This will provide General Practice that is fully integrated care with the local authority and voluntary sector delivering services in a co-located primary care hubs.
- Improved use of technology in General Practice.
- Improved quality of care and safety of General Practice.
- Increased patient access – seven day services and reduce demand in the wider healthcare system through improved prevention and self-care.
- Fit for purpose estate for the delivery of modern General Practice.
- Supporting the development of a resilient General Practice workforce.

4.7 A particular focus of the STPs is bringing simple diagnostics and care more into communities. This doesn't necessarily mean needing more properties but trying to find space in existing surgeries for activity that would traditionally be found in an acute care setting.

4.8 The CCGs are also looking at more prevention-based and integrated service provision with social care. Ideally they would like citizens advice, mental health, yoga, pilates, a cyber café, etc, as part of the hub provision.

4.9 This growing focus on bringing care provision into a single point within the community means in practice the creation of primary care hubs. It is envisaged that GPs will share buildings with a wide range of health providers, including dentists, pharmacies, optometrists, opticians, etc. There may be some smaller 'spoke' facilities which provide particular specialisms not otherwise provided at the main hub. Often the need for a spoke facility will be because of geography, e.g. an area of population

is not large enough to merit its own hub but is physically separated from the main hub by a river, making journey times unacceptably long for patients.

4.10 In addition the CCGs have set out in the STPs to review where they may need to increase estate, or invest in buildings and infrastructure to make them fit for purpose in order to support the scaling up of primary care services identified above and also the provision of care closer to home.

4.11 The approach taken by the two national property arms of the NHS (NHS Property Services and Community Health Partnerships), which advise the CCGs, is that they would not generally build a GP surgery just for the residents of a new development. They are seeking much larger practices that follow the 'hub' model and such provision can rarely be justified through Section 106 contributions or in terms of the large amount of land that would be sought to develop a hub from a single development. In order to develop hubs, the preferred approach would be to relocate an existing practice or practices into a new facility that, with the wider growth planned, will eventually become a hub facility.

4.12 New facilities don't have to be stand alone buildings. Any way of keeping revenue down is desirable. So, for example, a hub may have residential development above it, retail provided on site or community uses as part of the same site. It could also be co-located with extra care provision – this could be included as part of the planned extra care provision on the Colchester Rugby Club site. Essex County Council would deliver the building as extra care provider and then the healthcare providers could take another part of the site or building.

4.13 There are also CCG priorities related to services being:

- Paper-free at the point of care
- Provided digitally
- Improving population health and wellbeing through the use of information, insight and innovation
- Modern infrastructure, systems and services.

4.14 This in turn will lead to the 'Digital Patient' programme which will provide alternative methods for patients and the wider community to receive and contribute to care using technologies that most appropriately meet their needs. Practically this could mean the use of video-conferencing services, e.g. Skype, to reducing the need for face-to-face appointments and care.

Hospitals

4.15 The Colchester Hospital University NHS Foundation Trust provides acute, outpatient and maternity services to the Colchester borough area. Acute services are provided at Colchester General Hospital in Colchester, with outpatient and maternity services also provided at community hospitals in Clacton and Harwich in Tendring district and Halstead in Braintree district.

4.16 The STPs envisage that, over the next five years, hospital services will be reconfigured and transformed, with new models of care meaning more care will be provided as close to people's homes as possible. In particular, Colchester and Ipswich Hospitals will build on their partnership work. This will include a range of significant clinical reconfiguration projects, centralisation of services and programmes to improve quality, safety and patient experience. It is likely that there will be changes to where some services are delivered.

4.17 In line with Primary Care Strategies and shifting care closer to home where possible, it is envisaged that the impact on the acute sector will culminate in the greater complexity and health needs of patients presenting in the acute sector. Hospitals will need to be redesigned to treat the patients of the future, with specific redesign based upon:

- Greater community based care for less acute patients.
- Ageing population.
- Hospital facilities which maximise the potential to treat the most needy in the most efficient manner possible, centralising services and maximising economies of scale.
- Greater treat and discharge models of care, linking to increased community and social care provision.
- Move to designated day-case and ambulatory models of care and settings.
- Increased health needs/acuity of those patients presenting in the acute sector.
- Provision of the transfer of patients to less acute settings as soon as clinically appropriate, providing patients with care closer to home as soon as possible.
- The centralisation of support functions and services, such as Pharmacy, enabling the greater provision of community healthcare whilst maintaining the most acute patient care within the acute setting.
- Repatriation of tertiary services where practically possible.

4.18 At this current time it is not possible to accurately determine the nature of any infrastructure requirements related to hospital-based care but advice from the Hospital suggests that the existing hospital site will be capable of providing facilities for the enlarged population over the lifetime of the plan.

Social care

4.19 Social care for both adults and children is provided by Essex County Council (ECC). This covers a range of functions and services and is provided by a range of different providers. There is money in the ECC Capital Budget for vulnerable people, independent living and Essex Cares Limited, a separate

company that provides services to allow people to live independently in their homes. This includes supporting adults with learning, physical, sensory or mental health needs.

4.20 Essex County Council can make specific provision of built infrastructure for care services, e.g. extra care.

Public health

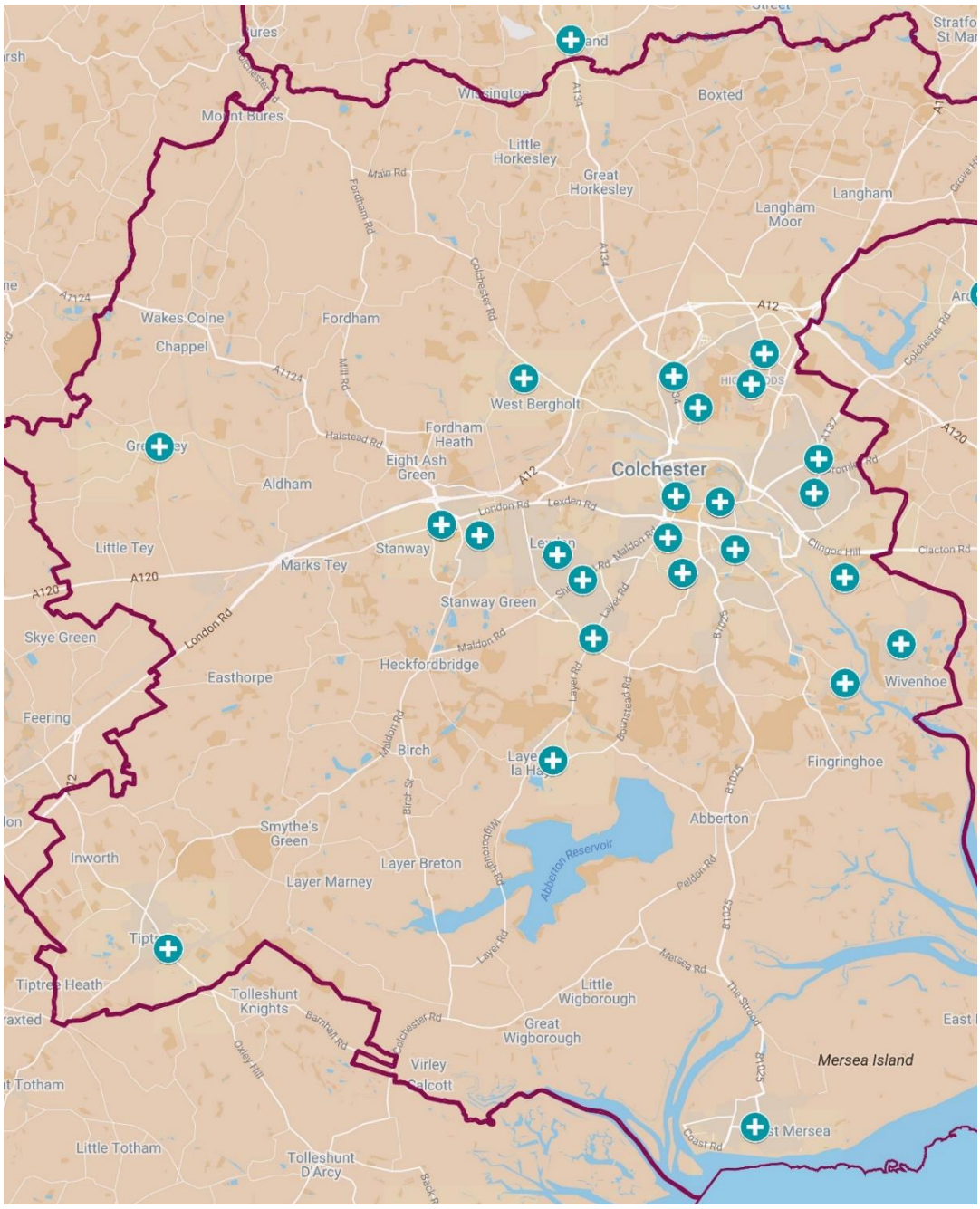
4.21 Responsibility for public health was moved out of the NHS into local government in April 2013. Health and Wellbeing Boards (HWBs) promote co-operation from leaders in the health and social care system to improve the health and wellbeing of their local population and reduce health inequalities.

4.22 HWBs are responsible for producing a Joint Health & Wellbeing Strategies (JHWS), Joint Strategic Needs Assessments (JSNA) and Pharmaceutical Needs Assessments (PNA) for the Colchester borough area.

Existing provision

4.23 Figure 4.1 shows the location of existing General Practitioner (GP) surgeries.

Figure 4.1: Location of existing GP surgeries in Colchester borough



4.24 For the purposes of the assessment it is assumed that all of these GP surgeries are at capacity, either at present or will be once growth already in the planning pipeline is completed.

Needs

4.25 The proposed growth in Colchester borough is expected to require provision of a new Health Centre Hub in the following locations:

- Central/East Colchester

- To absorb growth in Central Colchester and also at the East Colchester Garden Community.
- This would entail relocation of at least one of the existing practices that serve the area - Wimpole Road, East Hill, Castle Gardens, Hawthorn, Parsons Heath, University (Rowhedge Branch Surgery), North Hill, Creffield Road, Highwoods, Bluebell, Mill Road, North Colchester Healthcare Centre, Abbeyfields and Parsons Heath. Effectively, the relocation of the surgery to a new Health Centre Hub would represent a closure of that surgery in that location.
- The total space requirement would be 3,000m^2 GIA.
- North Essex CCG is currently in discussions with CBC for potential development in the Hythe.

- West Colchester/Stanway/Eight Ash Green
  - To absorb growth at Stanway, Eight Ash Green and also at the West Colchester Garden Community.
  - This would entail relocation of at least one of the existing practices that serve the area - Shrub End, Winstree Road, Ambrose Avenue and branch surgery, Tollgate and Winstree Road.
  - The total space requirement would be 650m^2 GIA.
  - The North Essex CCG is in discussion with the Tollgate Partnership which already has the land and plans to create additional clinical space.
- Tiptree
  - To absorb growth in Tiptree.
  - Would also involve relocation of existing Tiptree Medical Centre.
  - The total space requirement would be 550m^2 GIA.
  - North Essex CCG is currently undertaking a feasibility study and working with Tiptree Parish Council on potential solution.
- West Mersea
  - To absorb growth in West Mersea.
  - Would also involve relocation of existing West Mersea Surgery.
  - The total space requirement would be 500m^2 GIA.

4.26 In South Colchester, growth at Middlewick Ranges (COL8) and other smaller sites would be addressed through enhanced primary care floorspace provision. This would involve either reconfiguration and/or refurbishment of the existing NHS estate (existing surgeries within two kilometres are Layer Road, Shrub End and Ambrose Avenue).

4.27 The same approach would apply in North Colchester, where growth could be supported by either reconfiguration and/or refurbishment of the existing NHS estate (existing surgeries within two kilometres are Bluebell, Highwoods, Mill Road and North Colchester Healthcare Centre).

4.28 In Rowhedge, the development of site COL66 would involve the relocation and expansion of the existing GP surgery. The scale of the expansion is not known at this stage.

Costs

4.29 It is not possible to accurately determine the build cost or size of new health hubs at this stage. This will depend a large number of complex and inter-related factors that can only be resolved at a more advanced stage in the planning of such provision on a particular development site. Certainly it will not be the case that each health hub would be a fixed size or would have a fixed list of services.

4.30 With the changing nature of health provision, it is not possible to establish other health infrastructure costs either because the type of change required to accommodate growth, particularly over the medium- to long-term, is not possible to accurately determine. This is discussed in more detail below under ‘Timing and nature of future provision’.

Funding

4.31 Funding for expansion of existing GP surgeries would firstly come through the Improvement Grant. This is funding that practices can apply for through NHS England for capital improvements to their practices. The contribution would be 66% of what is requested and the practices are then required to bridge the financial gap. This could in some cases be difficult for practices to achieve.

4.32 Any gaps in funding would therefore need to be bridged through developer contributions.

4.33 For the provision of new Health Hubs, there are various funding options which are likely to be required to replace Government capital funding after April 2017. One option is third party investment funding which is a partnership between the public and private sector. In such circumstances, a specialist developer will fund the capital cost of construction of the new premises and the GPs that occupy those premises enter into a lease with the developer. The GPs are able to receive reimbursement of the rent from NHS England.

4.34 Where such centres are designed as larger multi-use hubs, the developer will separately then rent out the other space which is not used by the GP services.

4.35 There may be other models available to bring forward such developments, usually involving some variation on the public-private sector partnership. For this type of development and also for expansion of existing surgeries, any gaps in funding will need to be bridged through developer contributions.

4.36 Land may or may not be provided free for the development of a healthcare facility. However, this would only be desirable for larger 'hub'-type developments that would house a range of medical services. Smaller developments which may only accommodate a practice of two or three GPs would make this inefficient in most, if not all, situations.

Timing and nature of future provision

4.37 The provision of appropriate primary healthcare facilities to support growth is a critical item. The necessary provision should be delivered as new growth comes forward to ensure that healthcare impacts are appropriately mitigated.

4.38 If any on-site provision is required as part of strategic sites then this would need to be provided in a timely manner once a patient-orientated critical mass has been achieved. Specifically, any potential development of medical facilities at the Hythe to serve East/Central Colchester growth would need to be phased to reflect the time period over which growth is expected to come forward. This should also factor in the growing student population expected in this area which will be approximately 10,000 by 2021.

4.39 The IDP identifies a series of infrastructure requirements, either in the form of expansion of existing built facilities or new facilities in the form of health hubs. However, exactly what this provision will ultimately be 'on the ground' is extremely difficult to determine at this stage. This is why it is not possible to determine the exact quantum of space or the cost of providing it.

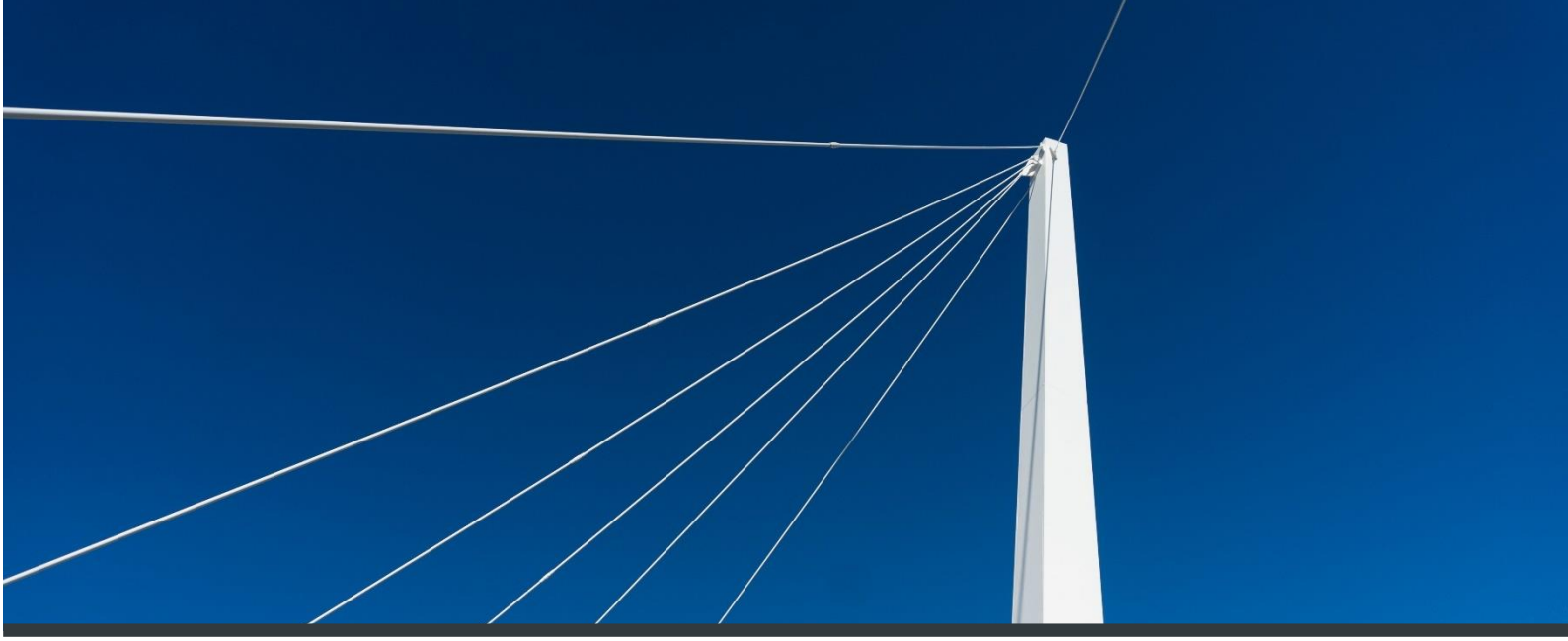
4.40 The reason for this is that the provision of healthcare services and delivery models are changing so significantly and will continue to change for the foreseeable future, possibly in many different ways and certainly in ways that are difficult to anticipate at this point in time.

4.41 The reasons for this are multiple and complex. Firstly, every location will have slightly different needs to accommodate and therefore the most suitable version of a health hub will vary, even within a CCG area or a district.

4.42 Secondly, changing service delivery models are likely to bring totally different ways of providing services into the mainstream. One of the most significant examples, raised earlier, is digital provision, where people see their GP via video-conference. If this were to be become a significant part of service provision then it would arguably be a better use of available funding to improve broadband provision to all homes than providing a new built medical facility. Whilst there will be a continuing need for clinical buildings, if digital provision grows then there may also need to be provision made for digital service bases as well. This may also be supported by mobile services, where CCGs provide mobile

units that can visit a series of facilities in an area and provide specific clinical support as needed. It may then be desirable to have this funded by development as well.

4.43 Over the plan period, health providers will need investment but more than likely it will be in very different forms of delivery and asset than the buildings that have traditionally been developed. It will be important that this is reviewed regularly as part of the IDP update process. Moreover, promoters of development must liaise with health commissioners at the earliest possible stage in order to understand what type of provision will fit most appropriately with local needs.



5 Utilities

Water – Used water

5.1 The provider of waste water services to Colchester borough is Anglian Water Services (AWS).

5.2 The requirements for used water provision relate to the network for delivering used water (i.e. the sewerage pipes) and the facility at which it is treated, i.e. the Water Recycling Centre (WRC).

5.3 For used water treatment, two of the key facets to consider are flow consent and process treatment capacity.

5.4 The assessment by AWS has identified needs using a 'RAG' (Red-Amber-Green) approach:

- 'Red' sites have major constraints to provision of infrastructure and/or treatment to serve proposed growth.
- 'Amber' sites require infrastructure and/or treatment upgrades to serve the proposed growth; alternatively, diversion of assets may be required.
- 'Green' sites have capacity available to serve the proposed growth.

5.5 The information and RAG status for each proposed site has been assessed considering existing commitments but on an individual site basis. The cumulative impact from all the proposed sites on the allocated treatment or network resource is not indicated by the RAG status. It should be noted therefore that the cumulative effect of all the proposed sites may require enhancement to capacity.

Needs

5.6 Significant reinforcement of the WRC network is required to provide for the additional growth at the West of Colchester Garden Community. However, in respect of the East Colchester Garden Community, there is sufficient existing capacity. Beyond the plan period, upgrades will be required to serve both locations.

5.7 In addition, the existing flow permit is insufficient to address this level of growth. Additional permits will be required and it is expected that the Environment Agency will require a high standard of water quality.

5.8 In terms of other growth locations, the following in Table 5.1 have been identified as 'red' sites in terms of WRC capacity and will require enhancement to treatment capacity:

Table 5.1: Sites requiring enhancement to WRC treatment capacity

Water Recycling Centre	Site	Site location	Housing or employment?
Copford	Hall Road	Stanway	Housing
Copford	Queensberry Ave	Stanway	Housing
Langham	School Road	North Colchester and rural	Housing
Langham	Lodge Lane	North Colchester and rural	Employment

5.9 In terms of foul sewerage, AWS makes the assumption that all developments of greater than 10 properties will require some form of network enhancement. Therefore all sites are considered to be 'amber' and improvements will be needed. Ultimately the available capacity in the foul water network will need to be determined by more detailed analysis.

5.10 For all sites, the surface water network capacity is a constraint to provision (i.e. is listed as having 'red' status). Urban run-off needs to be controlled on site to ensure no increase in run-off to the local river system. The use of sustainable drainage systems (SuDS) to provide water quality, amenity and ecological benefits in addition to the flood risk management benefits, will be expected. This will also ensure that:

- new development does not cause a deterioration in Water Framework Directive (WFD) status to any waterbody;
- a package of mitigation works to enhance the WFD status of relevant waterbodies are undertaken; and
- development does not prevent the future achievement of Good Ecological Status/Potential in any waterbody.

5.11 Only as a last resort, if a SUDS solution is not possible, should surface water be planned to enter the used water network.

5.12 All sites will therefore need to address surface water matters appropriately but this will need to be done on a site-by-site basis. Surface water flooding is considered in more detail in Section 7.

Costs

5.13 AWS has stated that it is not possible to provide costs for the additional used water infrastructure to serve growth. This will need to be determined when particular schemes are assessed.

Funding

5.14 In general, used water treatment infrastructure upgrades to provide for residential growth are wholly funded by AWS through its Asset Management Plan (AMP). AWS is currently within the five-year AMP period 2015 to 2020. This does include schemes to address growth capacity at some of the key WRCs in the Colchester Borough area, but this is not sufficient to fully accommodate the needs arising from growth. Therefore in order for AWS to fund specific upgrades, it will be necessary to put forward growth schemes for inclusion within the next AMP (post-2021) and for these to be approved, planned and funded, as well as signed off by the regulator, OFWAT. The only other alternative is that developers forward fund this work; however, given the potential costs involved, this is unlikely for all but the largest schemes.

Delivery and timing

5.15 For the West of Colchester Garden Community, the need to upgrade WRC provision means that it will be difficult for any significant growth to come forward before 2022/23 without a commitment to deliver the necessary upgrades in the next AMP period (2021-2025). This is therefore a critical item. The alternative is that it will be developer funded but this is substantially less likely given the costs involved and the uncertainty over the likelihood of recouping this funding.

Water – Potable supply

5.16 The provider of drinking water services to Colchester borough is Anglian Water Services (AWS).

5.17 The assessment by AWS has identified needs using a 'RAG' (Red-Amber-Green) approach:

- 'Red' sites have major constraints to provision of infrastructure and/or treatment to serve proposed growth.
- 'Amber' sites require infrastructure and/or treatment upgrades to serve the proposed growth; alternatively, diversion of assets may be required.
- 'Green' sites have capacity available to serve the proposed growth.

5.18 The information and RAG status for each proposed site has been assessed considering existing commitments but on an individual site basis. The cumulative impact from all the proposed sites on the network resource is not indicated by the RAG status. It should be noted therefore that the cumulative effect of all the proposed sites may require enhancement to capacity.

Needs

5.19 All sites (including the Garden Communities) have some resources available and plans to increase resources (i.e. are classified with an 'amber' rating), with the exception of Tiptree which already has sufficient resources available to accommodate growth ('green' rating).

5.20 In terms of the supply network, all sites (including the Garden Communities) require upgrades of existing provision which can be addressed ('amber'). Only development of the Middlewick Ranges site (COL8) would require a specific mains extension from near the River Colne.

Costs

5.21 Sites where additional lengths of water main are required would be expected to be funded by the developer as a site-specific cost.

Funding

5.22 AWS, in common with all water companies in England, already has a mechanism in place to ensure they are able to fund their infrastructure needs associated with growth from new development. This is a combination of general investment funding from customers' bills and charges to new developers.

5.23 Any new development would be funded by the developer in accordance with the requirements of the Water Industry Act. In reality, the actual payments made by the developer for any on-site water main would be significantly less than the cost of the asset. Any new service connection would be charged in accordance with standard rates and standard infrastructure charges would also apply.

Delivery and timing

5.24 Site specific connections and the necessary supporting infrastructure must be provided as part of the construction phase. This will be the responsibility of the developer to provide in conjunction with AWS.

Gas

5.25 Gas is delivered through seven reception points into the United Kingdom and distributed through a National Transmission System (NTS). National Grid is responsible for the NTS which covers the whole of Great Britain.

5.26 National Grid has reported that, at present, there are no areas of Colchester borough that are likely to require additional gas infrastructure to accommodate the proposed levels of growth. However, as the National Grid connections process works on a first-come, first-served basis, there is no guarantee that this capacity will still be available at the time an official connections request is sent in.

5.27 Gas supplies are funded by developers and National Grid. When a request for a supply is received, developers are quoted a Connection Charge. If the connection requires reinforcement of the network

then a Reinforcement Charge may also be applied. The apportioning of reinforcement costs are split between the developer and National Grid, depending on the results of a costing exercise internally. These are site-specific costs so there would be no call on external funding sources.

Electricity

5.28 Electricity is generated from power stations and transmitted through a national network of electricity lines operating at 275kV and 400kV before connecting to local networks owned by distribution companies. UK Power Networks (UKPN) is the appointed distribution company for Colchester borough.

5.29 Electricity in Colchester is supplied from the National Grid transmission system to UK Power Networks at 132kV. Their Grid and Primary sub-stations supply the towns and villages at 33kV and within the catchments via smaller sub-stations and a network of underground cables at 11kV.

5.30 The area is served by three 132/33kV (Grid) substations, one at Lawford supplying the area to the north and east, one (Colchester Grid) serving the Colchester urban area and one at Abberton serving the areas to the south and west including Tiptree and Mersea. Each Grid substation supplies several 33/11kV substations that finally provide the 11kV distribution network to meet the local requirements.

Needs

5.31 For growth during the plan period, the East Colchester Garden Community will not require any significant new infrastructure. However, beyond the plan period, the additional growth would possibly require reinforcement of the 33kV network at Colchester Grid substation, extension of the 33kV network to a new Primary 33/11kV substation close to the development. This would involve approximately a 4km cable route, a new crossing of the River Colne and the Network Rail line to Clacton. A reserve primary substation site nearby may be available for use subject to third party constraints.

5.32 As with East Colchester, the West of Colchester Garden Community would not require any significant new infrastructure during the plan period. However, beyond the plan period it would require extension of the 33kV network (approximately 10km) to Abberton Grid 132/33kV substation and a new Primary 33/11kV substation close to the development.

Figure 5.1: Existing electricity substations serving Colchester borough

Source: UK Power Networks

5.33 For development in the Colchester urban area, there is adequate capacity at the various primary substations and the Colchester Grid substation.

5.34 None of the residential sites in the other locations across Colchester Borough will create any need for additional primary substation infrastructure.

5.35 For all larger sites - over 50 dwellings - there is likely to be a need for a new secondary sub-station provided on site. This would be on a 5m x 4m plot and would contain an 11,000/400 volt transformer plus a switch or switches. Such sub-stations are required where an existing sub-station is either too far from the new development or does not have sufficient capacity to supply it. The new secondary sub-station would normally just supply the new development but could also connect to the surrounding electricity network to provide an alternative means of supply in the event of a fault on the network.

5.36 For the employment development, without an idea of loadings or demand required (based on the types of users by use class), it is not possible to assess the capacity constraints within the network.

Costs and funding

5.37 The allocation of costs for future reinforcement is a complicated mechanism as UKPN is not permitted by its licence conditions to invest ahead of need or for speculative developments. When reinforcement

is required the cost for reinforcement and possibly connections is passed to the developer making the request for the new demand. They may receive some funding from the regulatory income UKPN has from OfGEM where existing assets are reinforced/replaced.

5.38 Estimation of works more than a few years ahead are also likely to be inaccurate and unreliable as the network evolves and changes as a matter of course. Costs and estimates for connections and reinforcement would need to go through UKPN's commercial department having received an application first.

5.39 In 2015, the cost of providing for these needs has been estimated at approximately £1,000 per dwelling, plus the cost of the 11kV network extension or diversion. The cost of providing an on-site substation to serve the larger sites would also be extra, with the total cost estimated in 2015 to be in the region of £50,000, depending on the load requested by the developer. Such costs would be covered solely by the developer.

5.40 It should be noted that schemes coming forward after 2020 may have different charging strategies and policies as directed by OfGEM.

Delivery and timing

5.41 Site specific connections and the necessary supporting infrastructure must be provided as part of the early construction phases. This will be the responsibility of the developer to provide in conjunction with UKPN.

6 Transport

6.1 Colchester Borough has a self-containment rate of 69% which means that a majority of people live and work in the Borough.

6.2 There is a strong movement of people from the Tendring peninsular into Colchester, movement of people to London and to Braintree district and Chelmsford for employment.

6.3 In most areas the car dominates the modal share, with 63% of people travelling to work by car. The highest shares are in the rural areas, with a lower share in the town centre area. Walking makes up 13% of trips and 8% by train. Walking rates are highest in the town centre and rates for train use around Colchester North Station.

6.4 The range of average car ownership per household by lower super output area is from 0.6 to 2.0 cars per household. 80% of households have access to at least one car, and 35% have access to two or more cars.

6.5 The transport network in urban Colchester is heavily used in the peak hour weekdays and at certain other periods. In the morning peaks, 50% of trips are to work. The two strategic trunk roads (A12 and A120 (west of Colchester)) operate at capacity in the peaks and, as a result, provide an unreliable level of service. The Great Eastern Mainline railway operates at capacity on trains to and from London in the peak hours.

6.6 The rural areas are reliant on the car, and in the main have higher levels of car ownership. The road network is a series of local A- and B-class route roads radiating out of the urban area with connections to the higher level trunk and strategic A-roads.

6.7 Strategic traffic modelling has been undertaken which has shown a large number of links and junctions operating over capacity at peak times. Development will add pressure to the transport network and measures will be required to help mitigate the impact.

6.8 With much of the road network in urban Colchester over capacity in the peak periods and leading to queuing, unreliable journey times and poor air quality, significant increases in road capacity in the urban areas to accommodate current and future levels of traffic is not necessarily desirable, possible or viable. Better use of the existing road network and improvements to public transport, walking and cycle links will be essential to address the issues arising from transport. To support growth and to make better use of the road network, the 'packages' of projects being developed for transport will include:

- Walking and cycling - linked to the Essex Cycle Strategy and Colchester Local Cycle Strategy.
- Streetscape and improving the public realm, especially in the town centre.
- Environmental package to deal with the air quality Issues - including provision for electric vehicles and extension of 20mph areas.
- Public transport - developing projects in the Bus Blueprint, extension of Park and Ride, station improvements and development of rapid transit.
- Travel change behaviour programme in order to make best use of the investment.
- Traffic management - various junction and link improvements.
- Technology and innovation package - improvements to traffic signals to be more demand responsive to the changing flows, car park guidance systems, and links to the A12 technology package.
- Investment in the strategic road and rail network.

Walking and cycling

6.9 The basic walking network is provided by footways parallel to the road network. However in the rural areas this network can be fragmented. In the urban area a number of public open spaces provide traffic free routes which are shared with cyclists. At the heart of the town centre are the only pedestrian areas on land managed by privately run shopping centres.

6.10 The cycle network is characterised by a number of on- and off-road named routes in the urban area. Most are radial in nature serving the residential areas to the town centre. There are gaps in the network and issues with crossing main roads, rivers, the rail line and one way systems. Colchester is a junction of three National Cycle Routes (NCN1, NCN51, NCN13) the Wivenhoe Trail (NCN1) providing a long section of 5km off-road cycling from Wivenhoe through to the centre of Colchester. The National Cycle Network runs through the rural areas using a series of quieter C-class and unclassified roads and a number of bridleways.

6.11 The key issues of the walking cycle network, which effects the level of use include:

- Inconsistency and quality of route
- Attractiveness and directness of route
- Perceived safety either through high traffic volumes and the sharing of routes
- Dominance of traffic especially through high volumes in the urban area
- Crossings of major roads, the river and railway
- Lack of priority over other road users in key locations
- Lack of continuity in the rural areas.

6.12 Colchester Borough Council has an adopted Colchester Cycle Delivery Strategy (Jan 2012) and Essex County Council is developing a local Colchester Cycle Action Plan as part of its County Cycle Strategy. The Local Plan supports the creation of a 'multi user' Colchester Orbital around urban Colchester to provide for sustainable transport and the movement of people.

Public Transport

Buses and Coaches

6.13 Most of urban Colchester is well served by buses throughout the weekday, with most services running commercially. In the evening and at the weekend there is a drop off in the level and extent of service. Some services are supported by Essex County Council. The main users of bus services in Colchester are those without access to the car, further and higher education students, and those with concessionary passes.

6.14 In the main, services operate from Colchester town centre on radial routes operating out to the edge of the town. Key attractors are Essex University, Colchester North Station, Colchester Hospital and Stanway Tollgate Retail Park, with services passing through the residential areas. Park-and-ride operates from a site in north Colchester giving a fast and easy access into the town centre, calling at the Hospital, North Station and Middleborough. There is capacity on many of these urban services. The regular urban services are complemented by the less frequent inter urban services. Some services only operate at school time but are available to the public as well as students. A number of schools procure their own dedicated services. Developer funding has been secured for some route enhancements.

6.15 Rural public transport is in the main served by inter urban routes, e.g. Colchester to Maldon, Harwich, Braintree, Sudbury, etc, with routes following the main roads, at hourly frequencies. If evening and weekend rural services are provided they are commonly supported by Essex County Council. The rural areas on the routes to West Bergholt, Mersea and Wivenhoe benefit from a higher level of service. There are a small number of Community Transport Services. Inter-urban coach services also serve Colchester heading for London and the airports.

6.16 Buses are operated by commercial companies, with two main operators First Bus and Arriva. Go-ahead and Panther provide many of the rural services. Essex County Council procures the contracted services. National Express provide the coach services. Colchester Community Voluntary Services provide the few community transport services.

6.17 Colchester Borough Council is currently working with Essex County Council, and bus operators on the Bus Blue Print for Colchester which is a nine-point programme to improve buses, increase the patronage of buses through ticketing, information, improving the quality of the service. The operation of buses is greatly impacted by the high levels of traffic congestion in the urban area. There is an operational capacity issue at peak times with buses competing for slots at town centre stops. Bus services entering Colchester from the north have bus priority lanes and around the town centre. Buses passing through the University are given priority working and through the Hythe station area.

Rail Services

6.18 The Great Eastern Mainline (GEML) provides the main spine for train services through Colchester. 8% of people use the train to commute to work. Colchester station has a high frequency of train services giving direct access to employment opportunities in central London, docklands and Chelmsford. The station is also well used by further education students coming into Colchester. Around five million passenger movements per annum take place including those interchanging from the Clacton/Walton branch. Approximately 50% of travel is by season tickets and 33% of travel is by reduced fare, suggesting the station is well used for more than just regular commuter trips.

6.19 There are two other urban stations, Colchester Town and the Hythe. Along with Wivenhoe they on the Colchester Clacton/Walton line. Train services from Clacton/Walton connect with the mainline at Colchester. Marks Tey station is on the mainline with a junction to the Sudbury line, where many of the branch passengers interchange. The Marks Tey-Sudbury branch has an hourly service and is a designated Community Rail Partnership line with stations locally adopted.

6.20 The quality and access to the stations vary and need improvements. Colchester North station suffers from a lack of investment on the north side with poor interchange, a complexity of movements in a confined space and poor disabled access to the platforms. Wivenhoe and Marks Tey have access issues to their ‘down’ platforms.

6.21 All the passenger services are operated and stations managed by Abellio as the Greater Anglia franchise which runs until 2025. The train operating company is making a substantial investment in rolling stock to provide new faster, higher capacity trains with more operational flexibility than the current trains. The new trains will be introduced from 2019/20. There will be changes to timetable and service patterns with the introduction of new trains. Freight operating companies operate container trains from Felixstowe to the north, south and the west. Sand is transported from Marks Tey to London. Network Rail manage and maintain the infrastructure and have identified projects in the Anglia Rail

Study to support growth, capacity and speed improvements to make best use of the new rolling stock and allow for the growth in freight traffic. The infrastructure upgrades for the GEML include:

- Bow Junction improvement (in East London)
- Digital signalling -increasing track capacity
- Loops between Witham and Colchester - allows for fast trains to pass slower ones
- Trowse Bridge doubling (Norwich) - improves journey times and performance
- Haughley junction upgrade - (north of Ipswich) - improves journey times and performance

Road network

6.22 Much of the road network in Colchester is over capacity in the morning and evening peaks and although the Local Plan will be used to guide decisions on matters such as the location of new housing and employment, along with the infrastructure to support them, it is important to remember that, whist existing issues such as traffic congestion will need to be taken into account, the Local Plan's primary role is not to provide solutions to current problems. Equally, new developments cannot be used to fund infrastructure which would address existing deficits or problems but must simply mitigate their own impact.

Strategic Road Network

Existing and planned provision

6.23 The two main strategic routes in Colchester Borough are the A12 and the A120 and are managed by Highways England. These key strategic routes support the economy of Colchester, North Essex and the Haven Gateway. The A12 provides access from Felixstowe, Britain's largest container port, with markets in London and southern England. Highways England published the East of England Route Strategy in April 2015 which outlines the priorities for the strategic road network and informed the Government's Road Investment Strategy (December 2015). The Roads Investment Strategy (RIS1) set out the following route investment priorities:

- A12 Chelmsford to A120 widening - widening to three lanes to start by March 2020.
- A12 whole route technology upgrade - including detection loops, CCTV cameras and variable message signs to start by March 2020.
- A12 Colchester bypass - widening of the A12 between junction 25 and 29 to three lanes and improvements to local junction layout to start in the second roads investment period by March 2025.

6.24 Highways England consulted on options for widening the A12 between Chelmsford and the A120 in January to March 2017, and are now developing a preferred option to take forward to development consent order process.

6.25 The A120 Braintree to A12 improvement development has been led by Essex County Council to look at potential options for improving the A120 between Braintree and the A12. A public consultation on route options was carried out in January to March 2017. Essex County Council will make recommendations to the Government and Highways England on the preferred option for consideration for inclusion in RIS2.

Key Issues

6.26 The A12 carries heavy traffic flows, is often congested, and is vulnerable to accidents and incidents which often disrupt traffic over a wide area. The reported traffic flows for the A12 on the Colchester bypass between junction 26 and 27 is very high at 99,500 vehicles per day; between junction 25 and 29 the flow is lower at 74,000 vehicles per day. The A12 performs poorly in terms of reliability and delay compared to other trunk roads. There are also issues with the lack of alternative routes, variability in the standard of the road and the sub-standard junction arrangements.

6.27 The A120 west from the A12 to Braintree is part of the strategic trunk road network but is single carriageway passing through villages and rural communities. The road is very narrow through Marks Tey with direct frontage access for houses and businesses, mini roundabouts providing access to residential areas and junctions which serve the rural area to the north. There are safety issues junctions along it length. The A120 carries 24,500 vehicles per day through Marks Tey. There are morning and evening peak hour flow issues in both directions. The route has to act as an alternative route for the A12 when the latter is blocked. However, it is currently unsuitable for this purpose.

6.28 The Colchester Area Saturn Model has been used to model the impact of development in Colchester on the transport network. The Transport Model includes the A12 Colchester bypass. The A120 to the west of Marks Tey is represented in less detail in the Colchester model. Essex County Council is developing modelling tools to support the development of the scheme.

6.29 The following junctions and links have been identified through the transport modelling as overcapacity and suffering increased congestion as a result of the additional demand:

- A120 - overcapacity in both directions in both the AM and PM peak in the vicinity of Marks Tey including junction 25.
- A12 junction 26 slip roads - overcapacity in the AM peak in the southbound direction (Halstead Road). In the PM peak the junction is overcapacity in the eastbound direction.
- Approaches to junction 26 (A1124/Essex Yeomanry Way - overcapacity in the AM peak.
- A12 junction 28 slip roads - overcapacity in the PM peak on the eastbound off-slip.

- A12 junction 28 to junction 29 on link - overcapacity on the link between Junction 28 and 29 in both the AM and PM peak periods.
- A12 junction Ipswich Road approach - Overcapacity in the AM peak in the northbound direction (Ipswich Road approach to Junction 29).

Local road network

Existing and planned provision

6.30 Essex County Council is the Local Highway Authority for the local road network. The network is made up of dual carriageways A-Roads (such as the A134 Balkerne/Southway, A133 Clinghoe Hill), single carriageway urban and rural A- and B-routes, class C and unclassified urban estate roads, narrow rural and quiet lanes.

6.31 Over the last 6 years the following schemes have been delivered to support growth and releasing land:

- North Colchester - United Way and Axial Road to unlock leisure and employment development in north Colchester.
- A12 Junction 28 - new access point into north Colchester from the trunk road network linking into the United Way scheme.
- The Via Urbis Romanae (Northern Approaches Road phase 3) with bus lanes linking the Junction 28 into the existing northern approach network.
- Park-and-ride car park and bus interchange to the north of junction 28, the service using the bus lane on the northern approach road.
- New bus lanes linked to Park-and-Ride at Station Way and North Station Road.
- Stanway Western Bypass linking London Road through to Warren Lane.
- A133 Clinghoe Hill - new junction arrangements to access the University's Knowledge Gateway major employment area.
- Roberts Road - an urban link through a residential area linking two radial routes.

6.32 Essex County Council has secured funding through the South East Local Enterprise Partnership for the following measures:

- Local Sustainable Transport Fund (capital) - investment in a series of cycle network improvement packages in north and west Colchester.
- Integrated Transport package - town centre and the wider urban area improvements including:
    - Park-and-ride - route measures associated with operating an efficient service - delivered April 2015.

- Brook Street junction improvement - signalisation of junction in air quality management area.
- Colne Bank widening - widening of short section of carriageway to improve operation of junctions - under construction 2016/17.
- Cymbeline Way - relocation of crossing and re-signing of route.
- Lexden Road improvements - measures to improve traffic and bus flow along main route into urban Colchester - under construction spring 2017.
- Ipswich Road/Harwich Road junction improvements - scheme to modify the junctions to improve traffic flow - to start on site late-2017.

6.33 The South East Local Enterprise Partnership Growth Deal (July 2016) includes the Colne Bank Roundabout improvements. This involves delivery of improvements to a key junction to address severe congestion in Colchester and reduce the major delays currently experienced. The scheme is estimated to cost £16m and includes a substantial developer contribution of £4.5m from development at north Colchester.

6.34 Further schemes under development by Essex County Council include:

- St Botolphs Roundabout - changes to junction with known traffic problems, poor design attracting anti-social behaviour, is a barrier to sustainable access with the potential to support the regeneration of the St Botolphs area of the town centre.
- North Station Forecourt - improvements to the forecourt to enhance the interchange, give greater priority for sustainable access and the sense of arrival into Colchester.

Key Issues

6.35 As previously mentioned, there are significant traffic flow problems in the peak hours at certain locations. Many of the locations have capacity issues in both the morning and evening peaks. In the main it is the operation of junctions where most of the issues arise. Some links are over-capacity but generally result in the associated junction being over-capacity. It is recognised that there are other times when traffic demands are high, e.g. Saturday morning, but these are not modelled. Traffic master and Google Map Traffic measure the speed of the traffic flows and indicate high demand.

6.36 Transport modelling work has been undertaken for the Colchester urban area. The Colchester Area Saturn Model (Colchester Local Plan Traffic Modelling Technical Report - April 2017) was used to assess the impact of proposed development on the principal highway network in the morning and evening week day peaks. From this modelling, the assessment identifies potential solutions to issues on the highways network resulting from proposed development.

6.37 The following junctions have been identified as having at least one arm which is projected to be operating over capacity in 2032 as a result of cumulative growth relating to development in Colchester (with both committed and Local Plan development included):

- Axial Way/Via Urbis Romanae roundabout - overcapacity in both the AM and PM peak in northbound and southbound direction.
- Colne Causeway/Haven Road roundabout - overcapacity in the AM peak on both the Haven Road roundabout and east and west bound on Colne Causeway. In the PM peak the Haven Road roundabout is overcapacity.
- A134/Elmstead Road roundabout - the roundabout is overcapacity in both the AM and PM peak periods.
- Greenstead Roundabout - the roundabout is overcapacity in the AM peak period. In the PM peak the westbound approach from Clinghoe Hill is over capacity.
- Lexden Road/Maldon Road/Southway roundabout - the roundabout is currently overcapacity and there are therefore overcapacity issues in the AM peak period on the western and southern approach to the roundabout.
- Colne Bank/Essex Hall/Cymbeline Way - currently overcapacity in both the AM and PM peak periods in the southbound direction.
- A137 Harwich Road to East Street - currently overcapacity in the southbound direction in the PM peak period.
- Circular Road South/Berechurch Road/Pownall Crescent junction - overcapacity in the AM and peak periods on the northwest and south arms.
- Shrub End Road (approach to Maldon Road/Drury Road junction) - overcapacity in the AM and PM peak in the northbound direction.
- Old Heath Road/Wimple Road junction - overcapacity on Old Heath Road approach northbound in the AM peak and on all apart from the south approach in the PM peak.
- Mersea Road/Normandy Avenue junction - local congestion issue.
- Brook Street junction - junction in the air quality management area where there is a high traffic demand in a constrained area.

6.38 The following links have been identified as operating close to or overcapacity in 2032 as a result of cumulative growth in Colchester (with both committed and Local Plan development included):

- Ipswich Road - link, in both directions, operating close to capacity in both the AM and PM peak periods.

- Haven Road (between Whitehall Road and Haven roundabout) - overcapacity in both the AM and PM peak period in the westbound direction.
- A134 Hythe Quay (Colne Causeway to Maudlyn Road) - the link is overcapacity in the AM and PM peak periods in both the north and southbound directions.

Air Quality

6.39 In urban Colchester there are a number of designated air quality management areas (AQMAs) which road transport is a major contributor. The main AQMA areas are in the town centre and to the east on the old historic routes leading to and from the town centre. The town centre ward of Castle has the highest level of deaths by respiratory disease. The narrow streets, the canyoning effect of the built environment and the number of large diesel engine vehicles in the main creates the air quality problem. Colchester Borough Council has an approved 'Healthier Air for Colchester' action plan between 2016 and 2021 to reduce pollution.

Kelvedon/Feering

6.40 The villages of Kelvedon and Feering are outside of Colchester Borough but the main access from the Tiptree to the A12 is via the B1023 Inworth Road and through Keveldon or Feering. The traffic modelling undertaken for Braintree District Council shows up an issue at the Inworth Road/Feering Hill/London Road junction related to growth in Kelvedon/Feering and Tiptree. The growth in Tiptree is subject of a Neighbourhood Plan and needs to consider the impact on this junction and potential mitigation.

Potential mitigation measures

6.41 The NPPF paragraph on 'Promoting Sustainable Transport' (para 29) suggests the following to promote sustainable transport:

'The transport system needs to balanced in favour of sustainable transport modes, giving people a real choice about how they travel.'

6.42 'Delivering a Sustainable Transport Strategy' suggests five key objectives for a sustainable transport strategy and should consider:

- Support economic growth
- Tackle climate change
- Promote equality of opportunity
- Contribute to better safety, security and health
- Improve quality of life and healthy natural environment

6.43 The Colchester Transport model identified junctions and links that are overcapacity currently, and as a result of Local Plan development. In order to address these problems, a series of site specific and

strategic options have been developed to mitigate the impact of the development proposed in the Local Plan. The mitigation measures have not currently been assessed for feasibility and further feasibility studies would be required to take any of these schemes forward.

6.44 Through the traffic modelling numerous links and junctions have been identified that have issues of over-capacity during peak times in either or both the committed and Local Plan scenarios. There are also links and junctions which are susceptible to becoming over-capacity should changes to the network be made. In order to respond to forecast changes at these locations and routes, a series of potential mitigation measures have been developed. The locations identified are based on analysing an AM and PM peak weekday traffic model. It is recognised that there are traffic congestion and impacts at other times and locations, for example on Saturday mornings, which should also be considered as part of any transport statement or assessment.

6.45 The proposals for mitigation measures link to relevant previous and current studies in the Colchester area; and show how this modelling study reflects and is consistent with other work. While the options presented have not been fully assessed for feasibility as part of this study they, nevertheless, reflect a realistic approach to mitigation, being carefully grounded in evidence and past experience.

6.46 Should any of the options be taken forward, further feasibility studies would be required, for which the best starting point would be one of the previous or current scheme studies, where they exist, which have been referenced.

6.47 Potential measures need to be further tested against policy, deliverability, viability and timing - especially in relation to the timing of the delivery of any developments.

6.48 For each of the junctions and links in these groups of locations, a series of suggestions for mitigation measures have been developed which include:

- Basic traffic management - such as signing and lining, part signalisation, changing kerb lines to increase stop line capacity and turning restrictions.
- Enhanced traffic management - such as upgrades to and investment in signal control systems especially when there are junctions in close proximity.
- Minor infrastructure upgrades - such as widening of approaches to increase lane capacity and left turn slips at junctions (which takes place within the designated highway boundary).
- Major infrastructure upgrades - such as major reconstruction to add capacity (which requires land outside the designated highway boundary and involves complex engineering).
- Complementary measures - which includes sustainable transportation improvements to public transport, walking and cycling, and park-and-ride.

6.49 For each measure a qualitative assessment of why it could be worth considering has been given along with an indicative cost range. In addition, reference to previous and current studies that might also be considering that measure has been provided.

6.50 It should be noted that in practice, a package of measures would be chosen from the range of those presented, which would include combinations of traffic management, infrastructure and sustainable transport measures. In addition, improvements would be considered along routes and not as isolated junction schemes. Development will still need to produce Transport Statements or Assessments in line with national and local guidance. This Local Plan modelling work will help inform the scope of such transport statements and assessments. A full list of potential mitigation measures is provided in Appendix C.

6.51 The transport evidence base is unlikely to 'stand still' and further work on the delivery of transport objectives may identify additional schemes which would merit inclusion in an IDP update at a later date.

Assessment and potential mitigation associated with the Garden Communities

6.52 The traffic modelling for Colchester included a level of growth in the local plan period of 2,500 dwellings and an appropriate level of employment in each of the Garden Communities. Separate study work Sustainable Solutions, Connectivity North Essex Garden Communities Movement and Access Study, March 2017 has been undertaken to inform the Garden Community growth and the measures identified in the following section is based upon that work. There is an overlap between the transport impacts of garden community growth and the other local plan growth.

Central Colchester

- Walking improvements in line with the approach set out in the adopted Better Town Centre SPD.
- Cycling improvements as detailed in the Essex and/or Colchester Cycle Strategies.
- St Botolphs RAB - improvement scheme currently being designed.
- Bus improvements developed through the Colchester Bus Blueprint.
- Improved provision for electric vehicles including charging points in the town centre and provision in new developments.
- Traffic management schemes set out in the A133 corridor study including improvements to Colne Bank, Essex Hall and the Colchester urban package including improvements to Lexden Road; A134 Southway, Westway and Balkerne Hill corridor; Brook Street; A137 Harwich Road/East Street.

East Colchester

- East Colchester Corridor - study to be undertaken on the A134 corridor to include Greenstead, Colne Causeway, Haven Road and Elmstead Road roundabouts to include potential for walking

and cycling improvements; bus priority (linked with East Colchester Park and Ride); rapid transit; signalisation and signal optimisation at junctions; and other junction improvements.

South Colchester

- Cycling improvements as detailed in the Essex and/or Colchester Cycle Strategies.
- Bus improvements as developed through the Colchester Bus Blueprint.
- Traffic management schemes including junction and signal improvements at Circular Road South/Berechurch Road/Pownall Crescent; Shrub End Road approach to Maldon Road/Drury Road; Old Heath Road/Wimpole Road and Mersea Road/Normandy Avenue.

North Colchester

- Cycling improvements as detailed in the Essex and/or Colchester Cycle Strategies.
- Improved provision for electric vehicles including charging points in Northern Gateway development.
- Bus improvements developed through the Colchester Bus Blueprint including new bus services serving Northern Gateway and Axial Way.
- Northern Approach bus lanes - land is reserved for bus lanes and is included within section 106 agreement.
- Traffic management schemes including improvements to Axial Way/Via Urbis Romanae junction; and Ipswich Road.
- Major infrastructure projects: A12 widening and improvements to Junction 28 and 29.

West Colchester

- Cycling improvements as detailed in the Essex and/or Colchester Cycle Strategies.
- Improved provision for electric vehicles including charging points.
- Bus improvements developed through the Colchester Bus Blueprint including assessment of bus routes in and to the Stanway area.
- Rapid transit from the west.
- Traffic management schemes.
- Major infrastructure projects: A12 widening and improvements to Junction 26.

Tiptree

- Inworth Road/Feering Hill/London Road junction and access to the A12.

East Colchester Garden Community (Tendring-Colchester borders) – growth in Local Plan period

- Dense network of active walking and cycling created.

- High quality links walking and cycling links to attractors and generators (e.g. Essex University).
- Early intervention of rapid transit priority at key junctions into east Colchester.
- A120 - A133 link road.
- Further delivery of active modes and high quality links (green links, quiet ways etc.).
- Continuation of phased build-out of rapid transit.
- Park-and-ride facilities.
- Extension of A120 - A133 link road to B1027/B1028.

West of Colchester Garden Community (Colchester-Braintree borders) - growth in Local Plan period

- Dense network of high quality walking and cycling links (European style).
- Address severance issue caused by A12 and GEML line.
- Improved sustainable mode access to Marks Tey Station and re-purpose into an interchange.
- Rapid transit services to Colchester and beyond.
- Rapid transit only corridors (quicker than car).
- Distributor highway links.
- Capitalise on A120/A12 improvements

Future funding and delivery of transportation

6.53 Transport infrastructure funding and delivery comes from a range of sources depending on the nature of the asset and its strategic status.

Strategic highway projects

6.54 Capital funding for strategic roads is the responsibility of Highways England, a publicly owned corporation since April 2015. Within north Essex, Highways England is responsible for the A12 and the A120. Highways England reports to the Department for Transport and has responsibility for managing the Strategic Road Network in England. Highways England's responsibilities most relevant to the IDP include undertaking large scale improvements through a programme of major schemes, carrying out routine maintenance of roads, structures and technology to make the network safe, serviceable and reliable and making sure traffic can flow easily on major roads and motorways. Investment decisions are prioritised through Highways England's cyclical Road Investment Strategy (RIS) which sets out a long-term programme for UK motorways and major roads. Between 2015 and 2020, the RIS will see up to £310milllion invested in the widening the A12 and the technology upgrade. The widening of the A12 north of Colchester was identified in the RIS to be started before 2024, with

a further £250 million allocated. Essex County Council will recommend to the Secretary of State a preferred route for the A120 for inclusion in the RIS2 programme.

Local highway and transportation projects

6.55 Local roads are the responsibility of the Essex County Council. It is responsible for planning and delivering the majority of the transport-related infrastructure to support development proposals in each local authority within Essex. It is expected that development will continue to have to contribute or deliver measures which mitigate the impact of their development either through section 106, Community Infrastructure Levy (CIL), section 278 agreements or direct delivery by the developer. Measures directly related to the Garden Communities will be expected to be based on funding through land value capture mechanisms and delivered through the local delivery vehicle. Funding will be sought through national infrastructure funds allocated by Central Government to housing deliver growth in housing and productivity.

6.56 Other local transportation projects (including public transport, walking and cycling) to support economic growth and development have less well defined funding and delivery processes. Aside from local authority capital investment budgets, Local Enterprise Partnerships are the main public source of capital grant funding through the Local Growth Deals and Large Local Major Schemes Fund. Schemes currently allocated funding as part of the South East LEP Growth Deal with Central Government include the Colchester Integrated Transport Packages. Essex County Council also allocates capital funding through its Local Highway Panel, allocating £0.5m in 2016/17. This fund is allocated to small scale local projects in Colchester including road safety, walking, cycling, public transport, traffic and speed management, local environmental projects and public rights of way.

6.57 Department of Transport also allocates funding via competitive bid processes to specific types of project; for example the recent Pinch Point Fund. The Department of Environment and Rural Affairs allocates funding for Air Quality projects. The main source of capital funding for local roads is through local authorities' borrowing although other instruments are available to local authorities to finance transport investment, e.g. the Public Works Loan Board. In addition, funding can be secured through business rate retention and municipal bonds.

Investment in rail projects

6.58 The rail network is the responsibility of Network Rail which owns the infrastructure, including the railway tracks, signals, overhead wires, tunnels, bridges, level crossings and most stations, but not the passenger or commercial freight rolling stock. Through the franchise arrangements stations are managed by the train operating companies. Projects for capital investment in the local rail network need to meet the Governance for Railway Investment Projects (GRIP) process to be planned/funded within a 5-year ‘Control Period’. Similarly to the strategic road network, a sound business case needs to be presented for projects to be included in a Control Period. The current delivery plan period covers

2014 to 2019. Network Rail has commenced the development of the programme for Control Period 6 (2019 to 2024) but has indicated that funding will be concentrated on operation, maintenance and renewals.

6.59 Investment in the rolling stock will be made directly by the franchisee of the Greater Anglia franchise. They will also invest in stations as part of the franchise commitment.

7 Flooding

7.1 The Environment Agency is responsible for the management of flooding from main rivers and the coast, Essex County Council is responsible for the management of flooding from ordinary watercourses, surface water and ground water, Anglian Water is responsible for managing sewer flooding and Highway flooding is the responsibility of Essex Highways.

7.2 Furthermore, as the Lead Local Flood Authority, Essex County Council is a statutory consultee on surface water for major developments (SuDS). As part of this role site specific drainage strategies are reviewed to ensure that surface water flood risk is not increased on or off site up to the 1 in 100 inclusive of climate change storm event. Colchester borough Council has adopted a Surface Water Management Plan produced by Essex County Council outlining the surface water flood risks in Colchester. This document has established critical drainage areas (CDAs) within which certain development locations sit. As part of drainage strategies for new developments sitting within CDAs, the Colchester Surface Water Management Plan should be referred to.

Needs

7.3 Unlike many other infrastructure items, the need for new or improved defences against water intrusion, particularly coastal flooding, is not necessarily directly related to development. The development strategy in Colchester deliberately seeks to avoid development in areas which are prone to flooding or are close to the shoreline. Equally however, additional activity – particularly related to tourism - brings more people and activity to these areas, which therefore increases the need to ensure that defences are adequate.

7.4 The Environment Agency has stated that all flood risk infrastructure such as flood defences has an operational lifetime and so improvements to this infrastructure will be needed in the future. Colchester Borough Council needs to consider how to address these needs which are considerable given the potential impact of flooding in the borough.

7.5 A number of potential flood alleviation schemes at Ford Street, Dedham and Salcott are being considered, although these are subject to further scoping and funding before they are delivered.

7.6 There are four Critical Drainage Areas (CDAs) which have been identified by ECC as having potential issues in respect of surface water flooding. These affect the following growth locations, all in or close to the centre of Colchester (Table 7.1):

Table 7.1: CDA surface water flooding locations and relevant allocations

CDA	Location (growth area)	Sites
Parson's Heath (08)	North east of Colchester town (North Colchester)	EST08 – St John's
Colchester Town (03)	Colchester Town (Central Colchester)	COL30 – TC3 Britannia Car Park; COL98 – DSG site, Flagstaff Road; COL112,113,114,115,116,117,118 – EC3 Magdalen Street
Hythe (02)	The Hythe (East Colchester)	COL109,110 – Hythe gasworks site
Old Heath (01)	South Colchester (South Colchester)	COL71 – Middlewick Ranges

7.7 All require particular mitigation schemes that would need to be individually designed.

Costs and Funding

7.8 The level of funding that the Environment Agency can allocate towards flood defence improvements is currently evaluated though the requirements of the EA Outcome Measures, schemes that do not meet the Raw Partnership Funding threshold of 100% would require contributions from external partners. Any identified shortfalls in scheme funding would require partnership funding contributions from other sources such as S106 developer contributions or CIL, EA Local Levy and contributions from Anglian Water. Therefore when determining the safety of proposed developments, the local authority must take this uncertainty over the future flood management and level of flood protection into account. This may require consideration of whether obtaining the funds necessary to enable flood management to be raised in line with climate change is achievable.

7.9 In addition, rules applying to the Central Government Flood Defence Grant in Aid funding mechanisms (FDGiA) means that any significant regeneration that results in either new development or the re-build of existing development will have the impact of reducing the future FDGiA benefit to support future flood defence schemes. This is because any property (including rebuilds) built after January 2012 will not qualify for benefit consideration in applying FDGiA.

7.10 The ability to deliver schemes that address the identified flooding problems will therefore depend on the source of funding. If the CDAs are delivered using ECC funds, then it is possible, with the additional growth proposed in these areas, to top up the necessary funding with developer contributions. The split required is as follows:

Table 7.2: Funding required to address CDA scheme requirements

CDA/Growth area	Total cost	ECC funding	Contributions required (min.)
Parson's Heath – North Colchester	£850,000	£650,000	£200,000
Colchester Town – Central Colchester	£4,965,820	£3,065,820	£1,900,000
The Hythe – East Colchester	£2,400,000	£1,000,000	£1,400,000
South Colchester – South Colchester	£1,070,000	£820,000	£250,000

Source: Essex County Council. All costs are high level and would require more detailed assessment to determine a precise cost

Timing of provision

7.11 Delivery of infrastructure for coastal and flood defence is ongoing, with projects falling within the short, medium and long term.

In respect of the identified surface water flooding schemes, all are assumed to be required early on in the phasing of the identified developments. However, this will depend on the detailed modelling and development flood risk assessments undertaken as part of a planning application and the precise trigger points for provision, which will be linked to a Section 106 agreement.

8 Emergency services

Police

8.1 Essex Police is responsible for delivering services to address community safety, tackle the fear of crime and seek to achieve a reduction in crime in Essex through a number of methodologies including the detection of offenders. The primary roles of the police service are: protection of life and property; prevention and detection of crime; and, maintenance of 'The Queens Peace' ('The Peace').

8.2 The delivery of growth and planned new development in the borough would impose additional pressure on the Essex Police existing infrastructure bases, which are critical to the delivery of effective policing and securing safe and sustainable communities.

8.3 Essex Police has confirmed that it does not require any site-specific new infrastructure to address the needs arising from growth. Rather, it requires the refurbishment of the existing police estate from which police staff can operate. The specific nature of any requirements will need to be assessed on a case-by-case basis.

8.4 The cost of provision is estimated at £4.75m.

8.5 Essex Police has reported that there is no existing funding source for the Police service to support the required growth in infrastructure from central or local taxation. The Police service does not receive sufficient central capital funding for new growth-related development. The funding allocated to the Police and Crime Commission via Home Office grants, Council Tax precept and other specific limited grants is generally insufficient to fund requests for capital expenditure whilst there is a time lag associated with the Police receiving operational funding.

8.6 Some funding will therefore have to come from capital reserves, with the remainder coming from developer contributions.

8.7 The Police have stated that the infrastructure would be needed by approximately 2020. This reflects the fact that, whilst growth over the whole plan period will place extra demands on the service, the

built estate required to support these burdens will not increase, it will simply need to be refurbished and upgraded. Such work is required in the short term, irrespective of the levels of growth delivered.

Fire Service

8.8 Essex Fire and Rescue Service has not stated that it has any needs arising from growth.

Ambulance

8.9 The East of England Ambulance Service NHS Trust operates ambulance services in Colchester borough.

8.10 It has confirmed that it has no specific infrastructure needs to support growth. Its services are funded from the North Essex Clinical Commissioning Group based on historic emergency call data. This data is reviewed annually and changes in provision are made accordingly.

9 Waste

9.1 Management of municipal waste is a UK-wide challenge as both European and national legislation and policy seeks to deal with waste more sustainably and to reduce the amounts of waste being deposited into landfill. Waste is also increasingly seen as a resource that through recycling and treatment processes can be utilised.

9.2 Essex County Council is the Waste Disposal Authority (WDA) covering Colchester borough and provides waste disposal infrastructure to ensure waste generated by households, and other wastes collected by Councils in Essex, is effectively managed. Colchester Borough Council is the Waste Collection Authority and is responsible for the collection of this municipal waste. Municipal waste includes household waste and any other wastes collected by, or on behalf, of councils.

9.3 The delivery of local plans which increase residential development, through both infilling and major developments, will impact on waste management systems on a number of levels as the resultant population growth will lead to an increase in waste arisings which require handling and disposal.

Needs

9.4 The major waste treatment infrastructure currently in place for managing Local Authority Collected Municipal Waste has been equipped to accommodate the anticipated waste growth levels resulting from the proposed Local Plan growth. However, it is likely that pressure will be placed on the ancillary smaller scale infrastructure, such as waste transfer stations, waste operational depots and the public-facing Recycling Centres for Household Waste (RCHW). These facilities, which provide, local communities access to waste disposal options for household generated bulky waste are, by their very nature, required to be close to population centres and are therefore particularly vulnerable to medium and large scale developments.

9.5 The Municipal Waste Strategy is in the process of being updated and ECC is in consultation with the Essex districts, including Colchester. The Strategy will review current sites (smaller waste facilities

and recycling centres for household waste) and may result in changes to their location, rationalisation, and/or increased capacity.

9.6 A review of existing and potential facilities will be taking place during the first five-year Local Plan period to determine requirements in the 10-15 year period. This is likely to result in a need to extend or expand this infrastructure offer to meet local needs. However, at this stage it is not possible to determine what these needs are.

10 Social and Community

10.1 Social and community infrastructure helps to create, sustain and enliven communities. It ranges from purpose built community facilities such as libraries, to allotments and community centres. Together these places support the activities which are required to help build community, foster a sense of place, meet the cultural and recreational needs of communities and promote community wellbeing.

Libraries

10.2 Library services are provided by Essex County Council.

10.3 Libraries and their provision is changing significantly. Partly this is due to reducing budgets but also due to the growth of information technology and the population's needs of a core community information service.

10.4 A 2013 report by the Arts Council and Local Government Association[6] set out the changing ways in which local residents use library facilities. The report drew upon best practice experience to outline ways in which communities are supporting and managing local library services. Library facilities in the district are also used for community-run events and activities, and are increasingly becoming spaces where the public can come together.

10.5 In Colchester borough there are libraries in Colchester, Greenstead, Prettygate, Stanway, Tiptree, West Mersea and Wivenhoe. A mobile library serves rural areas across the borough.

10.6 A 2013 report by the Arts Council and Local Government Association[7] set out the changing ways in which local residents use library facilities. The report drew upon best practice experience to outline

[6] Locality (2013) *Community libraries: learning from experience: guiding principles for local authorities*, for Arts Council England and the Local Government Association
[7] Locality (2013) *Community libraries: learning from experience: guiding principles for local authorities*, for Arts Council England and the Local Government Association

ways in which communities are supporting and managing local library services. Library facilities in the district are also used for community-run events and activities, and are increasingly becoming spaces where the public can come together.

10.7 Given that conventional libraries are based within settlements, they are less accessible to more rural areas of the borough. However, there are no distance standards relating to libraries. For this reason, it has to be assumed that there is no existing deficit in library provision.

10.8 In terms of future provision, opportunities for the co-location of services and maximising the use of existing buildings will be encouraged, to respond to the increasingly integrated models of service provision and provision for multi-purpose facilities. There is increasing emphasis on the integration of other forms of community infrastructure, such as libraries and community spaces. For the purposes of this IDP mobile libraries have not been considered as they offer little flexibility for colocation and are less appropriate for meeting the long term needs of new and existing communities.

10.9 New provision is therefore likely to be in the form of a co-located community hub/library. This will be dependent on the level of population growth and the demographic of that population, along with the service requirements of future library provision. It is therefore likely that new provision could be made at some of the larger growth locations, particularly if there is a need for other community facilities, e.g. health centres, community halls etc. However, at this stage it is not possible to identify specific needs or costs of provision.

10.10 Funding will need to come from developer contributions and will be appropriately designed to serve new developments and communities through the masterplanning process.

Allotments

Existing provision

10.1 Allotment provision is not commonly undertaken by one specific body. Many allotments were provided several decades ago when funding and provision regimes were very different. Today it is more reasonable to expect developers to provide allotments as part of large developments. The maintenance and upkeep of allotments is commonly undertaken by parish councils.

10.2 Colchester Borough Green Infrastructure Strategy 2011 established that there is a high demand for allotments in the Borough. The Colchester Allotment Association identifies that, at that time, there were 17 allotments in Colchester, providing over 800 plots[8]. Whilst a set figure is not given it was identified that there were no spaces available and there were waiting lists for all allotments.

[8] Colchester Borough Green Infrastructure Strategy, 2011, p.60

Needs and costs

10.3 The Colchester Parks and Green Spaces Strategy 2008 recommends provision of 0.2 hectares of allotment space per 1,000 people.

10.4 Based on the cost of provision elsewhere, it is estimated that the cost of allotment provision is in the region of £25,000 for a 20-plot allotment. Such an allotment would require approximately 0.25 hectares, meaning that the overall cost of provision would be £100,000 per hectare.

10.5 Table 10.1 summarises the needs and costs. Table 10.2 does the same for the Garden Communities beyond the plan period.

Table 10.1: Need for allotment space arising from growth

	Dwellings	Population	Allotment needs (ha)	Allotment costs
East Colchester	2,500	5,600	1.12	£112,000
West of Colchester	2,500	5,600	1.12	£112,000
Central Colchester	461	1,033	0.21	£20,653
East Colchester/Hythe	850	1,904	0.38	£38,080
South Colchester	1,300	2,912	0.58	£58,240
North Colchester	430	963	0.19	£19,264
Stanway	1,150	2,576	0.52	£51,520
Tiptree	600	1,344	0.27	£26,880
Wivenhoe	274	614	0.12	£12,275
West Mersea	200	448	0.09	£8,960
Eight Ash Green	150	336	0.07	£6,720
West Bergholt	120	269	0.05	£5,376
TOTAL	**10,535**	**23,598**	**4.72**	**£471,968**

10.6 In total there is a need for nearly five hectares of allotment space, with a total cost of £498,500. Beyond the plan period more than 11 hectares of additional land is required costing £1.13m.

Table 10.2: Need for allotment space arising from growth in the Garden Communities post-plan period

	Dwellings	Population	Allotment needs (ha)	Allotment costs
East Colchester GC	6,100	13,664	3.42	£341,600
West of Colchester GC	17,500	39,200	7.84	£785,000

Population figures have been derived from DCLG 2014 household projections

Funding

10.7 Outside of local authority budgets, there is no known source of funding available for the provision of additional facilities as would be required by the development options. It is assumed that these would be funded solely through developer contributions.

Delivery and timing

10.8 Provision of allotment facilities would mostly be on-site as part of developments coming forward. It will be for the masterplanning process to establish when and where they are delivered, so this should be agreed between Colchester Borough Council and the developer. Ultimately it could be the developer that delivers such facilities or the land could simply be provided by the developer. Commonly this is to the parish/town council in question.

10.9 Increasingly, alternative models of growing provision are being adopted in developments. In particular the use of community growing spaces is becoming increasingly popular, whereby growing space is made directly outside residential properties and is shared by the community. This means that less space is required because it can be provided more flexibly and allows communities to grow exactly what they need. Such alternative models are much cheaper and may be preferable particularly in built-up areas.

Community Centres

Existing provision

10.10 Colchester Borough Council has not undertaken a separate assessment of community hall provision.

Needs and costs

10.11 The 2013 update to the Colchester Borough Council Provision of Community Facilities SPD (2009) specifies that 0.75sqm per new dwelling is required for new community facilities.

10.12 Based on a reasonable assumption of 1,000m² for a large community centre and 200m² for a small meeting hall, provision could be made in a number of ways, mixing large and small centres as appropriate.

10.13 However, it is too simplistic to say that this is exactly what is required in terms of the number of facilities. It may be preferable to provide community facilities as part of one large, multi-use facility. Community centres are often used for sporting activities. However, if such sporting facilities are already to be provided (either as a stand-alone facility or through use, for example, of secondary school facilities) then it is not necessary for such a large centre to be provided.

10.14 The capital cost of constructing a community centre in 2013 in the North Growth Area Urban Extension was £1,900/m^2 for a 1,000m^2 facility. This covered construction and fees, but excluded any equipment used for sports activities.

10.15 Figure 10.3 summarises the needs and costs. Table 10.4 does the same for the Garden Communities beyond the plan period.

Figure 10.3: Need for community halls arising from growth

	Dwellings	Community centre needs (sqm)	Community centre needs - facilities	New community centre costs
East Colchester	2,500	1,875	2 large centres	£3,800,000
West of Colchester	2,500	1,875	2 large centres	£3,800,000
Central Colchester	461	346	1 small centre	£380,000
East Colchester/Hythe	850	638	3 small centres	£1,140,000
South Colchester	1,300	975	1 large centre	£1,900,000
North Colchester	430	323	1 small centre	£380,000
Stanway	1,150	863	1 large centre	£1,900,000
Tiptree	600	450	2 small centres	£760,000
Wivenhoe	274	206	1 small centre	£380,000
West Mersea	200	150	None	£0
Eight Ash Green	150	113	None	£0
West Bergholt	120	90	None	£0
TOTAL	**10,535**	**7,901**	**6 large centres + 8 small centres**	**£14,440,000**

10.16 This would create a total cost of £14.4m for providing new community centre space. Beyond the plan period, the two Garden Communities would create a need for 11 large community centres and 5 small community centres costing £22.8m.

Table 10.4: Need for community halls arising from growth at the Garden Communities post-plan period

	Dwellings	Community centre needs (sqm)	Community centre needs - facilities	New community centre costs
East Colchester GC	6,100	4,575	4 large centres + 2 small centres	£8,360,000
West of Colchester GC	17,500	7,700	7 large centres + 3 small centres	£14,440,000

Population figures have been derived from DCLG 2014 household projections

Funding

10.17 New community facilities are either provided from local authority capital expenditure budgets or through developer contributions. In certain circumstances, funding can be sought from Sport England if the facility is to provide a significant level of sports facilities. Contributions from development are expected at this time to be secured through a CIL charge.

10.18 Commonly as part of major developments such land is provided as free land in lieu of other charges, so a developer may offer either the land and a capital contribution towards the construction of a community building, or the identification of a site and construction of the building with subsequent transfer to the local planning authority or, if there is one, a parish council.

Timing of provision

10.19 There is no particular need for community centres to be provided at a certain time although they should be provided by the time that a reasonable proportion of the population of a new strategic development has been established.

11 Leisure and Recreation

11.1 Leisure and recreation infrastructure helps to create, sustain and enliven communities. Leisure and recreation infrastructure ranges from purpose built leisure facilities, indoor and outdoor sport facilities and play space. Together these places support the activities which are required to help build community, foster a sense of place, meet the cultural and recreational needs of communities and promote community wellbeing.

11.2 The population of the local authority area is expected to increase. This can be attributed both to planned housing growth and an ageing population. The leisure and recreation needs of Colchester will therefore have to continue to accommodate for current day needs whilst also supporting and encouraging activity amongst a higher proportion of older persons.

11.3 Provision has historically been provided within the larger settlements where demand is highest. Development must ensure that, where appropriate it meets the needs of the immediate proposal and address any existing under provision. Where existing under provision has been identified, the strategy for additional planned leisure and recreation services can be planned carefully to maximise on the positive benefit of such new facilities on both the current and future needs of the population. New facilities should seek to offer flexible uses and combine facilities/ services which may have historically been provided on separate basis.

11.4 In particular, the opening up of school facilities to the wider public outside of school opening hours can provide specialist facilities in new developments with reduced costs. Essex County Council has advised that most academies would, in principle, be amenable to renting their pitches to local sports clubs or rooms for community interest activities, e.g. adult education, where possible as an income generator. In practice this is easier to achieve with new schools as this can be stipulated when looking for an academy sponsor and included in the lease, or if an additional facility is required this can be designed in if other funding sources are available for it.

11.5 However, this will need to be considered on a case-by-case basis for both new and existing school facilities and therefore the IDP does not assume that this will happen in all cases. The assessment of leisure and recreation needs therefore reflects the overall need and cost which may ultimately be reduced if facilities can be shared.

Children's Play Facilities and Youth Facilities

11.6 Children's play space is provided on Local Areas for Play (LAPs), Local Equipped Areas for Play (LEAPs) and Neighbourhood Areas for Play (NEAPs). LAPs are small play areas and are normally provided as on-site infrastructure on most smaller residential developments. The need for such facilities is therefore not included in this assessment.

Existing capacity

11.7 Colchester's PPG17 Open Space, Sport & Recreation Study, 2007 set out at that in 2007 that there were 84 LAPs, LEAPs and NEAPs. The level of provision of LAPs, LEAPs and NEAPs per 1000 population ranged from 0.02 in Central, Urban South, and Mersea analysis areas, to 0.07 in the Rural analysis area. This was considered low in 2007. The shortfalls at that time were an identified as -2.73 (ha). It was predicted that there would be a -5.04 (ha) shortfall by 2021. The locations with the greatest deficits were Urban South Colchester with a shortfall of -1.89 (ha), Urban North with a shortfall of -1.23 (ha) and Central Colchester at -0.9 (ha). (CBC, 2007, p. 162)

11.8 Colchester's PPG17 Open Space, Sport & Recreation Study, 2007 further set out at that in 2007 the quality of provision of LAPs, LEAPs, and NEAPs averages at 62% across its 84 sites. At the time of the study the play areas were in good condition but there was scope for improvement. (CBC, 2007, p. 158)

11.9 The Colchester Borough Green Infrastructure Strategy, 2011 sets out that 63% of respondents to a household survey considering that there was an inadequate supply of play space. (CBC, 2011, p.65) Teenage facilities were also expressed as a priority area for future provision.

Needs and costs

11.10 Based on guidance provided by Fields in Trust (FIT)[9], the operating name of the National Playing Fields Association, a standard of 0.25 hectares per 1,000 population is applied to all play provision and 0.30 hectares per 1,000 population for youth provision. The FIT guidance also provides recommendations on the minimum size of provision of LEAPs, NEAPs and MUGAs, allowing a buffer area around a facility to reflect possible boundaries with residential properties.

[9] Fields in Trust (2015) *Guidance for Outdoor Sport and Play: Beyond the Six Acre Standard*

11.11 Where an area creates a need significantly less than one LEAP, NEAP or MUGA, it is excluded. The table shows that there is a need for approximately 10 LEAPs and four NEAPs, as well as seven MUGAs or equivalent youth provision.

11.12 Based on an assessment of developments elsewhere, the typical cost of a LEAP is £40,000, a NEAP is £80,000 and a MUGA is £115,000. This includes all fees but excludes the ongoing maintenance of such facilities, as this would be a revenue cost. It will be important for the Borough Council to be confident that the additional burden of maintaining these sites can be absorbed by its future revenue budgets.

11.13 Table 11.1 shows the needs arising from future growth by location for the plan period. The total cost of provision to address the needs arising from growth for children's play and youth facilities is £1.53m within the plan period.

Table 11.1: Need for play and youth facilities arising from growth

	Dwellings	Population	Play space needs (ha)	LEAPs needed	NEAPs needed	Youth needs (ha)	MUGAs needed	Play space and youth needs - costs
East Colchester GC	2,500	5,600	1.40	2	1	1.68	2	£390,000
West of Colchester GC	2,500	5,600	1.40	2	1	1.68	2	£390,000
Central Colchester	461	1,033	0.26	1	0	0.31	0	£40,000
East Colchester/Hythe	850	1,904	0.48	1	1	0.57	1	£235,000
South Colchester	1,300	2,912	0.73	0	1	0.87	1	£195,000
North Colchester	430	963	0.24	1	0	0.29	0	£40,000
Stanway	1,150	2,576	0.64	2	0	0.77	1	£195,000
Tiptree	600	1,344	0.34	1	0	0.40	0	£40,000
Wivenhoe	274	614	0.15	0	0	0.18	0	£0
West Mersea	200	448	0.11	0	0	0.13	0	£0
Eight Ash Green	150	336	0.08	0	0	0.10	0	£0
West Bergholt	120	269	0.07	0	0	0.08	0	£0
Total				**10**	**4**		**7**	**£1,525,000**

Population figures have been derived from DCLG 2014 household projections

11.14 The need for LEAPs, NEAPS and MUGAs following the plan period is set out below for the Garden Communities. In total, these needs would cost £3.63m.

Table 11.2: Need for play and youth facilities arising from growth for the Garden Communities post-plan period

	Dwellings post plan	Population	Play space needs (ha)	LEAPs needed	NEAPs needed	MUGAs needed	Play space and youth needs - costs
East Colchester GC	6,100	13,664	3.4	2	3	5	£909,260
West of Colchester GC	17,500	39,200	9.8	5	10	15	£2,725,000

Population figures have been derived from DCLG 2014 household projections

Funding

11.15 Outside of local authority budgets, there is no known source of funding available for the provision of additional play space as would be required by the development options. It is assumed that these would be funded solely through developer contributions.

Delivery and timing

11.16 Provision of children's play facilities would mostly be on-site as part of developments coming forward. It will be for the masterplanning process to establish when and where they are delivered, so this should be agreed between Colchester Borough Council and the developer. Ultimately it will be the developer that delivers such facilities. The potential on larger sites to co-locate community, sports and play facilities will help to maximise efficiency.

11.17 Provision of facilities in other locations could be the responsibility of either the Borough Council or the parish/town council in question.

Outdoor grass pitches

11.18 Pitches for football and rugby are required for both adults and children. Junior football pitches are generally half the size of adult pitches, although in the case of mini-football, they are smaller than this. This assessment provides an overall assessment of the needs arising from growth for adult pitches, assuming that all needs are for adult provision; clearly this will not be the case and there will be a need for a mix of adult, junior and mini provision. The detailed breakdown of these needs is most appropriately considered at the masterplanning or pre-application stage.

Existing provision

11.19 There are 299 grass pitches in Colchester borough. These facilities support include football, baseball, cricket, hockey and rugby. Of these pitches, 108 are private and 191 are publicly accessible.

11.20 The Colchester Borough Council Playing Pitch Strategy and Action Plan, 2015 - 2025 sets out that there is an over-supply of cricket pitches although these are well distributed across the borough.

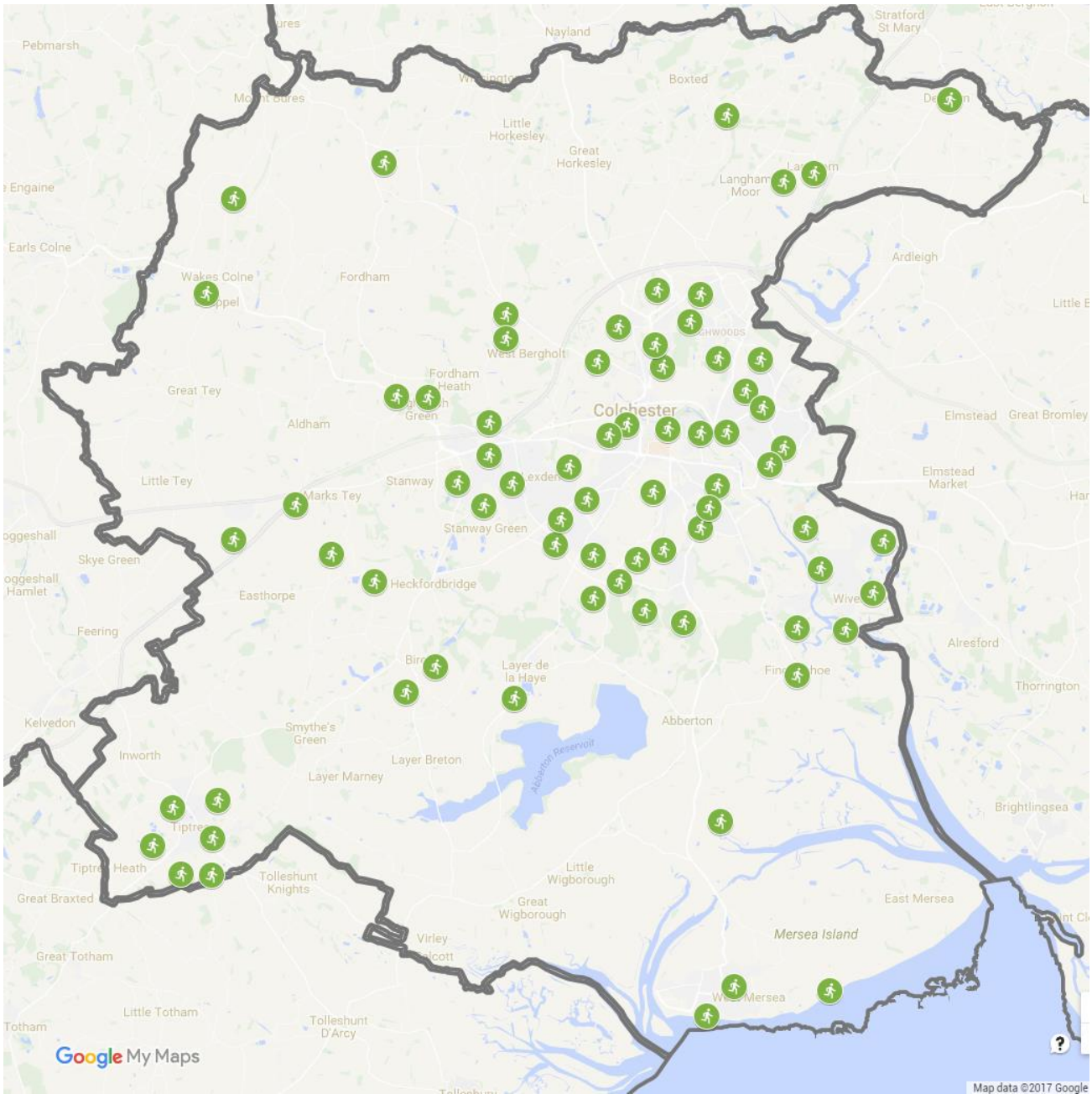
11.21 The condition of football pitches was assessed as being good, with take-up being very high.

11.22 The condition of rugby pitches was also assessed as good however there was some overplay recorded. The Playing Pitch Strategy and Action Plan, 2015 identifies the need for an additional 3 adult, 11 youth and 10 mini grass pitches.

11.23 In addition, there are 11 artificial turf sports pitches in Colchester. These were largely provided in the 1980s. Two of these are private and nine are publicly accessible. Generally, the condition of artificial turf sports pitches in Colchester was good. These are likely to be fine over the short- to medium- term

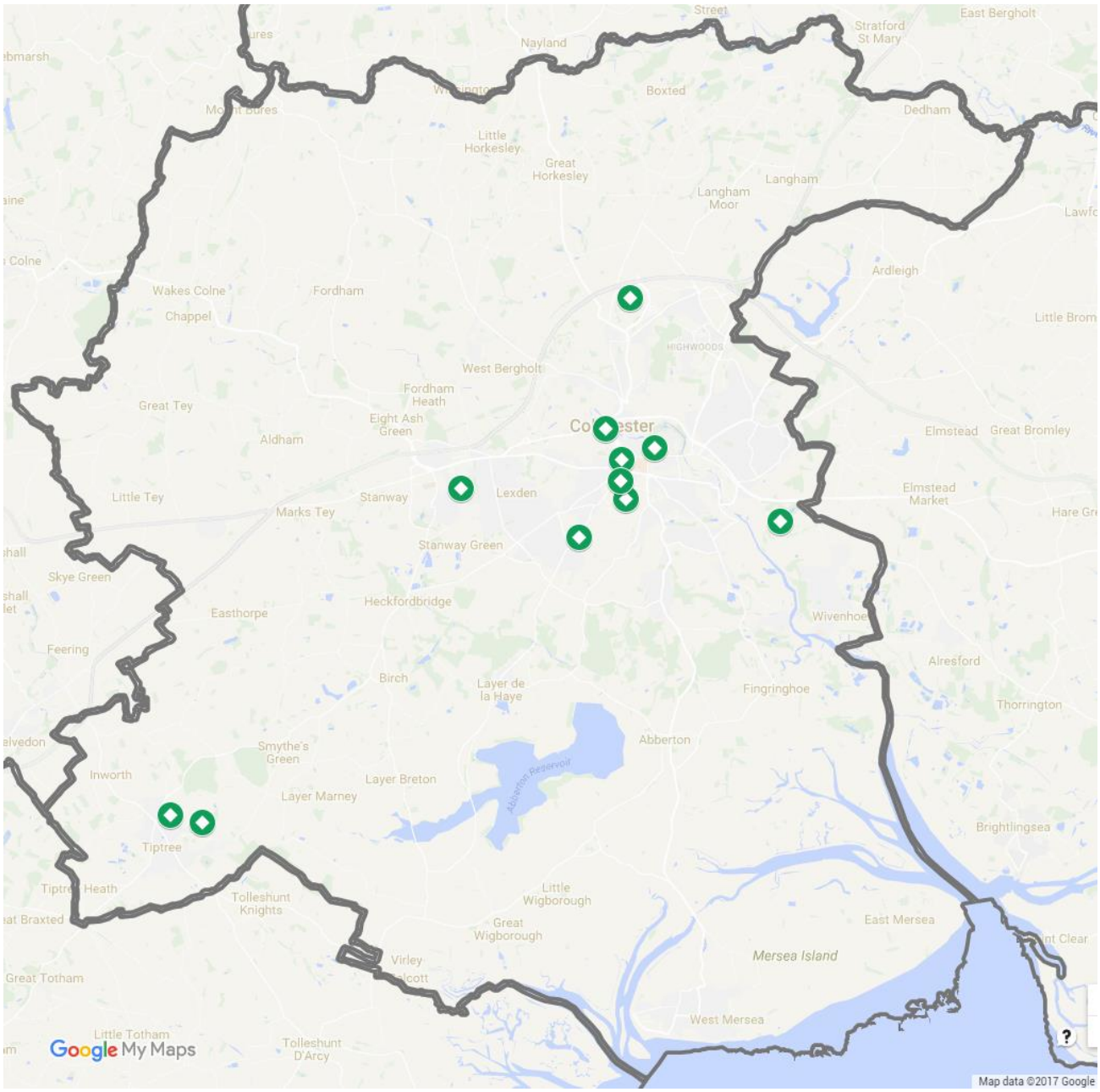
but will probably require resurfacing in the second half of the plan period, based on the normal lifespan of such surfaces. It was identified that there was an overall need is for 4 new AGPs in the 2015 study, the broad locations for any new provision were set out as Wivenhoe, Stanway, Mile End and the North. Upgrades including the re-surfacing of the two 3G AGPs and upgrades to two sand filled pitches were noted as being required in the 2015 study.

Figure 11.1: Location of grass pitches in Colchester borough



Source of data: Active Places Power database

Figure 11.2: Location of artificial turf pitches in Colchester borough



Source of data: Active Places Power database

Needs and costs

11.24 The need forecasts set out below are for grass pitches. Whilst some artificial pitches can substitute in for some grass pitch provision (for 5-a-side, junior football, etc), artificial pitches are mainly an additional requirement. Artificial pitches are increasingly being provided as part of larger MUGA provision, which caters for a range of sports – football, tennis, basketball, netball.

11.25 Based on guidance provided by FIT, a standard of 1.2 hectares per 1,000 population is applied to all grass pitch provision.

11.26 Table 11.3 shows the needs by location. This applies Sport England's recommended space standards of 7,420m2 per adult football pitch. The space requirement for adult rugby pitches is 10,400m2 which means that the overall need is likely to be lower, albeit that the FIT recommended standard is a minimum standard to be applied.

11.27 Where an area creates a need for at least four pitches, it is assumed that changing facilities are also required.

11.28 Guidance on costs from Sport England[10], shows that the cost of providing grass pitches are as follows:

- Adult football pitches £80,000
- Junior football pitches £70,000
- Mini football pitches £20,000
- Adult rugby pitches £105,000

11.29 Given that the assessment is solely based on football pitches, the overall cost of provision is likely to be higher, depending on the mix of football and rugby pitches (with the latter representing a higher cost per pitch).

11.30 Table 11.3 shows that there is a need for approximately 41 adult pitches and four sets of changing facilities costing £3.3m. The cost of the changing facilities will depend on the specification which will be established on a case-by-case basis.

[10] https://www.sportengland.org/media/10289/facility-costs-2q16.pdf

Table 11.3: Need for grass sports pitches arising from growth

	Dwellings	Population	Sports facility needs (ha)	No. of adult football pitches	Sports pitch needs - costs	Changing facilities required?
East Colchester GC	2,500	5,600	6.72	9	£720,000	Yes
West of Colchester GC	2,500	5,600	6.72	9	£720,000	Yes
Central Colchester	461	1,033	1.24	2	£160,000	
East Colchester / Hythe	850	1,904	2.28	3	£240,000	
South Colchester	1,300	2,912	3.49	5	£400,000	Yes
North Colchester	430	963	1.16	2	£160,000	
Stanway	1,150	2,576	3.09	4	£320,000	Yes
Tiptree	600	1,344	1.61	2	£160,000	
Wivenhoe	274	614	0.74	1	£80,000	
West Mersea	200	448	0.54	1	£80,000	
Eight Ash Green	150	336	0.40	1	£80,000	
West Bergholt	120	269	0.32	0	£0	
Total				**39**	**£3,120,000**	

Population figures have been derived from DCLG 2014 household projections

11.31 The need for grass sports pitches beyond the plan period is set out in Table 11.4 for the Garden Communities. This totals 85 pitches costing £6.8m. There would also be a need for additional changing facilities to support these additional needs.

Table 11.4: Need for grass sports pitches arising from growth for the Garden Communities post-plan period

	Dwellings	Population	Sports facility needs (ha)	No. of adult football pitches	Sports pitch needs - costs
East Colchester GC	6,100	13,664	16.4	22	£1,760,000
West of Colchester GC	17,500	39,200	47.0	63	£5,040,000

Population figures have been derived from DCLG 2014 household projections

Funding

11.32 Outside of local authority budgets, there is no known source of funding available for the provision of additional pitches as would be required by the development options. It is assumed that these would be funded solely through developer contributions.

Delivery and timing

11.33 Provision of football pitches would mostly be on-site as part of developments coming forward. The Playing Pitch Strategy sets out that the areas of key growth should be where new football pitches are

provided namely, the North Growth Area, the East Growth Area, the South Growth Area, The Stanway Growth Area and Tiptree, Wivenhoe and West Mersea.

11.34 The current identified spatial locations for future growth are set out in Figure 11.1 and Figure 11.2. It will be for the masterplanning process to establish when and where they are delivered. This should be agreed between Colchester Borough Council and the developer. Ultimately it will be the developer that delivers such facilities. The potential on larger sites to co-locate community and sports facilities will help to maximise efficiency.

11.35 Provision of facilities in other locations could be the responsibility of either the Borough Council or the parish/town council in question.

11.36 There may be needs for other types of reasonably specialist provision, e.g. tennis, bowls, golf etc. However, these are specialist requirements that are often provided by the private sector and are not included as part of this assessment. It should also be noted that many of the requirements for additional tennis and hockey will be addressed through the provision of multi-use games areas (MUGAs). These are considered in the earlier section on youth facilities.

Indoor Sports Halls

11.37 Sports halls can accommodate a diverse range of sports and recreational activities offering space for team sports, gymnastics, martial arts, group exercise classes, conditioning and training. The flexibility of sports halls can also offer space for non-sporting activities for wider community use when designed and managed well.

11.38 The provision of indoor sports halls is high within the local authority area but the size, function and use of these spaces varies greatly. Provision is offered directly by the local authority and through facilities which cater for education with community access. Fee paying commercial facilities are also available across the area. For the purposes of this assessment, and based on the significant call on developer contributions meaning that provision should be made as efficiently as possible, it is assumed that new sports halls required will also provide for wider, non-sporting community activities in the same building.

11.39 Population growth through the number of strategic-scale growth locations proposed will generate additional demand, where new facilities or the expansion of existing facilities will need to accommodate to ensure that demand is met. Providing greater access to existing schools and new schools should be considered to aid with the cost-effective delivery of new sports halls and improving accessibility.

Existing provision

11.40 The provision of indoor sports halls is high within Colchester borough but the size, function and use of these spaces varies greatly. Provision is offered directly by the Borough Council and through

facilities which cater for education with community access. Fee paying commercial facilities are also available across the area.

11.41 Colchester's PPG17 Open Space, Sport & Recreation Study, 2007 set out at that time there were 41.5 indoor sports halls. Within this there was an estimated shortfall of 7.5 badminton courts in 2007 and a future predicted shortfall of 10.25 badminton courts up to 2021 (CBC, 2007, p 35). The PPG17 Open Space, Sport & Recreation Study, 2007 set out that there would be an oversupply of 130 health and fitness centres, a undersupply of 16 indoor tennis courts and an under supply of 2 indoor bowls facilities predicted up to 2021. (CBC, 2007, p.2021)

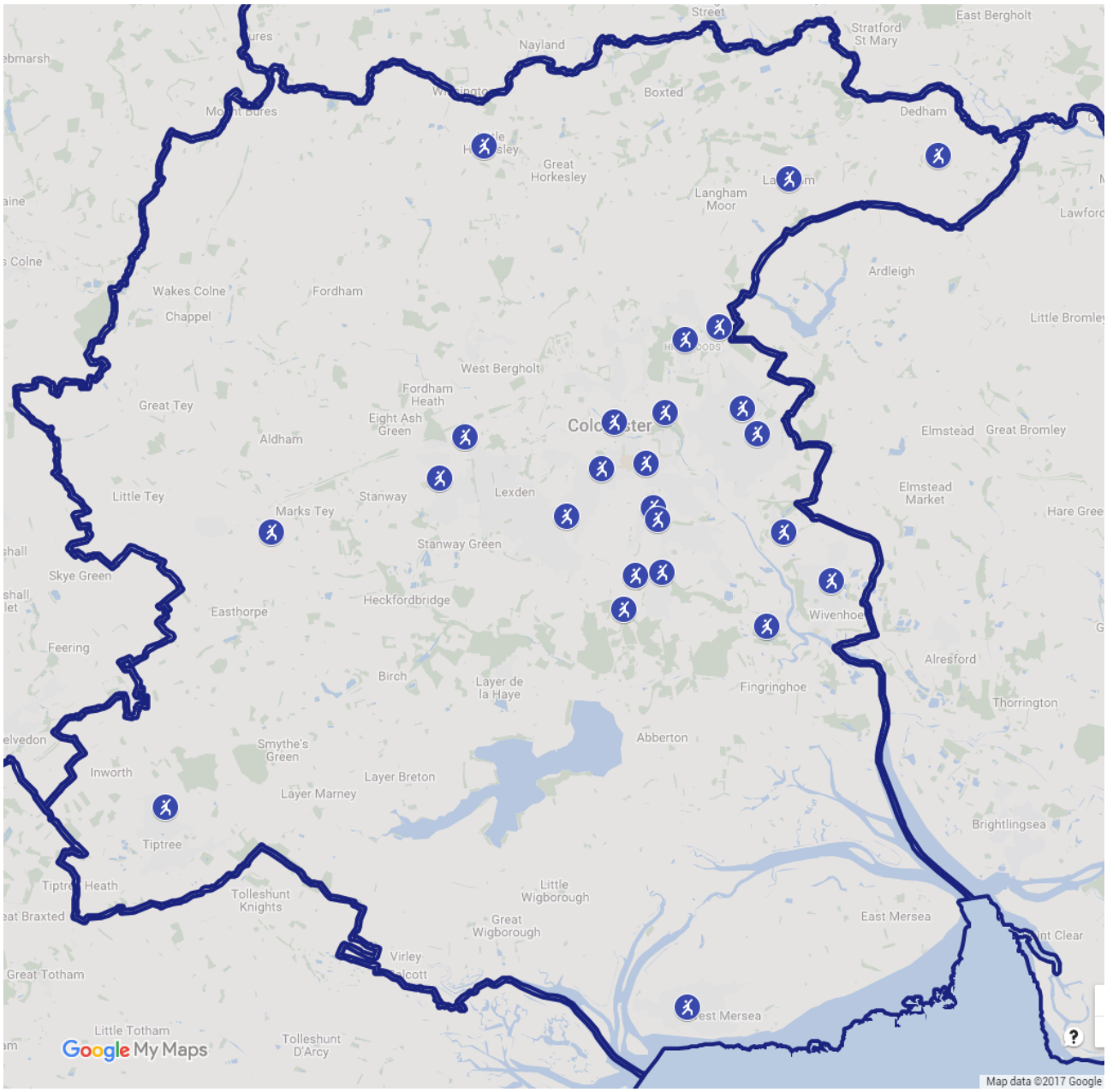
11.42 According to Active Places Power[11] there are 42 indoor sports facilities in Colchester. Of these, 13 are private and 29 are publicly accessible. The location of indoor sports facilities in Colchester is shown in Figure 11.3.

11.43 The 2015 Indoor Sports Facility Strategy identifies that there is more demand for sports hall space than currently exists in Colchester. The Assessment Report identifies a current under-supply of approximately 14 multi-use playing courts (commonly referred to as multi-use games areas, or MUGAs) which does not take account of the closure of Colchester Academy (4 courts) in October 2014. The under-supply is across the Borough but the closure is likely to have the greatest impact in the east of the Borough.

11.44 The Indoor Sports Facilities Strategy sets out that there is an unmet demand for sports halls in Colchester borough but does not give the specific number of future facilities needed.

[11] Active Places Power https://www.activeplacespower.com/areaprofiles

Figure 11.3: Location of indoor sport facilities in Colchester borough



Source of data: Active Places Power database

Needs and costs

11.45 No specific standards have been identified for Colchester Borough. However, the draft Braintree Open Space, Sports and Recreational Facilities Study (2016) recommends a standard for sports halls of one court for every 3,448 people, which is considered to be a reasonable standard to adopt. Applying this standard to the population that would arise from the planned growth within the Local Plan period creates a need for seven indoor sports courts as set out in Table 11.5 below.

Table 11.5: Need for indoor sports courts arising from growth

	Dwellings	Population	Indoor sports courts	Sports centre costs
East Colchester GC	2,500	5,600	2	£760,000
West of Colchester GC	2,500	5,600	2	£760,000
Central Colchester	461	1,033	0	£0
East Colchester/Hythe	850	1,904	1	£670,000
South Colchester	1,300	2,912	1	£670,000
North Colchester	430	963	0	£0
Stanway	1,150	2,576	1	£670,000
Tiptree	600	1,344	0	£0
Wivenhoe	274	614	0	£0
West Mersea	200	448	0	£0
Eight Ash Green	150	336	0	£0
West Bergholt	120	269	0	£0
TOTAL	**10,935**	**24,494**	**7**	**£3,530,000**

11.46 This shows that growth that the two Garden Communities would each require two-court facilities during the plan period. Growth in east Colchester/the Hythe, south Colchester and Stanway would each require one-court facilities. Based on costs from the Sport England facilities costs, Q2 2016, the total cost would be £3.53m over the Local Plan period.

11.47 The need arising for future indoor sports halls after the plan period is set out in Table 11.6 for the Garden Communities. This totals 15 sports courts costing £6.0m.

Table 11.6: Need for indoor sports courts arising from growth for the Garden Communities post-plan period

	Dwellings	Population	Indoor sports courts	Sports centre costs
East Colchester GC	6,100	13,664	4	£1,520,000
West of Colchester GC	17,500	39,200	11	£4,470,000

11.48 There may be other needs for health and fitness stations (mainly in the form of gymnasia) and other types of specialist provision, e.g. squash, indoor bowls, indoor tennis etc. However, these are specialist requirements that are often provided by the private sector and they are not included as part of this assessment.

Funding

11.49 Outside of local authority budgets, there is no known source of funding available for the provision of additional facilities as would be required by the development options. It is assumed that these would be funded solely through developer contributions.

11.50 It should also be noted that some of these needs may be addressed through private facilities which would not be funded by the developer.

Delivery and timing

11.51 Provision of indoor sports facilities would mostly be through improvements to existing facilities. Therefore, this would be the responsibility of Colchester Borough Council. Private facilities coming forward will clearly be the responsibility of the developer in question.

Indoor Swimming Pools

11.52 According to Active Places Power[12], there are 27 swimming pools in Colchester borough. Of these, 10 are private and 17 are publicly accessible. A large number of the publicly accessible pools are private pools that are available for hire by the public.

11.53 Colchester's PPG17 Open Space, Sport & Recreation Study, 2007 set out that at that time there was a demand for 1,728m^2 and a supply of 716m^2. The 2007 estimated shortfall of 1,012m^2 of swimming pools. The future predicted demand was 1,996m^2 with a supply of 1,016m^2 resulting in a future predicted shortfall of 980m^2. (CBC, 2007, p.32)

11.54 The 2015 Indoor Sports Facility Strategy identified that there is more demand for swimming pool space than currently exists in Colchester. Presently there is a provision of 8.85m^2 of pool space per 1,000 residents. Four-fifths of people in the top 20% most deprived wards do not have access to a swimming pool[13]. Whilst swimming pools were reported to be operating at over-capacity their condition was noted as good.

11.55 The location of swimming pools in Colchester is shown in Figure 11.4.

11.56 Sport England's Facilities Planning Model identifies unmet demand of 5 lanes of a 25m swimming pool, which is based on lack of capacity at existing pools and people living outside the catchment drive- or walk-time of a facility. The projected population growth in Colchester is likely to increase pressure on existing water space and it is unlikely that current water space will meet the projected growing demand in the future. This is especially noticeable in the north and east of the Borough where significant population growth is proposed.

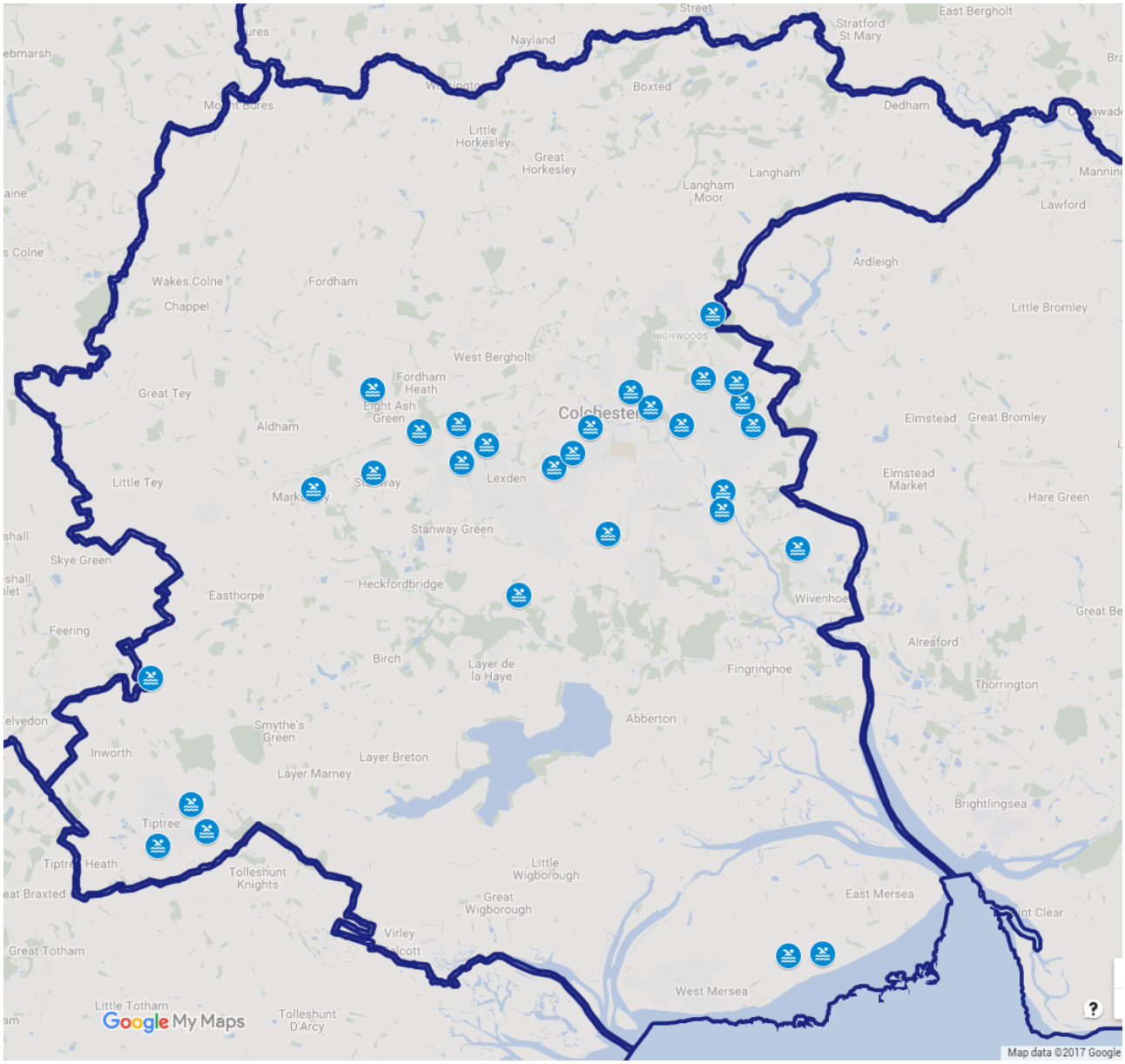
[12] Active Places Power https://www.activeplacespower.com/areaprofiles
[13] Colchester Indoor Sports Facilities strategy and Action Plan 2015 – 2037, 2015, p.39

11.57 The growth proposed could justify the provision of a new swimming pool to serve the East of Colchester Garden Community and other growth in east Colchester. This would particularly be the case when taking into account growth of the Garden Community beyond the plan period.

11.58 A need for a new 25m, 6-lane swimming pool is therefore established. Based on Sport England facility costs from Q2 2016, this would cost £4,965,000 over the Local Plan period.

11.59 At this stage it is not known whether there would be any available funding, therefore it is assumed that this would be funded solely through developer contributions. Any provision would be made towards the end of the plan period.

Figure 11.4: Location of swimming pools in Colchester borough



Source of data: Active Places Power database

12 Green Infrastructure and Open Space

12.1 Green infrastructure refers to a 'strategically planned and delivered network…of high quality green spaces and other environmental features' (Natural England). There are a range of different types of space that could be considered to be green infrastructure. However, for the purposes of this study which looks at infrastructure needs, this is confined to the requirement for green spaces to support new populations resulting from the needs set out in local guidance. In particular this focuses on the natural areas used for informal and semi-formal recreational social value. This mainly consists of:

- Natural and semi-natural green space – mainly country parks
- Parks, gardens and amenity space

Overview of the area

12.2 The Country Parks in or close to Colchester borough are Highwoods Country Park in north Colchester, Cudmore Grove in East Mersea, Westlands Country Park and Gosbecks Archaeological Park.

12.3 Based on standards promoted by Natural England and the Essex Wildlife Trust, people should have access to:

- 2ha+ of accessible natural greenspace (ANG) within 300m of home - this has been termed the Neighbourhood Level
- 20ha+ of ANG within 1.2km of home - the Borough Level
- 60ha+ of ANG within 3.2km of home - the Sub-regional Level
- 500ha+ of ANG within 10km of home - the Regional Level

12.4 An assessment of the provision of ANG against these standards (referred to as 'ANGSt') in Colchester was undertaken by Natural England in 2009. This showed that the borough had a total of 2,028ha of ANG, or 6% of the total area of the borough. Table 12.1 summarises the accessibility to different levels of provision.

Table 12.1: ANGSt analysis of provision

Location	% of households					
	Within 300m of 2ha+ site	Within 2km of 20ha+ site	Within 5km of 100ha+ site	Within 10km of 500ha+ site	Meeting all of the ANGSt requirements	Meeting none of the ANGSt requirements
Colchester	34	86	93	58	19	1
Essex	29	68	72	19	7	14

Source: Essex Wildlife Trust & Natural England (2009) Analysis of Accessible Natural Greenspace Provision for Essex, including Southend-on-Sea and Thurrock Unitary Authorities

12.5 Existing access to accessible green space is very good in Colchester borough. It is above the Essex-wide average for all scales of site provision.

Needs

12.6 The Colchester Parks and Green Spaces Strategy (2008) and the Colchester Green Infrastructure Study (2011), propose the following standards for provision of green space:

- Parks and gardens – 1.76 hectares per 1,000 population
- Natural and semi-natural green spaces – 5.0 hectare per 1,000 population
- Amenity green spaces – 1.10 hectare per 1,000 population

12.7 Table 12.2 applies these standards to the growth proposed across the borough. In total, nearly 200 hectares of green space is required to address the needs arising from growth.

Table 12.2: Green space requirements to support growth

	Dwellings	Population	Parks and gardens (ha)	Natural and semi-natural green space (ha)	Amenity green space (ha)
East Colchester GC	2,500	5,600	9.86	28.00	6.16
West of Colchester GC	2,500	5,600	9.86	28.00	6.16
Central Colchester	461	1,033	1.82	5.16	1.14
East Colchester/Hythe	850	1,904	3.35	9.52	2.09
South Colchester	1,300	2,912	5.13	14.56	3.20
North Colchester	430	963	1.70	4.82	1.06
Stanway	1,150	2,576	4.53	12.88	2.83
Tiptree	600	1,344	2.37	6.72	1.48
Wivenhoe	274	614	1.08	3.07	0.68
West Mersea	200	448	0.79	2.24	0.49
Eight Ash Green	150	336	0.59	1.68	0.37
West Bergholt	120	269	0.47	1.34	0.30
Total			**41.53**	**117.99**	**25.96**

Population derived from DCLG 2014 household projections

12.8 Table 12.3 shows that beyond the plan period, the Garden Communities will need a further 415 hectares of green space.

Table 12.3 Need for green space arising from growth in the Garden Communities post-plan period

	Dwellings	Population	Parks and gardens (ha)	Natural and semi-natural green space (ha)	Amenity green space (ha)
East Colchester GC	6,100	13,664	24.0	68.3	15.0
West of Colchester GC	17,500	39,200	69.0	196.0	43.1

Population figures have been derived from DCLG 2014 household projections

12.9 Not all developments will necessarily be expected to provide green space at these standards, particularly higher density development within the urban areas, e.g. Central Colchester.

12.10 In addition, ECC reports that that it will be more cost-efficient to provide local parks for more than local need, i.e. providing a wider visitor experience which can help to create a revenue stream that will otherwise address what are relatively high costs of provision. For country parks, the scale of provision is key; such provision should be at least 40 hectares in order to make it a ‘destination’.

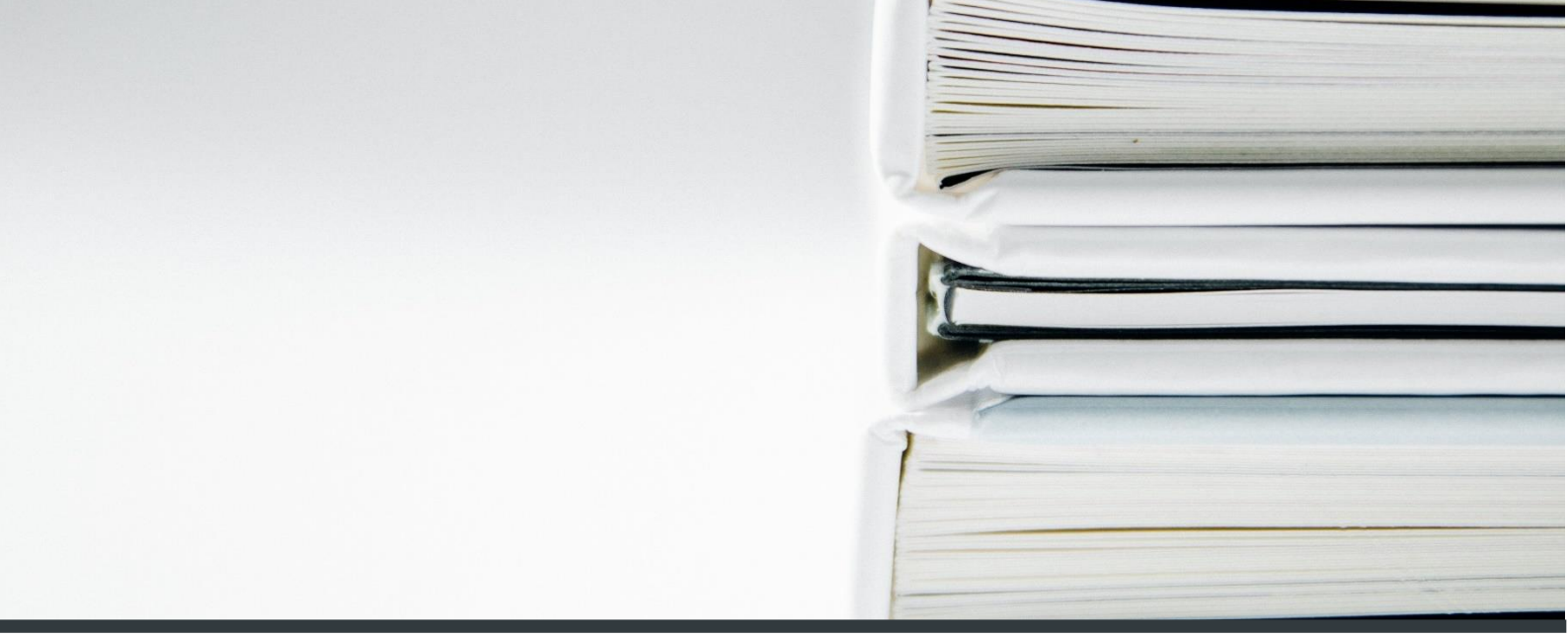
Costs and funding

12.11 It is not possible to assign costs for the provision of green infrastructure and open space. This will depend on a number of factors, not least the availability of greenfield land to make such provision. It will certainly be envisaged that larger scale provision of green space could be made at the Garden Communities – on the East Colchester Garden Community, the Salary Brook area is seen as a possible location for a country park or equivalent.

12.12 It is expected that developers will make land available for green infrastructure provision as part of comprehensive masterplanning and the application/Section 106 process. ECC reports that ongoing revenue funding is the greatest challenge for maintaining green infrastructure. Larger scale provision, particularly country parks, is preferred because of the greater ability to create multiple revenue streams through, for example, car parking, visitor attractions, cafes and restaurants and corporate activities. Great Notley Country Park, for example, provides all of these facilities and attracts 150,000 visitors per year.

Timing of provision

12.13 Provision will be delivered as part of the planned phased development of all sites. A comprehensive masterplanning process will help to ensure that new development provides necessary green infrastructure and public open space.



13 Summary of Key Findings

13.1 A summary of the infrastructure needs, costs, funding and timing is shown in Tables 13.1 and 13.2.

13.2 As noted in Section 1, these needs are only those arising from the growth on the strategic sites. It does not take account of the needs of smaller sites which will also have an impact. These will need to be addressed on a case-by-case basis through planning applications and use of S106 contributions or Community Infrastructure Levy, if such a charge is put in place. Early engagement between developers and infrastructure providers is key to effective planning for such needs.

13.3 As noted in the education section, any specific education outputs which the IDP assigns to the Garden Communities may be addressing wider needs and are not necessarily required to solely address the needs of that Garden Community.

13.4 Transport is not included in either Table 13.1 or 13.2. This is because, as explained in Section 6, the packages of measures required to address the needs arising from growth have yet to be finalised. Whilst some possible costs of schemes which are likely to become part of transport packages are included in Appendix C, some of the significant items remain uncosted. It is therefore considered prudent to leave this out of the assessment in the following tables.

Table 13.1: Infrastructure summary table by infrastructure type

Infrastructure theme	Type of infrastructure	Infrastructure item	Location	Cost	Known funding	Timing period 1 2016-2021	Timing period 2 2022-2027	Timing period 3 2028-2033	Priority
Education	Early Years & Childcare	1 no. 56-place EY&C facility as part of primary school provision	East Colchester/Hythe	Incl. in cost of primary school					Critical
Education	Early Years & Childcare	1 no. 56-place EY&C facility as part of primary school provision	Stanway	Incl. in cost of primary school					Critical
Education	Early Years & Childcare	2 no. stand alone 56-place EY&C facilities/expansion of existing facilities	Stanway/Eight Ash Green/Great Tey	£3,600,000					Critical
Education	Early Years & Childcare	1 no. 56-place EY&C facility as part of primary school provision	South Colchester	Incl. in cost of primary school					Critical
Education	Early Years & Childcare	3 no. EY&C facilities, with some as part of primary school provision	South Colchester	£3,540,000					Critical
Education	Early Years & Childcare	5 no. 56-place EY&C facilities, with some as part of primary school provision	East Colchester GC	£3,900,000					Critical
Education	Early Years & Childcare	4 no. 56-place EY&C facilities, with some as part of primary school provision	West of Colchester GC	£2,900,000					Critical
Education	Early Years & Childcare	1 no. EY&C facility as part of primary school provision	Wivenhoe	£359,000					Critical
Education	Early Years & Childcare	1 no. EY&C facility as part of primary school expansion	South Colchester	£403,000					Critical
Education	Early Years & Childcare	1 no. stand alone 56-place EY&C facility/expansion of existing facilities	North Colchester and rural	£871,000					Critical
Education	Early Years & Childcare	Expansion of existing facilities	South Colchester	£65,000					Critical
Education	Early Years & Childcare	Expansion of existing facilities or as part of primary school provision	Tiptree	£702,000					Critical
Education	Early Years & Childcare	Expansion of existing facilities	Mersea	£234,000					Critical
Education	Primary education	1 no. 3fe primary school and 1no. 2fe primary school	East Colchester GC	£17,500,000					Critical
Education	Primary education	2 no. 2fe primary schools	West of Colchester GC	£14,600,000					Critical
Education	Primary education	1no. 2fe primary school	Stanway	£7,300,000					Critical

Infrastructure theme	Type of infrastructure	Infrastructure item	Location	Cost	Known funding	Timing period 1 2016-2021	Timing period 2 2022-2027	Timing period 3 2028-2033	Priority
Education	Primary education	Expansion of Holy Trinity School by ⅓fe	Stanway/Eight Ash Green	£550,000					Critical
Education	Primary education	Replacement of relocatable classrooms at Copford Primary School	Stanway	£440,000					Critical
Education	Primary education	Expansion of provision by 1fe	Wivenhoe	£1,000,000					Critical
Education	Primary education	Expansion of provision by ½fe	South Colchester	£1,300,000					Critical
Education	Primary education	1no. 3fe primary school	South Colchester	£11,000,000					Critical
Education	Primary education	Expansion of provision	North Colchester and rural	£1,850,000					Critical
Education	Primary education	Expansion of Baynards or Mildene Schools	Tiptree	£2,200,000					Critical
Education	Secondary education	1 no. 9fe secondary school	East Colchester GC	£30,000,000					Critical
Education	Secondary education	1 no. 8fe secondary school	West of Colchester GC	£30,000,000					Critical
Education	Secondary education	Expansion of Thurstable School by 1fe	Tiptree/Mersea	£3,000,000					Critical
Health and social wellbeing	Primary healthcare	New health hub	East Colchester GC/Central Colchester	Not known					Critical
Health and social wellbeing	Primary healthcare	New health hub	Stanway	Not known					Critical
Health and social wellbeing	Primary healthcare	New health hub	Tiptree	Not known					Critical
Health and social wellbeing	Primary healthcare	New health hub	Mersea	Not known					Critical
Health and social wellbeing	Primary healthcare	Reconfiguration/refurbishment of GP surgery provision	South Colchester	Not known					Critical
Health and social wellbeing	Primary healthcare	Reconfiguration/refurbishment of GP surgery provision	North Colchester and rural	Not known					Critical
Utilities	Waste water	Enhancement to Water Recycling Centre capacity	Stanway	Not known	Likely by Anglian Water Services				Critical
Utilities	Waste water	Enhancement to Water Recycling Centre capacity	North Colchester and rural	Not known	Likely by Anglian Water Services				Critical
Utilities	Waste water	Enhancement to Water Recycling Centre capacity	West of Colchester GC	Not known	Likely by Anglian Water Services				Critical
Utilities	Waste water	Foul sewerage network enhancement	All locations	Site specific	All funded by developer				Critical
Utilities	Water - potable supply	Local infrastructure enhancement	All locations	Site specific	All funded by developer				Critical
Utilities	Water - potable supply	Mains extension from River Colne	South Colchester	Site specific	Likely by Anglian Water Services				Critical
Utilities	Gas	Local infrastructure enhancement	All locations	Site specific	All funded by developer				Critical

Infrastructure theme	Type of infrastructure	Infrastructure item	Location	Cost	Known funding	Timing period 1 2016-2021	Timing period 2 2022-2027	Timing period 3 2028-2033	Priority
Utilities	Electricity	Provision of new secondary substations for all development over 50 dwellings	All locations	Site specific	All funded by provider/developer				Critical
Flooding	Flood defences	Surface water mitigation scheme	North Colchester and rural	Site specific	Environment Agency				Policy high priority
Flooding	Flood defences	Surface water mitigation scheme	Central Colchester	Site specific	Environment Agency				Policy high priority
Flooding	Flood defences	Surface water mitigation scheme	East Colchester/Hythe	Site specific	Environment Agency				Policy high priority
Flooding	Flood defences	Surface water mitigation scheme	South Colchester	Site specific	Environment Agency				Policy high priority
Emergency services	Police	Replacement of existing police estate	All locations	£24,500,000					Important
Social and community	Library provision	Co-located community hub/library	Dependent on growth levels	Not known					Important
Social and community	Allotments	New allotment provision	East Colchester GC	£112,000					Important
Social and community	Allotments	New allotment provision	West of Colchester GC	£112,000					Important
Social and community	Allotments	New allotment provision	Central Colchester	£20,653					Important
Social and community	Allotments	New allotment provision	East Colchester/Hythe	£38,080					Important
Social and community	Allotments	New allotment provision	South Colchester	£59,240					Important
Social and community	Allotments	New allotment provision	North Colchester and rural	£19,264					Important
Social and community	Allotments	New allotment provision	Stanway	£51,520					Important
Social and community	Allotments	New allotment provision	Tiptree	£26,880					Important
Social and community	Allotments	New allotment provision	Wivenhoe	£12,275					Important
Social and community	Allotments	New allotment provision	Mersea	£8,960					Important
Social and community	Allotments	New allotment provision	Eight Ash Green	£6,720					Important
Social and community	Allotments	New allotment provision	West Bergholt	£5,376					Important
Social and community	Community centres	3 no. large community centres 1 no. small centre	East Colchester GC	£3,800,000					Important
Social and community	Community centres	3 no. large community centres 1 no. small centre	West of Colchester GC	£3,800,000					Important
Social and community	Community centres	1 no. small community centre	Central Colchester	£380,000					Important

Infrastructure theme	Type of infrastructure	Infrastructure item	Location	Cost	Known funding	Timing period 1 2016-2021	Timing period 2 2022-2027	Timing period 3 2028-2033	Priority
Social and community	Community centres	3 no. small community centres	East Colchester/Hythe	£1,140,000					Important
Social and community	Community centres	1 no. large community centre	South Colchester	£1,900,000					Important
Social and community	Community centres	1 no. small community centre	North Colchester and rural	£380,000					Important
Social and community	Community centres	1 no. large community centre	Stanway	£1,900,000					Important
Social and community	Community centres	2 no. small community centres	Tiptree	£760,000					Important
Social and community	Community centres	1 no. small community centre	Wivenhoe	£380,000					Important
Leisure and recreation	Children's play and youth facilities	2 LEAPs, 1 NEAP, 2 MUGAs	East Colchester GC	£390,000					Important
Leisure and recreation	Children's play and youth facilities	2 LEAPs, 1 NEAP, 2 MUGAs	West of Colchester GC	£390,000					Important
Leisure and recreation	Children's play and youth facilities	1 LEAP	Central Colchester	£40,000					Important
Leisure and recreation	Children's play and youth facilities	1 LEAP, 1 NEAP, 1 MUGA	East Colchester/Hythe	£235,000					Important
Leisure and recreation	Children's play and youth facilities	1 NEAP, 1 MUGA	South Colchester	£195,000					Important
Leisure and recreation	Children's play and youth facilities	1 LEAP	North Colchester and rural	£40,000					Important
Leisure and recreation	Children's play and youth facilities	2 LEAPs, 1 MUGA	Stanway	£195,000					Important
Leisure and recreation	Children's play and youth facilities	1 LEAP	Tiptree	£40,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 9 adult pitches	East Colchester GC	£720,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 9 adult pitches	West of Colchester GC	£720,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 2 adult pitches	Central Colchester	£160,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 3 adult pitches	East Colchester/Hythe	£240,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 5 adult pitches	South Colchester	£400,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 2 adult pitches	North Colchester and rural	£160,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 4 adult pitches	Stanway	£320,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 2 adult pitches	Tiptree	£160,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 1 adult pitch	Wivenhoe	£80,000					Important

Infrastructure theme	Type of infrastructure	Infrastructure item	Location	Cost	Known funding	Timing period 1 2016-2021	Timing period 2 2022-2027	Timing period 3 2028-2033	Priority
Leisure and recreation	Outdoor grass pitches	Equivalent of 1 adult pitch	Mersea	£80,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 1 adult pitch	Eight Ash Green	£80,000					Important
Leisure and recreation	Indoor sports halls	2-court provision	East Colchester GC	£760,000					Important
Leisure and recreation	Indoor sports halls	2-court provision	West of Colchester GC	£760,000					Important
Leisure and recreation	Indoor sports halls	1-court provision	East Colchester/Hythe	£670,000					Important
Leisure and recreation	Indoor sports halls	1-court provision	South Colchester	£670,000					Important
Leisure and recreation	Indoor sports halls	1-court provision	Stanway	£670,000					Important
Green i'structure and open space	Parks and gardens	Parks and gardens provision	All locations	Not known					Important
Green i'structure and open space	Natural and semi-natural greenspace	Natural and semi-natural greenspace provision	All locations	Not known					Important
Green i'structure and open space	Amenity greenspace	Amenity greenspace provision	All locations	Not known					Important

Table 13.2: Infrastructure summary table by settlement

						Timing of completed provision			
Infrastructure theme	**Type of infrastructure**	**Infrastructure item**	**Location**	**Cost**	**Known funding**	**2016-2021**	**2022-2027**	**2028-2033**	**Priority**
Utilities	Water - potable supply	Local infrastructure enhancement	All locations	Site specific	All funded by developer				Critical
Utilities	Gas	Local infrastructure enhancement	All locations	Site specific	All funded by developer				Critical
Utilities	Electricity	Provision of new secondary substations for all development over 50 dwellings	All locations	Site specific	All funded by provider/developer				Critical
Emergency services	Police	Replacement of existing police estate	All locations	£24,500,000					Important
Green i'structure and open space	Parks and gardens	Parks and gardens provision	All locations	Not known					Important
Green i'structure and open space	Natural and semi-natural greenspace	Natural and semi-natural greenspace provision	All locations	Not known					Important
Green i'structure and open space	Amenity greenspace	Amenity greenspace provision	All locations	Not known					Important
Utilities	Waste water	Foul sewerage network enhancement	All locations	Site specific	All funded by developer				Critical
Social and community	Library provision	Co-located community hub/library	All locations	Not known					Important
Flooding	Flood defences	Surface water mitigation scheme	Central Colchester	Site specific	Environment Agency				Policy high priority
Social and community	Allotments	New allotment provision	Central Colchester	£21,022					Important
Social and community	Community centres	1 no. small community centre	Central Colchester	£380,000					Important
Leisure and recreation	Children's play and youth facilities	1 LEAP	Central Colchester	£40,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 2 adult pitches	Central Colchester	£160,000					Important
Social and community	Allotments	New allotment provision	East Colchester GC	£132,240					Important
Social and community	Community centres	2 no. large community centres	East Colchester GC	£3,800,000					Important
Leisure and recreation	Children's play and youth facilities	2 LEAPs, 1 NEAP, 2 MUGAs	East Colchester GC	£390,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 11 adult pitches	East Colchester GC	£880,000					Important
Leisure and recreation	Indoor sports halls	2-court provision	East Colchester GC	£760,000					Important
Education	Early Years & Childcare	5 no. 56-place EY&C facilities, with some as part of primary school provision	East Colchester GC	£3,900,000					Critical
Education	Primary education	1 no. 3fe primary school and 1no. 2fe primary school	East Colchester GC	£17,500,000					Critical
Education	Secondary education	1 no. 9fe secondary school	East Colchester GC	£30,000,000					Critical
Utilities	Potable water	Local infrastructure enhancement	East Colchester GC	Not known	Likely by Anglian Water Services				Critical
Health and social wellbeing	Primary healthcare	New health hub	East Colchester GC/Central Colchester	Not known					Critical
Education	Early Years & Childcare	1 no. 56-place EY&C facility as part of primary school provision	East Colchester/Hythe	Incl. in cost of primary school					Critical
Flooding	Flood defences	Surface water mitigation scheme	East Colchester/Hythe	Site specific	Environment Agency				Policy high priority

						Timing of completed provision			
Infrastructure theme	**Type of infrastructure**	**Infrastructure item**	**Location**	**Cost**	**Known funding**	**2016-2021**	**2022-2027**	**2028-2033**	**Priority**
Social and community	Allotments	New allotment provision	East Colchester/Hythe	£38,760					Important
Social and community	Community centres	3 no. small community centres	East Colchester/Hythe	£1,140,000					Important
Leisure and recreation	Children's play and youth facilities	1 LEAP, 1 NEAP, 1 MUGA	East Colchester/Hythe	£235,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 3 adult pitches	East Colchester/Hythe	£240,000					Important
Leisure and recreation	Indoor sports halls	1-court provision	East Colchester/Hythe	£670,000					Important
Social and community	Allotments	New allotment provision	Eight Ash Green	£6,840					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 1 adult pitch	Eight Ash Green	£80,000					Important
Social and community	Allotments	New allotment provision	Mersea	£9,120					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 1 adult pitch	Mersea	£80,000					Important
Education	Early Years & Childcare	Expansion of existing facilities	Mersea	£234,000					Critical
Health and social wellbeing	Primary healthcare	New health hub	Mersea	Not known					Critical
Health and social wellbeing	Primary healthcare	Reconfiguration/refurbishment of GP surgery provision	North Colchester and rural	Not known					Critical
Social and community	Allotments	New allotment provision	North Colchester and rural	£19,608					Important
Social and community	Community centres	1 no. small community centre	North Colchester and rural	£380,000					Important
Leisure and recreation	Children's play and youth facilities	1 LEAP	North Colchester and rural	£40,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 2 adult pitches	North Colchester and rural	£160,000					Important
Education	Early Years & Childcare	1 no. stand alone 56-place EY&C facility/expansion of existing facilities	North Colchester and rural	£871,000					Critical
Education	Primary education	Expansion of provision	North Colchester and rural	£1,850,000					Critical
Flooding	Flood defences	Surface water mitigation scheme	North Colchester and rural	Site specific	Environment Agency				Policy high priority
Utilities	Waste water	Enhancement to Water Recycling Centre capacity	North Colchester and rural	Not known	Likely by Anglian Water Services				Critical
Education	Early Years & Childcare	Expansion of existing facilities	South Colchester	£65,000					Critical
Education	Early Years & Childcare	1 no. 56-place EY&C facility as part of primary school provision	South Colchester	Incl. in cost of primary school					Critical
Education	Early Years & Childcare	3 no. EY&C facilities, with some as part of primary school provision	South Colchester	£3,540,000					Critical
Education	Primary education	1no. 3fe primary school	South Colchester	£11,000,000					Critical
Education	Early Years & Childcare	1 no. EY&C facility as part of primary school expansion	South Colchester	£403,000					Critical
Education	Primary education	Expansion of provision by ½fe	South Colchester	£1,300,000					Critical
Health and social wellbeing	Primary healthcare	Reconfiguration/refurbishment of GP surgery provision	South Colchester	Not known					Critical

						Timing of completed provision			
Infrastructure theme	**Type of infrastructure**	**Infrastructure item**	**Location**	**Cost**	**Known funding**	**2016-2021**	**2022-2027**	**2028-2033**	**Priority**
Utilities	Water - potable supply	Mains extension from River Colne	South Colchester	Not known					Critical
Flooding	Flood defences	Surface water mitigation scheme	South Colchester	Site specific	Environment Agency				Policy high priority
Social and community	Allotments	New allotment provision	South Colchester	£59,280					Important
Social and community	Community centres	1 no. large community centre	South Colchester	£1,900,000					Important
Leisure and recreation	Children's play and youth facilities	1 NEAP, 1 MUGA	South Colchester	£195,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 5 adult pitches	South Colchester	£400,000					Important
Leisure and recreation	Indoor sports halls	1-court provision	South Colchester	£670,000					Important
Education	Primary education	1no. 2fe primary school	Stanway	£7,300,000					Critical
Education	Primary education	Replacement of relocatable classrooms at Copford Primary School	Stanway	£440,000					Critical
Utilities	Waste water	Enhancement to Water Recycling Centre capacity	Stanway	Not known	Likely by Anglian Water Services				Critical
Education	Early Years & Childcare	1 no. 56-place EY&C facility as part of primary school provision	Stanway	Incl. in cost of primary school					Critical
Social and community	Allotments	New allotment provision	Stanway	£52,440					Important
Social and community	Community centres	1 no. large community centre	Stanway	£1,900,000					Important
Leisure and recreation	Children's play and youth facilities	2 LEAPs, 1 MUGA	Stanway	£195,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 4 adult pitches	Stanway	£320,000					Important
Leisure and recreation	Indoor sports halls	1-court provision	Stanway	£670,000					Important
Education	Primary education	Expansion of Holy Trinity School by ½fe	Stanway/Eight Ash Green	£550,000					Critical
Education	Early Years & Childcare	2 no. stand alone 56-place EY&C facilities/expansion of existing facilities	Stanway/Eight Ash Green/Great Tey	£3,600,000					Critical
Health and social wellbeing	Primary healthcare	New health hub	Tiptree	Not known					Critical
Education	Early Years & Childcare	Expansion of existing facilities or as part of primary school provision	Tiptree	£702,000					Critical
Education	Primary education	Expansion of Baynards or Mildene Schools	Tiptree	£2,200,000					Critical
Social and community	Allotments	New allotment provision	Tiptree	£27,360					Important
Social and community	Community centres	2 no. small community centres	Tiptree	£760,000					Important
Leisure and recreation	Children's play and youth facilities	1 LEAP	Tiptree	£40,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 2 adult pitches	Tiptree	£160,000					Important
Education	Secondary education	Expansion of Thurstable School by 1fe	Tiptree/Mersea	£3,000,000					Critical
Social and community	Allotments	New allotment provision	West Bergholt	£5,472					Important

						Timing of completed provision			
Infrastructure theme	**Type of infrastructure**	**Infrastructure item**	**Location**	**Cost**	**Known funding**	**2016-2021**	**2022-2027**	**2028-2033**	**Priority**
Health and social wellbeing	Primary healthcare	New health hub	West Colchester GC/Stanway	Not known					Critical
Education	Early Years & Childcare	4 no. 56-place EY&C facilities, with some as part of primary school provision	West of Colchester GC	£2,900,000					Critical
Education	Primary education	2 no. 2fe primary schools	West of Colchester GC	£14,600,000					Critical
Education	Secondary education	1 no. 8fe secondary school	West of Colchester GC	£30,000,000					Critical
Utilities	Potable water	Local infrastructure enhancement	West of Colchester GC	Not known	Likely by Anglian Water Services				Critical
Utilities	Waste water	Enhancement to Water Recycling Centre capacity	West of Colchester GC	Not known	Likely by Anglian Water Services				Critical
Social and community	Allotments	New allotment provision	West of Colchester GC	£114,000					Important
Social and community	Community centres	2 no. large community centres	West of Colchester GC	£3,800,000					Important
Leisure and recreation	Children's play and youth facilities	2 LEAPs, 1 NEAP, 2 MUGAs	West of Colchester GC	£390,000					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 9 adult pitches	West of Colchester GC	£720,000					Important
Leisure and recreation	Indoor sports halls	2-court provision	West of Colchester GC	£760,000					Important
Education	Early Years & Childcare	1 no. EY&C facility as part of primary school provision	Wivenhoe	£359,000					Critical
Education	Primary education	Expansion of provision by 1fe	Wivenhoe	£1,000,000					Critical
Social and community	Community centres	1 no. small community centre	Wivenhoe	£380,000					Important
Social and community	Allotments	New allotment provision	Wivenhoe	£12,494					Important
Leisure and recreation	Outdoor grass pitches	Equivalent of 1 adult pitch	Wivenhoe	£80,000					Important

Appendix A – List of housing sites by area

Location	CBC Ref
East Colchester GC	No specific ref
West of Colchester GC	No specific ref
Central Colchester	COL30
	COL112,113,114,115,116,117,118
	COL98
	RSE13
East Colchester/Hythe	EST07
	COL109,110
	COL105,107,108,111
	COL02
South Colchester	COL71
	COL17
	COL103
	COL12
North Colchester and rural	COL97
	COL16
	EST08
	RNE10
	RNE08
Stanway	STN41
	STN12
	STN06
	STN09
	STN43
	STN18
	STN26
	STN42
Tiptree	No specific ref
Wivenhoe	WIV01,02,03,04,15
West Mersea	MER02,18
Eight Ash Green/Great Tey	RNW05,75
Rowhedge	RSE08
West Bergholt	No specific ref

Appendix B - Development sites

Note: *The reason that the site references are not sequential is because some sites have been removed from the emerging Local Plan*

Ref	Location	Residential (dwellings)	Employment (floorspace)				Convenience retail (floorspace)
			Unknown (sqm)	B1 office	B1 light industrial	B2/B8 manufacturing/ warehousing	
	Garden Communities						
	East of Colchester	2,500					
	West of Colchester	2,500					
COL1	TC3 - Britannia CP	150					
COL2	NC1 - Rugby Club	340 (plus 260 extra care units)					
COL3	NC3 - St Botolph's	120					
COL7	EC3 - Magdalen St	257					
COL8	Middlewick Ranges	1,000					
COL9	WC2- Fiveways	450 (NB: this site already has planning permission)					
COL10	WC2- Chitts Hill	100					
COL11	WC2 west of Lakelands	150					
COL12	WC4- Gosbecks phase 2	150					
COL13	WC4- South of Berechurch Hall Road	150					
COL14	STN09 - Lakelands and London Road site	500					
COL15	Further housing in Stanway	200 (former Sainsbury's site)					
COL16	SS5 - Hall Rd	50					
COL17	SS7 - Eight Ash Green	150					
COL19	SS11- School Road (2 sites)	70					
COL21	SS15 - Tiptree	600					

Ref	Location	Residential (dwellings)	Employment (floorspace)				Convenience retail (floorspace)
			Unknown (sqm)	B1 office	B1 light industrial	B2/B8 manufacturing/ warehousing	
COL22	SS16 - West Bergholt	120					
COL23	SS17a - Dawes Lane and Brierley Paddocks, West Mersea	200					
COL24	SS18 - Wivenhoe	274 (250 in Neighbourhood Plan plus 24 with planning permission)					
COL40	Land adjoining Business Centre		22,160				
COL41	Lodge Lane, Langham		10,000				
COL42	NE Quadrant		19,420				
COL43	NW Quadrant		42,450				
COL44	SE Quadrant		39,480				
COL45	Shurb End		7,889				
COL46	Stane Park		67,770				
COL47	SW Quadrant		39,170				
COL48	SW Quadrant (2)		9,557				
COL49	Tiptree Tower Business Park		15,390				
COL50	Tollgate South		34,760				
COL51	Trafalgar Farm		13,660				
COL52	Whitehall		39,880				
COL53	Lakelands West		40,210				
COL54	Knowledge Gateway - North Area		14,300				

Ref	Location	Residential (dwellings)	Employment (floorspace)				Convenience retail (floorspace)
			Unknown (sqm)	B1 office	B1 light industrial	B2/B8 manufacturing/ warehousing	
COL55	Knowledge Gateway - South Area		22,620				
COL56	Knowledge Gateway - West Area		33,140				
COL57	Horkesley Manor, Great Horkesley	80					
COL58	Brook Road, Great Tey	40					
COL59	DSG site, Flagstaff Road, Colchester	200					
COL60	Hythe gas works (and scrapyard) site, Colchester	300					
COL61	Land between Hawkins Road and Hythe Station Road, Colchester	300					
COL62	STN42 London Road, Stanway	130 (+26 units almshouses)					
COL63	Port Lane, Colchester	130					
COL64	Queensberry Avenue, Copford	70					
COL65	The Folley, Layer de la Haye	50					
COL66	Rowhedge Business Centre (RSE08)	40					
COL67	Wick Road (RNE01)	10					

Appendix C - List of potential transport mitigation measures

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
A12 corridor	A120 Marks Tey (close to J25 of A12)	Over capacity link in committed and local plan scenarios during both the AM and PM peak westbound and eastbound. This link is an entrance/exit to Colchester and have one lane in both directions. The Braintree/Colchester Borders Garden Communities zones are being loaded onto this road causing more congestion issues. The problem remains in all of the Sensitivity Scenarios.	Description of measure(s)	Clearer lane designation with A12 inside lane being hatched off to allow dedicated lanes onto the A12	Signalise both Station Road and London Road roundabouts	Introduce a slip road from London Road East to west arm at the London Rd Roundabout	A120 Braintree to Marks Tey	Bus or rapid transit corridor Cycle route
			Linked work	Refer to West Colchester Stanway travel strategy	n/a	n/a	Highways England	See Braintree Borders Off-site transport ideas
			Estimated cost	£54,000	£100,000 to £500,000	£500,000 to £1 mil	As per HE proposals	£5 mil to £10 mil
			Qualitative assessment	Will decrease weaving at the slip roads, reducing delay both on the A12 and slip roads	Signals on roundabouts generally increases capacity	Reduces London Road East to West journey times	Not known	Would encourage drivers to use buses or cycle more, reducing number of cars passing through the junctions

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
A12 corridor	A12 J26 slip roads	Over capacity issues in the AM peak in the southbound direction (Halstead Rd) in the local plan scenario. It is noted that the Eight Ash Green housing development contributes to the traffic. Over capacity issues in the PM peak in the eastbound direction in the local plan scenario. The reason is that traffic coming from the east is already experiencing some delays which are being propagated downstream along the A12. None of the Sensitivity Tests alleviated the issue.	Description of measure(s)	Signalisation of all approaches to Junction 26	A12 technology package	Redesign of slip roads to increase capacity including widening/lengthening off-slips. Combine with signalisation	Junction reconstruction as part of A12 widening	Improved frequent high quality bus services serving Tollgate and Stanway including evenings and weekendsAlso Rapid Transit link and/or P&R from Braintree/Colchester Borders Garden Settlement
			Linked work	RIS scheme under investigation by HE	RIS scheme under investigation by HE	n/a	n/a	Bus Blueprint being developed by ECC with support from CBC
			Estimated cost	£100,000 to £500,000	Not known	£ 3 mil to £5 mil	> £10 mil	P&R: £5 mil to 10 mil Rapid Transit Costs: Opt 1 £29.8 mil Opt 2: £48.0 mil Opt 3: £31.3 mil Opt 4: £37.3 mil Tram: £164.6 mil

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Qualitative assessment	The SATURN model has coded J26 with signals - however, congestion issues remain	Not known	Capacity increase may be limited unless the roundabout is enlarged too	Assessment in VISSIM would need to be undertaken to find the most efficient junction design	Would significantly reduce number of private cars passing through junction
A12 corridor	A1124 – approach to A12 junction 26/Essex Yeomanry Way	Over capacity in committed and local plan scenarios during the AM peak period. There are committed employment sites at Stane Park and Sainsbury's alongside housing proposals which increase the volume of trips to and from the A12 using this roundabout. The PM peak period shows better results than the AM as the A1124 approach to A12 is below over capacity. The issue remains in all of the Sensitivity Tests.	Description of measure(s)	Clearer lane designation with A12 inside lane being hatched off to allow dedicated lanes onto the A12. This would decrease capacity of the A12 through the junction	Signals, including on the slip road using queue loops	Part signalisation of the A12 and A1124 roundabout for the A12 off-slips with two dedicated left turn slips linking Essex Yeomanry Way to A12 on-slip westbound and A12 off-slip westbound to Essex Yeomanry Way.	Full signalisation. Left turn slips provided for all four arms of the roundabout	Bus priority measures on Tollgate RoadBus Interchange proposed in Tollgate area
			Linked work	Refer to West Colchester Stanway travel strategy	Refer to West Colchester Stanway travel strategy	Refer to West Colchester Stanway travel strategy	n/a	Refer to West Colchester Stanway travel strategy

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Estimated cost	£54,000	£100,000 to £500,000	£6.03 mil	> £10 mil	Bus Priority measures: £3 mil to £5 mil Bus Interchange: £3.36 mil
			Qualitative assessment	Will decrease weaving at the slip roads, reducing delay both on the A12 and slip roads	Will alleviate queues on the off slips and on the roundabout. Signals would be part time	Will alleviate queues on the off slips and on the roundabout. Signals would be part time	Will alleviate queues on the off slips and on the roundabout. Signals would be part time	Would reduce number of private cars through the junction
A12 corridor	A12 junction 27 (Spring Lane Rbt + Slips)	This junction does not appear to be that congested. Minor issues in the northbound direction during both the AM and PM peak in the committed and local plan scenarios. The issue is completely solved in the A12 Sensitivity Test which is the A12 widening (1d) in both periods.	Description of measure(s)	Improved lane markings, such as directional arrows on the entries and spiral markings on roundabout to guide drivers (only if the roundabout is considered to be overcapacity)	Signalise all arms except the Spring Lane arm (only if the roundabout is considered to be overcapacity)	Left slip from Cymbeline Way West arm to slip road	Left slip from Cymbeline Way West arm to slip road plus length two lane sections for both Cymbeline Way arms	Improved frequent high quality bus services serving Northern Colchester including evenings and weekends Colchester Rapid Transit
			Linked work	n/a	n/a	n/a	n/a	Refer to West Colchester Stanway travel strategy

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Estimated cost	£25,000 to £100,000	£100,000 to £500,000	£500,000 to £1 mil	£1 mil to £3 mil	Rapid Transit Costs: Opt 1 £29.8 mil Opt 2: £48.0 mil Opt 3: £31.3 mil Opt 4: £37.3 mil Tram: £164.6 mil
			Qualitative assessment	Will decrease weaving on the roundabout. This has the benefit of improving safety as well as reducing delay	Signals on roundabouts generally increases capacity. Three arms signalised roundabouts in particular work very well.	Reduces journey time from A12 slip road to Cymbeline Rd West	Will decrease queues on entries	Would encourage more bus use and hence reduce traffic flows
A12 corridor	Junction 28	Over capacity issue only in the PM peak in the slip road to the A12 (eastbound direction) in the committed and local plan scenarios. The issue is solved in the A12 Sensitivity Test (1d).	Description of measure(s)	Traffic management at roundabout	A12 technology package (RIS scheme)	Widen slip roads to two lanes and signalisation	Junction reconstruction as part of A12 widening	Improved frequent high quality bus services serving Axial Way and Northern Gateway including evenings and weekends
			Linked work	n/a	n/a	Under investigation by HE	Under investigation by HE	Bus Blueprint being developed by ECC with support from CBC

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Estimated cost	£25,000 to £100,000	Not known	£1 mil to £3 mil	> £10 mil	£ varies
			Qualitative assessment	Will decrease weaving on the roundabout	No known	Will decrease queues on entries. Signals on roundabouts generally increase capacity	Assessment in VISSIM would need to be undertaken to find most the efficient junction design	Would encourage more bus use and hence reduce traffic flows
A12 corridor	Axial Way /Via Urbis Romanae roundabout (close to J28 of A120)	Over capacity issues in both the AM and PM peak northbound and southbound directions in the committed and local plan scenarios. Each of the new developments will contribute a small percentage to the total increase of traffic which will inevitably lead to congestion. In the 1d, 1e and 1f scenarios, in the AM peak period, the problem remains. However, in the PM period, a partial improvement is observed on the VUR approach to J28 but the VUR/Axial Way Rbt still remains overcapacity.	Description of measure(s)	Traffic management at roundabout. Directional lane arrows at roundabout entries	Improved lane markings within the roundabout, such as spiral markings to direct drivers	Widen Axial Way to two lanes	Widen Via Urbis Romanae north of junction to 2 lanes.	Improved frequent high quality bus services serving Axial Way and Northern Gateway including evenings and weekends Segregated cycle lanes
			Linked work	n/a	n/a	n/a	n/a	Bus Blueprint being developed by ECC with support from CBC
			Estimated cost	< £10,000	£25,000 to £100,000	£100,000 to £500,000	£1 mil to 3 mil	£1 mil to £3 mil for cycle lane

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Qualitative assessment	Will decrease weaving on the roundabout	Will decrease weaving on the roundabout, more than simple traffic management	Will decrease queues on Axial Way	This will increase storage capacity and reduce the risk of J28 queues blocking back to this roundabout	Would encourage cycling and hence reduce traffic flows
A12 corridor	A12 J28-29 - on link	Overcapacity issues in the links between the J28 & J29 in both the AM and PM peak periods in committed and local plan scenarios. Overcapacity issues are due to the already high traffic along the A12. The new link added in the Colchester Tendring Garden Community contributes to an increase in traffic, as the link provides an alternative route towards this section of the A12 corridor. The Sensitivity Test (scenario	Description of measure(s)	Improved lane markings	A12 technology package (RIS scheme)	Partial widening	Widen to three lanes in both directions	Options for enhancing the Park and Ride service at this location could be consideredColchester Rapid Transport
			Linked work	n/a	n/a	n/a	n/a	Refer to Colchester Rapid Transit Final Report

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
		1d) solves the issue due to the increased number of lanes per direction.	Estimated cost	£25,000 to £100,000	Not known	£3 - 5mil	> £5 mil	£3 mil to £5 mil for Park and Ride Rapid Transit Costs: Opt 1 £29.8 mil Opt 2: £48.0 mil Opt 3: £31.3 mil Opt 4: £37.3 mil Tram: £164.6 mil
			Qualitative assessment	Will decrease weaving on the roundabout	Not known	Will relieve congestion in the peaks, though not as much as major infrastructure changes	SATURN model has tested widening btwn J25-29, which has been shown to relieve congestion at peaks	Improved bus services would encourage drivers to use buses more

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
A12 corridor	A1132 Ipswich Road approach to junction 29	Overcapacity issues in the AM peak northbound direction at the Ipswich Road Approach to the J29 in the committed and local plan scenarios. Nearby new housing developments (e.g. Betts Factory, Ipswich Road) contribute to the increase in traffic. The issue remains unsolved in all of the sensitivity tests.	Description of measure(s)	Signalise Ipswich Road northbound arm of A120 roundabout junction	Signalise all arms of the A120 roundabout	Widen Ipswich Road on the approach to the roundabout	Introduce Left slip from Ipswich Road to A120 onslip	A120 / A12 junction could be a good location for a Park and Ride given its location next to two major junctions. This has not been proposed elsewhereColchester Rapid Transport
			Linked work	n/a	n/a	n/a	n/a	Refer to Colchester Rapid Transit Final Report
			Estimated cost	£25,000 to £100,000	£100,000 to £500,000	£500,000 to £1 mil	£1 mil to £3 mil	£3 mil to £5 mil for Park and Ride Rapid Transit Costs: Opt 1 £29.8 mil Opt 2: £48.0 mil Opt 3: £31.3 mil Opt 4: £37.3 mil Tram: £164.6 mil

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Qualitative assessment	Will reduce queues on Ipswich Road. Queues will form on the Rbt which cannot properly be managed unless all arms are signalised. This could lead to greater queuing on other arms	Signals on roundabouts generally increases capacity. Will allow for queues on roundabout to be managed	Will reduce queues on Ipswich Road, however benefit may be limited unless roundabout is enlarged to accommodate this extra capacity	Will decrease Ipswich Road to A120 journey times	Park and Ride would reduce traffic along Ipswich Road Rapid Transit will reduce number of private vehicles
A12 corridor	Ipswich Road	Links operate close to their capacities but no one of them is over capacity in both the AM and PM periods.	Description of measure(s)	Optimise Severalls Lane / Ipswich Road traffic signal method of control	Implement UTC SCOOT on junction	Implement a 50m two lane section on Ipswich Road SW/B SW on the exit of the junction	Increase Ipswich Rd SW/B to 2 lanes from Severalls Lane to Lancaster Approach	Improved bus servicesSegregated cycle lane on Ipswich Rd, road in the most part is wide enough to accommodate this
			Linked work	n/a	n/a	n/a	n/a	n/a
			Estimated cost	<£25,000	£25,000 to £100,000	£100,000 to £500,000	£1 mil to £3 mil	£1 mil to £3 mil for cycle lane

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Qualitative assessment	Modelling will need to be undertaken to determine the best method of control	Will reduce delays, typically around 10% to 20%	Will reduce weaving on the SW bound exit, increasing capacity, particularly for Ipswich Rd	Should reduce queues on all arms as it will allow some Ipswich Rd green time to be distributed to other arms	Would encourage cycling and hence reduce traffic flows
East Colchester A134/A133 corridor	Haven Road (between Whitehall Road and Haven Road roundabout)	Overcapacity issues in both the AM and PM peak period westbound in the committed and in the local plan scenarios. Developments, which include Colchester Tendring Garden Communities contribute to increased traffic along Haven Road and through this roundabout. The issues remains in all Sensitivity Tests.	Description of measure(s)	Directional arrows on the roundabout entries	Realign Haven Rd island to the east so there are 2 Haven Rd entry lanes. Haven Rd exit would be one lane	Replace Haven Rd / Colne Causeway Rbt with a signalised junction	Enlarge the Haven Rd / Colne Causeway Rbt	Improved bus service along Haven Rd Cycle lanes
			Example or current work	n/a	n/a	n/a	n/a	n/a
			Estimated cost	< £25,000	£25,000 to £100,000	£100,000 to £500,000	> £10 mil	£1 mil to £3 mil for cycle lane

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Qualitative assessment	Will decrease weaving on the roundabout	Will decrease Haven Rd Northbound queues	May work better given the small footprint of the junction. Modelling would need to be undertaken to confirm this is the case	Will increase capacity. Probably would be very expensive due to the River Colne	Would encourage cycling and hence reduce traffic flows
East Colchester A134/A133 corridor	Colne Causeway and Haven Road roundabout	In the AM peak there are overcapacity issues both at Haven rbt but also on Colne Causeway (westbound and eastbound). In the PM peak period the overcapacity issue is only at Haven rbt. Developments including Colchester Tendring Garden Community and the University of Essex employment site contribute to increasing traffic. In the 1d, 1e and 1g scenarios and in the AM peak period, the problem	Description of measure(s)	Junction Improvements at Colne Causeway/Haven Road RAB	Signal optimisation and bus priority	Convert roundabouts on either end of Colne Causeway to signalised junctions to better manage queuing	Widen Colne Bank causeway to two lanes in each direction	Park & Ride (Garden Settlement)Proposed Colchester Rapid Transit Study
			Linked work	n/a	n/a	n/a	n/a	Refer to Colchester Rapid Transit Final Report

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
		is partially alleviated. In specific, Haven Rd is not overcapacity, however, the roundabout remains overcapacity. On the other hand, the PM sensitivity models show no difference and the situation remains the same.	Estimated cost	< £25,000	£25,000 to £100,000	£500,000 to £1 mil for both roundabout	> £10 mil	Park and Ride: £5 mil to £10 mil Rapid Transit Costs: Opt 1 £29.8 mil Opt 2: £48.0 mil Opt 3: £31.3 mil Opt 4: £37.3 mil Tram: £164.6 mil
			Qualitative assessment	Will decrease weaving on the roundabout	Will decrease Haven Rd Northbound queues	May work better given the small footprint of the junction. Modelling would need to be undertaken to confirm this is the case	Will increase capacity. Probably would be very expensive due to the River Colne	Potential to construct as part of the Garden Community

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
East Colchester A134/A133 corridor	A134/Elm stead Road RAB	The roundabout is overcapacity both in the AM and PM peak periods in the committed and local plan scenarios. Developments including Colchester Tendring Garden Community and the University of Essex employment site contribute to increasing traffic. The issue at the roundabout is resolved for the AM peak in the Southern Distributor (1g), Demand (1f) and J26 (1d) sensitivity tests in which the Greenstead rbt was improved. In the corresponding PM models, the roundabout remains overcapacity. For the A12 widening sensitivity test the overcapacity is alleviated in the PM only.	Description of measure(s)	Directional markings on entries. Spiral markings on roundabout to guide drivers	Implement traffic signals on roundabout	Widen approaches to roundabout and give bus priority	Southern Distributor	Southern Distributor – rapid transit/sustainable modes scheme Rapid Transit scheme from Garden Settlement
			Linked work	n/a	n/a	n/a	n/a	See Rapid Transit study
			Estimated cost	<£25,000	£25,000 to £100,000	£500,000 to £1 mil	> £10 mil	Rapid Transit Costs: Opt 1 £29.8 mil Opt 2: £48.0 mil Opt 3: £31.3 mil Opt 4: £37.3 mil Tram: £164.6 mil

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Qualitative assessment	Will decrease weaving on the roundabout	Signals on roundabouts generally increases capacity.	Will reduce queues on entry arms, however benefit may be limited unless roundabout is enlarged to accommodate this extra capacity	No major developments in south Colchester so could remain aspirational. Southern distributor set to be modelled.	Would significantly reduce number of private cars passing through junction
East Colchester A134/A133 corridor	Greenstead Roundabout	The Greenstead roundabout is heavily congested in the AM peak period. During the PM peak period traffic flow performance improves, however, the westbound direction from the Clingoe Hill remains overcapacity. General traffic growth and developments cumulatively contribute to overcapacity. It is noted that the nearby employment site at Essex University generates a large number of trips. In the sensitivity tests in which the Greenstead rbt is improved, overcapacity is partially alleviated in the AM peak	Description of measure(s)	Improved lane markings on entries advising what lane drivers should use for each exit	Replace zebra crossings on Clingoe Hill with signalised crossings	1) Widen approaches to roundabout2) Convert roundabout into a more conventional layout	Southern Distributor	Could benefit from the proposed Rapid Transit System
			Linked work	n/a	n/a	n/a	Proposed scheme	See Rapid Transit study
			Estimated cost	<£25,000	£25,000 to £100,000	£1 to £3 mil	> £10 mil	Rapid Transit Costs: Opt 1 £29.8 mil Opt 2: £48.0 mil Opt 3: £31.3 mil Opt 4: £37.3 mil Tram: £164.6 mil

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
		period, however, the PM model remains the same.	Qualitative assessment	Will decrease weaving on the roundabout	Signalised crossing means traffic only stops when signals are red, not whenever there is a pedestrian waiting. Therefore queues should be reduced	Would need to undertake testing using VISSIM of whether a more conventional roundabout would perform better	No major developments in south Colchester so could remain aspirational. Southern distributor set to be modelled.	Would significantly reduce number of private cars passing through junction
East Colchester A134/A133 corridor	A134 Hythe Quay from Colne Causeway roundabout to Maudlyn Road	Over capacity issues both in AM and PM peak periods (northbound and southbound) in the committed and local plan scenarios. Developments including the Colchester Tendring Garden Community contribute to increases in traffic. Overcapacity remains in all the Sensitivity Test scenarios.	Description of measure(s)	Open Hythe Hill E/B to all traffic	Replace Maudlyn Rd / Hythe Quay and Maudlyn Rd / Hythe Hill Rbt with priority junctions with Maudlyn Rd having priority	Replace Maudlyn Rd / Hythe Quay and Maudlyn Rd / Hythe Hill Rbt	Close of Hythe Quay access from the Maudlyn Rd / Hythe Quay Rbt, allowing Maudlyn Rd / Hythe Quay Rbt to be removed	Could benefit from the proposed Rapid Transit System
			Linked work	n/a	n/a	n/a	n/a	See Rapid Transit study
			Estimated cost	<£25,000	£25,000 to £100,000	£25,000 to £100,000	£25,000 to £100,000	Rapid Transit Costs: Opt 1 £29.8 mil Opt 2: £48.0 mil Opt 3: £31.3 mil Opt 4: £37.3 mil Tram: £164.6 mil

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Qualitative assessment	Would provide an alternative route, however could increase bus delay	Reduced delay and journey times on Maudlyn Road, however delay on side roads may increase	May work better given the small footprint of the junction. Modelling would need to be undertaken to confirm this is the case	Would decrease journey time and delay on Maudlyn Rd. Hythe Hill E/B would need to be opened to all traffic to allow this. Some movements would experience longer journey times	Would significantly reduce number of private cars passing through junction
South/West Colchester A134 (A1124) corridor	Lexden Road /Maldon Rd /Southway roundabout	The roundabout is currently overcapacity in the base year model and set to worsen in 2032 due to traffic growth. Therefore, there are over capacity issues in the AM peak period in the committed and local plan scenarios (in the western approach as well as in the southern approach to the roundabout). The PM models show better results and there are no capacity issues. The issue remains unsolved in all of the sensitivity tests.	Description of measure(s)	Improved lane markings, such as spiral markings on the roundabout to guide drivers	Linked signalisation of junctions with bus priority	Reduce size of central island	Major redesign of the junction, such as a "Hamburger Layout"	Bus priority from Lexden Road, Maldon Road through to Head GateImprove walking and cycling routes at key access point to the town centre.
			Linked work	n/a	n/a	n/a	n/a	Refer to West Colchester Stanway travel strategy

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Estimated cost	<£25,000	£100,000 to £500,000	£500,00 to £1 mil	£1 mil to £3 mil	£1.73 mil
			Qualitative assessment	Will decrease weaving on the roundabout	Signals on roundabouts generally increases capacity.	Will increase roundabout capacity	Could significantly increase roundabout capacity. Would require modelling	Will encourage more walking, cycling and bus use reducing car use
South/West Colchester A134 (A1124) corridor	Southway - Maldon Road Roundabout to St Botolphs Roundabout	The model shows congestion in the committed and local plan scenarios in the AM peak on the section of Southway between Chapel Street and Maldon Road roundabout. Congestion on Southway is reduced in the sensitivity tests altering J26 and introducing the Southern distributor	Description of measure(s)	Provide signalised pedestrian crossings on all approaches to the roundabout	Signalise all arms of the roundabout. Provide signalised pedestrian crossings on pedestrian desire lines	Convert to two way operation with a mini roundabout at the Southway (West arm)	Convert to two way operation with Right Turn from Stanwell Street to Southway (west) permitted	Could benefit from the proposed Rapid Transit System. Given location in the centre of Colchester any public transport improvements could reduce congestion here
			Linked work	St Botolph's Roundabout study, being undertaken by Essex Highways	St Botolph's Roundabout study, being undertaken by Essex Highways	St Botolph's Roundabout study, being undertaken by Essex Highways	St Botolph's Roundabout study, being undertaken by Essex Highways	See Rapid Transit study

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Estimated cost	£500,00 to £1 mil	£500,00 to £1 mil	£3 - 5mil	£3 - 5mil	Rapid Transit Costs: Opt 1 £29.8 mil Opt 2: £48.0 mil Opt 3: £31.3 mil Opt 4: £37.3 mil Tram: £164.6 mil
			Qualitative assessment	For 2021 LinSig modelling predicts a 20% increase in capacity in the AM peak, 10% in the PM peak and 0% increase for the Saturday peak	For 2021 LinSig modelling predicts a 20% increase in capacity in the AM peak, 10% in the PM peak and a 5% decrease for the Saturday peak	For 2021 LinSig modelling predicts a 20% increase in capacity for all three peaks	For 2021 LinSig modelling predicts a 20% increase in capacity for all three peaks	Would significantly reduce number of private cars passing through junction

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
Other	Colne Bank/ Essex Hall junction/ Cymbeline Way	The roundabout has some links over capacity in the southbound direction both in the AM and PM peak periods in the committed and local plan scenarios. The traffic situation in the base year is already congested, with some links being over capacity. The traffic growth that is expected in the year 2032 alongside new developments north of this roundabout will worsen the situation and therefore both the AM and PM models have traffic issues. The issue remains unsolved in all of the sensitivity tests.	Description of measure(s)	Signalisation of the A134 and North Station Road arms of the Essex Hall Roundabout. Clarendon Way and Essex Hall Road would remain unsignalised	Signal optimisation from Colne Bank to North Station Road roundabouts (including Albert Rbt)	Colne Bank to Albert WideningAlso consider Colne Bank left turn slips	Convert the Essex Hall roundabout to a "Hamburger Roundabout", in which A134 traffic will pass straight through the middle of the roundabout. Similar to the Colchester North Station roundabouts	Greater promotion of Park and rideAlter access to and from Railway StationImprove walking and cycling routes
			Linked work	Question on whether this required as part of a NGAUE ta	Identified in A133 corridor study	Colne Bank to Albert widening under construction	Currently being tested for the Colchester North West Study. The Colchester Study is a study being undertaken by the London NCC office	Colchester North West Study is looking at improving cycle and pedestrian facilities at the Colchester North Station, Essex Hall and The Albert Roundabouts.
			Estimated cost	£500,00 to £1 mil	£1 mil to £3 mil	£3 to £5 mil	> £10 mil	£1 mil to £3 mil

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Qualitative assessment	Modelling in LinSig has already been done for this and was found to increase capacity	Will decrease delays. Would require traffic modelling	Will decrease queues and journey times, particularly on A133	Modelling undertaken to date shows this significantly reduces delays and journey times	Will encourage more walking and cycling, reducing car use
Other	A137 Harwich Road/East Street	The PM model in the southbound direction is over capacity in the committed and local plan scenarios. This is caused due to the Greenstead roundabout that is overcapacity which causes rerouting of the traffic. All sensitivity tests alleviate the overcapacity issue on the Harwich Road approaching the East St junction.	Description of measure(s)	Replace keep clear with yellow box	Convert to a mini roundabout	Convert to a junction. Signals would need to be incorporated with level crossing	Replace level crossing with a bridge	Could benefit from the proposed Rapid Transit System
			Linked work	n/a	n/a	n/a	n/a	Refer to West Colchester Stanway travel strategy
			Estimated cost	<£25,000	£25,000 to £100,000	£100,000 to £500,000	> £10 mil	Rapid Transit Costs: Opt 1 £29.8 mil Opt 2: £48.0 mil Opt 3: £31.3 mil Opt 4: £37.3 mil Tram: £164.6 mil

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Qualitative assessment	Will prevent traffic from blocking other movements. Will be particularly effective when the level crossing barriers are closed	Modelling would be required to assess whether this would improve the situation	Modelling would be required to assess whether this would improve the situation	Will significantly reduce delays. Likely to be extremely expensive given the lack of room for a bridge	Would significantly reduce number of private cars passing through junction
Other	A133/A120 link southern end junction arrangements	Some over capacity issues in the AM peak period in the local plan scenario (westbound approach). The PM model shows better performance around the roundabout. The Colchester Tendring Garden Community along with redistribution of traffic around this area contribute to overcapacity. The problem remains unsolved in all the Sensitivity Scenarios.	Description of measure(s)	Directional arrows on the roundabout entries and spiral markings on the roundabout	Signalise roundabout	Left slip from the A133 SE to W arm	2 lane entries on A133 for 50 metres up to junction	Improve bus services into Colchester
			Linked work	n/a	n/a	n/a	n/a	n/a
			Estimated cost	<£25,000	£100,000 to £500,000	£500,000 to £1 mil	£1 mil to £3 mil	£ varies
			Qualitative assessment	Will decrease weaving on the roundabout	Signals on roundabouts generally increases capacity.	Will decrease journey times from the A133 SE to W	Will decrease queues on entries. Decrease may be limited unless roundabout is enlarged	Could reduce number of private vehicles passing through junction

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
Other	Circular Road South/ Berechurch Road/ Pownall Cres	Overcapacity issues both in the AM and PM peak periods in the committed and local plan scenarios. The overcapacity approaches to this junction are the north/west and south arms. It should also be noted that the junction was operating close to its capacity in the base year. Therefore, it is reasonable to expect overcapacity issues arise due to general traffic growth. Nearby new housing developments, which includes the Garrison Development, contribute to further growth in traffic. The AM sensitivity test scenarios could not alleviate overcapacity. However, in all the PM sensitivity test scenarios, the problem is partially resolved by the improvement of the Mersea Rd northern approach.	Description of measure(s)	Implement yellow box at junction	Implement UTC SCOOT or similar on junction	Lane widening on Berechurch Rd North and Circular Rd S. There is sufficient room to do this in the highway boundary	As Minor but with lane widening on Berechurch Rd South arm as well. There is a retaining wall on this arm which will increase costs for this arm	Improve cycle facilities at junction, such as advanced cycle stoplines Improve bus services and implement bus priority measures at junction
			Linked work	n/a	n/a	n/a	n/a	n/a
			Estimated cost	<£25,000	£25,000 to £100,000	£100,000 to £500,000	£1 mil to £3 mil	£25,000 to £100,000 for improved cycle facilities. £100,000 to £500,000 for bus priority measures
			Qualitative assessment	Will prevent traffic from blocking other movements	Will reduce delays, typically around 10% to 20%	Will increase junction capacity, decreasing delay	Will further increase junction capacity, decreasing delay	Would improve bus services encouraging bus use and also encouraging people to cycle more

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
Other	B1022 Shrub End Road (on approach to junction with Maldon Road/Drury Road)	Both in the AM and PM peak period, the northbound direction of the B1022 is overcapacity in the committed and local plan scenarios. In the base year the link is overcapacity; thus the new developments and general traffic growth contribute to a worsening in overcapacity. The problem remains unsolved in all Sensitivity Test scenarios.	Description of measure(s)	Implement yellow box at junction	Implement UTC SCOOT or similar on junction	Replace signalised junction with roundabout, utilising the existing island Roundabout could be signalised	Limited scope for lane widening on B1022 east arm. This may involve removal of the island	Bus priority measures on Shrub End Road
			Linked work	Example	Example	Example	Example	Refer to Stanway Travel Strategy
			Estimated cost	<£25,000	£25,000 to £100,000	£100,000 to £500,000	£500,000 to £1 mil	£574,000
			Qualitative assessment	Will prevent traffic from blocking other movements	Will reduce delays, typically around 10% to 20%	Three arm signalised roundabouts operate very efficiently so should reduce delay. Will require modelling	Will reduce delay. Removal of island may be locally unpopular	Would improve bus services encouraging bus use

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
Other	Old Heath Road/Wimpole Road junction	Over capacity issues in the AM and PM peak period in the committed and local plan scenarios. The problem is on the Old Heath Road northbound in the AM, while in the PM the issue regards all the approaches of the junction apart from the south approach. In the base year, the junction was over capacity. Overcapacity remains in all the Sensitivity Scenarios.	Description of measure(s)	Implement yellow box at junction	Implement UTC SCOOT or similar on junction	Lane widening could be done on Wimpole Rd North and Old Heath Rd West	Shift junction to the Northeast to allow wider lanes on all approaches. Land would have to be taken from the park	Improve cycle facilities at junction, such as advanced cycle stoplines Improve bus services and implement bus priority measures at junction
			Linked work	n/a	n/a	n/a	n/a	n/a
			Estimated cost	<£25,000	£25,000 to £100,000	£500,000 to £1 mil	£5 mil to £10 mil	£25,000 to £100,000 for improved cycle facilities £100,000 to £500,000 for bus priority measures
			Qualitative assessment	Will prevent traffic from blocking other movements	Will reduce delays, typically around 10% to 20%	Will reduce delay and increase junction capacity	Will significantly reduce delay. Taking land from park likely to be unpopular	Would improve bus services, encouraging bus use and also encouraging people to cycle more

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
Other	Mersea Road/Normandy Avenue junction	In the AM peak the northbound carriageway of Mersea Road on the approach to the Normandy Avenue junction is operating at just over full capacity in the local plan scenario; and just under full capacity in the committed plan scenario. This could suggest right turners into Normandy Avenue frequently block ahead traffic. This is not affected in the sensitivity tests.	Description of measure(s)	Add right turn arrow on the pocket opposite Normandy Avenue westbound carriageway	Traffic calming measures on Normandy Avenue	Realign Normandy Avenue westbound carriageway to allow a longer right turn pocket	Replace junction with a roundabout	n/a
			Linked work	n/a	n/a	n/a	n/a	n/a
			Estimated cost	<£25,000	£25,000 to £100,000	£500,000 to £1 mil	£1 mil to £3 mil	n/a
			Qualitative assessment	Will encourage Normandy Avenue right turners to queue in the pocket instead of on Normandy Avenue	This will discourage rat running, reducing traffic on Normandy Road and therefore delay at the junction	Unusual shape of the junction restricts the length of the pocket. A longer pocket would mean more traffic could store without impeding ahead traffic	Could be done for a relatively low cost due to the large footprint of the junction. Should reduce delay on all approaches	n/a
Other	Brook Street/East Hill/East Street junction	In both the committed and local plan scenarios the Brook Street with East Hill/East Street signalised junction is shown as being overcapacity in the AM and PM peaks. The problem is on the Brook Street arm. The issue was repeated in each of the sensitivity tests.	Description of measure(s)	Reoptimise signal timings	Implement SCOOT or MOVA at junction	Relocate the East Street pedestrian crossing further to the east	Widening on the East Street Approach to provide 2 ahead lanes and 1 left turn lane	Could benefit from the proposed Rapid Transit System

Group	Location	Summary of problem		Traffic management		Infrastructure		Sustainable and complementary measures
				Simple	Enhanced	Minor	Major	
			Linked work	n/a	n/a	n/a	n/a	Refer to West Colchester Stanway travel strategy
			Estimated cost	<£25,000	£25,000 to £100,000	£100,000 to £500,000	£500,000 to £1 mil	Rapid Transit Costs: Opt 1 £29.8 mil Opt 2: £48.0 mil Opt 3: £31.3 mil Opt 4: £37.3 mil Tram: £164.6 mil
			Qualitative assessment	Reoptimise signal timings to reduce queues on Brook Street. This would likely increase queues on East Hill / East Street	Would more effectively optimise traffic signals, reducing queues, particularly on the Brook Street arm	Would shorten queues on the East Street approach, allowing signals to be reoptimised to increase green time to Brook Street	Would allow signals to be reoptimised to increase green time to Brook Street	Would significantly reduce number of private cars passing through the junction

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