



North East Cambridge Area Action Plan Infrastructure Delivery Plan

For **Greater Cambridge Shared Planning**



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1 Introduction

- 1.1 This study is an assessment of the infrastructure investment that will be needed to support the proposed development of North East Cambridge. The subject site lies on the boundary of Cambridge City and South Cambridgeshire District, and the principle of its development is established in current Local Plans for both local authority areas, which were adopted in 2018. The two Councils, through the Greater Cambridge Planning Service, are currently working on a joint Area Action Plan that will determine the nature and quantum of development. The study has been commissioned jointly by both Councils, as part of the evidence base supporting the AAP.
- 1.2 In this study we aim to identify:
- The infrastructure needed to support the proposed development
 - The cost of that infrastructure
 - The public sector funding available to pay for it
 - The difference, or residual, between cost and public funding.
- 1.3 That residual is the infrastructure investment that will not be covered by public funds, so it would need to be financed by developer contributions, either through planning obligations (Section 106 or Section 238) or Community Infrastructure Levy (CIL)¹. How much development can be expected to contribute towards the overall infrastructure needs, alongside affordable housing requirements and build quality aspirations, is a question considered in a separate viability study, being undertaken by property consultants Aspinall Verdi.
- 1.4 Below, Chapter 2 sets out the context to the Area Action Plan, starting with summaries of national and local policies that bear on the plan, and going on to describe the proposed development. Chapter 3 overviews the assessment methods used, setting out definitions, sources, methods and assumptions. Chapters 4-12 provide the assessment, covering the different types of infrastructure in turn. Chapter 13 brings together those separate analyses to show total infrastructure costs and funding.
- 1.5 The study's findings are neither complete nor definitive. Infrastructure planning is an iterative process, especially at this early stage, when the planning of the development is still a work in progress. As planning advances, proposals will change, and infrastructure needs may change in consequence. Also, infrastructure providers cannot be certain about the future, given that their plans often look only some five years ahead – whereas completion of the North East Cambridge development lies more than 20 years in the future. After the AAP is adopted its infrastructure evidence will continue to be reviewed and refined, to take account of the best and most up-to-date information.

¹ Neither Cambridge City nor South Cambridgeshire levy CIL at present. But they could decide do so in future.

- 1.6 A further limitation of the study relates to level of detail. Our findings relate to North East Cambridge as a whole, rather than individual developments or parcels. This approach is proportionate in the context of plan-making, but to inform site-specific planning decisions and developer contributions more detailed evidence will be required.

2 Context

National policy and guidance

The planning system generally

- 2.1 The National Planning Policy Framework at para 8 sets out three overriding objectives of the planning system, and lists the means by which each objective may be promoted. Infrastructure figures prominently in the list:
- The economic objective is *'to help build a strong, responsive and competitive economy'*. Planning should contribute to it *'by identifying and coordinating the provision of infrastructure'*
 - In relation to the social objective – *'to support strong, vibrant and healthy communities'* – planning should foster *'accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being'*
 - The environmental objective – *'to protect and enhance our natural, built and historic environment'* – includes *'improving biodiversity, minimising waste and pollution, and mitigating and adapting to climate change'*. All these outcomes require good infrastructure.

Local Plans

- 2.2 Under current legislation, an Area Action Plan is a type of Local Plan, part of the statutory development plan for its area. Like any other Local Plan, it will be independently examined, to establish that it conforms to legal and procedural requirements, and that it is sound. Soundness among other things means that the plan must be justified in the light of proportionate evidence; and it must be effective, which includes being deliverable over the plan period (para 35).
- 2.3 The requirement of soundness applies differently, depending on whether policies are strategic². In relation to non-strategic policies, which include the AAP, para 36 advises that *'the test of soundness will be applied... in a proportionate way, taking into account the extent to which they are consistent with relevant strategic policies for the area'*.
- 2.4 In setting out requirements that Local Plans must meet, the Framework also makes two specific mentions of infrastructure. It says that plans should:
- *'Promote a sustainable pattern of development'* that seeks, among other things, *'to align growth and infrastructure'* (para 11)

² The Framework (see Glossary) defines strategic policies in a circular manner, as policies addressing the planning authority's strategic priorities, without defining the term 'strategic'. It also refers to section 19 of the 2004 Act, but this does not clarify matters. In context, it seems that strategic priorities / policies are those that impact on the local authority as a whole (or more than one authority), as opposed to smaller areas or specific types of development (see para 28).

- *'Be shaped by early, proportionate and effective engagement' between plan-makers and a range of stakeholders, which include 'infrastructure providers and operators' (para 16).*

Paying for infrastructure

- 2.5 The Framework discusses the financing of infrastructure under the heading *'planning conditions and obligations'*. Para 55 says that planning obligations should be considered when they can make otherwise unacceptable development acceptable, and it is impossible to address unacceptable impacts through planning conditions). Para 57 adds that planning obligations must only be sought when they meet the following three policy tests (which are also statutory tests set out in Regulation 122(2) of the Community Infrastructure Levy Regulations 2010):
- 'a) necessary to make the development acceptable in planning terms;*
 - b) directly related to the development; and*
 - c) fairly and reasonably related in scale and kind to the development'.*
- 2.6 The National Planning Practice Guidance (PPG) provides further detail on planning obligations³. The guidance explains that the obligations, also known as Section 106 or Section 278 agreements, can be used to pay for infrastructure or affordable housing (Section 278 relates to highways specifically). It also advises that:
- Policies for planning obligations should be set out in plans and examined in public.
 - Such policies should be informed by evidence of infrastructure and affordable housing need, and a proportionate assessment of viability.
 - The evidence on infrastructure need can be *'standardised or formulaic, for example regional cost multipliers for providing school places'*.
- 2.7 On one particular type of infrastructure, namely education, the PPG provides more specific advice⁴. It notes that central government provides funding for new school places, both to local authorities and free schools. But that government funding *'does not replace the requirement for developer contributions in principle'*. Therefore, the funding is *'reduced to take account of developer contributions'*, to avoid new school places being double funded. If new development results in a need for additional school capacity, *'developer contributions may be required towards that capacity, and if so this requirement should be set out in the plan'*. *'Requirements should include all school phases age 0-19, special education needs (which could involve greater travel distances) and both temporary and permanent needs.'*
- 2.8 Further advice on education is provided in a separate guidance document from the Department for Education (DfE)⁵. The document is referenced in the PPG. It confirms the principle that local authorities are expected to *'seek developer contributions*

³PPG, Paras 001-015, Reference ID 23b-001-20190315 - 23b-015-20190315

⁴ PPG, Paras 07-08, Reference ID 23b-007-20190315 - 23b-008-20190315

⁵ Department For Education, Securing developer contributions for education, November 2019

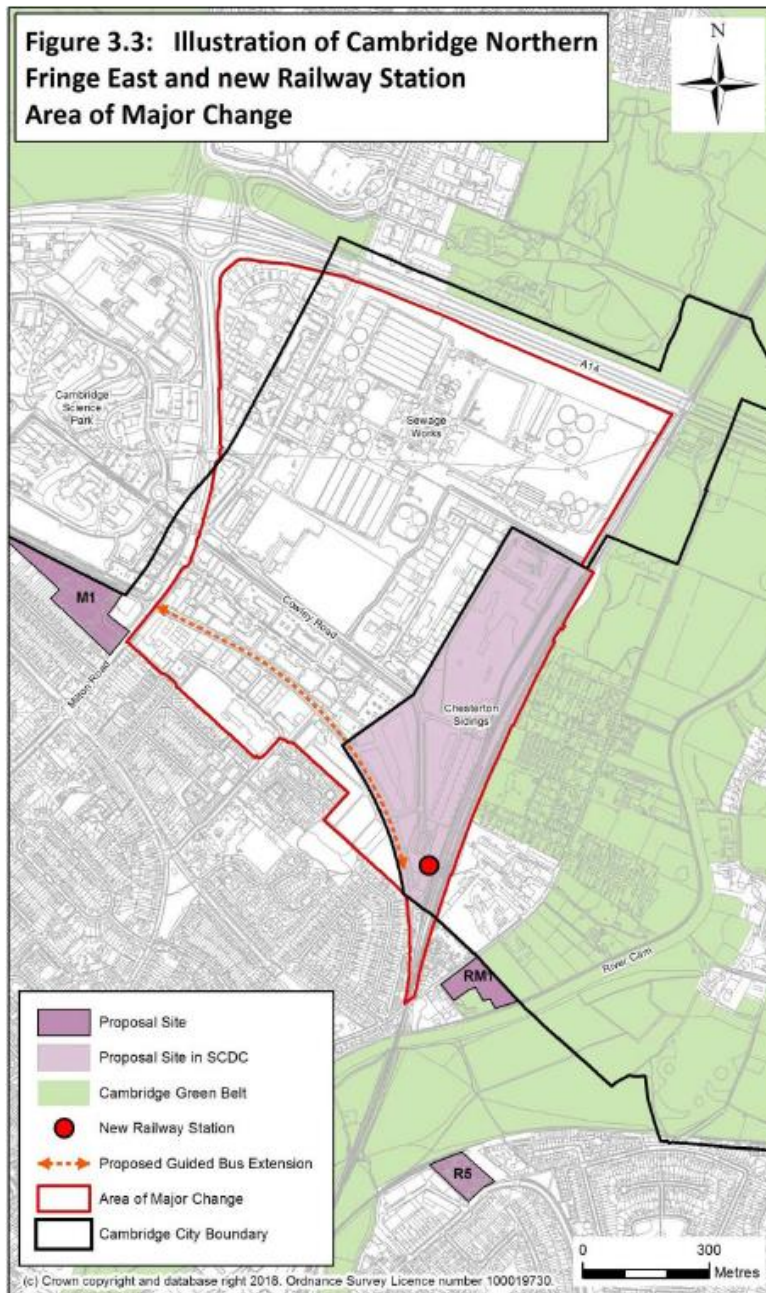
towards school places that are created to meet the need arising from housing development'. It goes on to provide detailed technical guidance on identifying needs, estimating costs and delivering projects.

- 2.9 The DfE guidance also addresses an important question that the PPG does not: how much of the additional school capacity should be covered by developer contributions? The answer, found in paras 5-7 of the document, is that where possible developers should contribute the full cost of the additional school places required as a result of their development. The contribution should provide both land and construction costs. Government funding should only be used when a full education contribution, together with all other infrastructure requirements, would make development unviable.

Greater Cambridge Local Plans (2018)

- 2.10 In the adopted Cambridge and South Cambridgeshire Local Plans (2018), a cross-boundary area called Cambridge Northern Fringe East and Cambridge North Railway Station is allocated for employment-led mixed development, to create a revitalised urban area centred on the new Cambridge North railway station. Both plans say that details of the development will be established through an Area Action Plan (AAP), to be prepared jointly by the two authorities. Densification of the Cambridge Science Park was proposed to be intensified under a separate policy in the South Cambridgeshire plan.

Figure 2.1 Extract from adopted Cambridge Local Plan, 2018



Source: Cambridge Local Plan, adopted 2018

- 2.11 The examining Inspectors supported the Northern Fringe proposal, noting that the site 'will provide sustainable development to help meet identified needs, particularly for new housing'.

The Area Action Plan

- 2.12 Preparation of the Area Action Plan commenced as far back as 2014 with consultation on an Issues and Options report.
- 2.13 A second Issues and Options consultation was proposed in February – March 2019. This proposed to include the Cambridge Science Park within the Area Action Plan

area, which was subsequently confirmed through the updated Councils' Local Development Scheme.

- 2.14 In 2019 the position changed fundamentally, in that Cambridgeshire and Peterborough Combined Authority, working with Cambridge City Council, Anglian Water and others, had secured £227m from the Government's Housing Infrastructure Fund to relocate the water treatment plant off-site. This has created an opportunity for large-scale development of a wider mix of land uses on the edge of the built-up area.
- 2.15 The Draft Area Action Plan was published and subject to public consultation from 27 July to 5 October 2020. In November 2021 Cambridge and South Cambridgeshire Councils jointly published the First Proposals for the new Greater Cambridge Local Plan, setting out the preferred options for the district-wide plan. Draft policy approach S/NEC reflected the emerging AAP, seeking to achieve the vision of a compact, walkable and mixed-use city district, the policy approach for North East Cambridge is for a higher density development. This will create a critical mass of new residents and workers to support these new services. It will also seek to place more homes closer to existing and future employment areas as well as public transport. The North East Cambridge site is well served by public transport and active travel options, including Cambridge North Station and the Cambridgeshire Guided Busway. It is expected that this will improve further with a number of planned projects such as the Chisholm Trail, Waterbeach to Cambridge Public Transport Corridor and Waterbeach Greenway.'

Figure 2.2 Area Action Plan Site Boundary

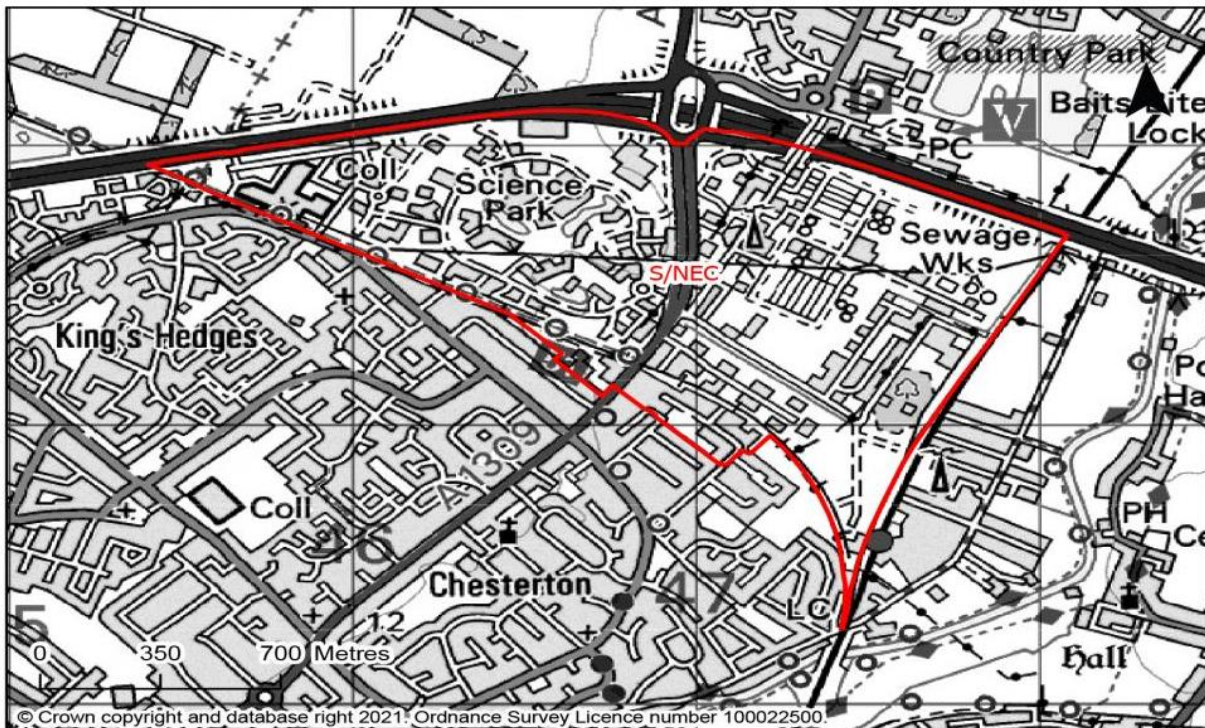


Figure 15: Map of proposed North East Cambridge policy area

The emerging Area Action Plan

- 2.16 The proposed submission (Regulation 19) Area Action Plan for North East Cambridge is being prepared. The main proposals include:
- Five retail and service hubs, comprising a large district centre on the core site (currently the waste water treatment plant), and smaller centres at Cambridge North station, Cambridge Science Park, opposite St Johns Innovation Park and in the northeast corner of the Core Site
 - A total of 8,350 new homes, of which the bulk will be on the core site (currently the water treatment plant)
 - A total of up to 15,000 net new jobs, mostly from intensification at Cambridge Science Park and St John’s Innovation Park (also, existing industrial floorspace will be consolidated at Cowley Road Industrial Estate, which will be redeveloped at higher densities).
- 2.17 The Area Action Plan includes an indicative phasing of housing delivery, as shown in Table 2.1 below. As we can see from the table, the first homes on the site are likely to be completed in 2025/26. By the end of the AAP period in 2041, cumulative completions will total some 3,900 homes, leaving 4,525 homes to be delivered after then end of the Plan period.
- 2.18 The infrastructure assessment in Chapters 4-12 below is informed by this phasing, alongside much technical information on the evolving proposals, both from the published AAP evidence base and further work by Greater Cambridge Shared Planning.

Table 2.1 Phasing of housing development across the sites

Residential Net additional units	2020 /25	2025 /30	2030 /35	2035 /41	Plan Period	2041+	Total
A Wells Triangle							
B Cambridge Regional College							0
C Cambridge Science Park							0
D St Johns Innovation Park							0
E Anglian Water / Core Site			400	1,500	1,900	3,600	5,500
F Merlin Place				125	125	0	125
G Cowley Road Industrial Estate				100	100	350	450
H Milton Rd Car Garage			0	75	75	0	75
I Trinity Hall Farm Industrial Estate							0
J Cambridge Business Park			100	200	300	200	500
K Nuffield Road Industrial Estate			50	100	150	300	450
L Chesterton Sidings		650	600		1,250	0	1,250
Total	0	650	1,150	2,100	3,900	4,450	8,350

Source: Greater Cambridge Shared Planning

- 2.19 We do not have a demographic breakdown to sit alongside the housing trajectory, but we have worked with the population estimate provided by the client team (shown in Table 2.2 below) to provide a pro rata population estimate for the plan period.

Table 2.2 NEC residential population estimate – whole build-out

Age group	Population
0-3 years	1,360
4-10 years	790
11-15 years	205
16-24 years	930
25-29 years	2,745
30-44 years	7,670
45-59 years	1,555
60-74 years	690
75 years and over	410
Total	16,355

Source: Greater Cambridge Shared Planning / Cambridgeshire County Council

- 2.20 The population estimate on a pro rata basis generates in the order of 7,500 persons. over the Plan period.
- 2.21 The AAP provides for the following floorspace quantum of commercial uses and overall supports 15,000 new jobs which are within the office sector. The light industrial and warehouse space is all reprovided space.

Table 2.3 Commercial uses – land use and floorspace

	Office sq m	Light Ind sq m	Storage and Distribution sq m	Retail sq m
A Wells Triangle				
B Cambridge Regional College	0	0	0	0
C Cambridge Science Park	60,000	0	0	1,200
D St Johns Innovation Park	30,000	0	0	200
E Core Site: AW/CCC	23,500	0	0	8,500
F Merlin Place	0	0	0	0
G Cowley Rd Ind Estate	0	11,500	7,500	0
H VW Garages	0	0	0	0
I Trinity Hall Farm Ind Estate	1,500	0	0	0
J Cambridge Business Park	50,000	0	0	1,500
K Nuffield Road	0	0	0	0
L Chesterton Sidings: Brookgate	23,500	700	3,500	1,200
TOTAL	188,500	12,200	11,000	12,600

Source: GCSP

- 2.22 Because of the pipeline of consented supply, the AAP anticipates 25,000 sq m of the office space will be delivered in the 2035/36-40/41 period, leaving the bulk to be delivered after 2041. Around 3,750 sq m of retail floorspace is anticipated to come forward during the plan period with around 1,000 sq m of leisure and community provision.
- 2.23 Thus, the majority of the net additional development is residential and office, and a key task for this IDP is to identify how each infrastructure category delivers benefits for these two land uses⁶, and how this translates to an appropriate cost apportionment. We set out our method for this in the next chapter.

Conclusion

- 2.24 National policy and guidance in effect set the agenda for our study, showing the questions the study should address and the standards of evidence it should meet.
- 2.25 To meet the requirements of national policy and guidance the study's first task is to identify what additional infrastructure needs to be provided to serve the proposed development of North East Cambridge, so that the development contributes to a strong economy, supports a strong, healthy and vibrant community and protects and

⁶ We have been unable to apportion a cost for the retail element in the same way that this study does for the office floorspace because the Transport evidence does not provide trip generation data for retail use. Indeed, it is quite possible that the assumption for retail trips is that they are almost entirely secondary trips (linked, pass-by or diverted), and therefore no further apportionment is required. Should this prove not to be the case, then trip rate will be required at a later date to factor in a retail apportionment.

enhances the natural, built and historic environment. We must then estimate the cost of that provision and compare it with the public funding available to meet that cost. The assessment of needs and costs must incorporate proportionate engagement with infrastructure providers. It may also use standards, or formulas, such as multipliers for school places. In regard to education, there is additional, more detailed guidance from DfE that the assessment must follow. It must also identify and apportion the benefit and cost of the infrastructure between NEC and developments elsewhere and also apportion cost between the residential and commercial elements of the development.

- 2.26 The comparison of needs and funding will produce a residual cost, or gap, which should be covered by developer contributions, insofar as this can be done without compromising the viability of the development. In accordance with the Reg 122 tests, the investments we identify must be necessary to make the development acceptable in planning terms, directly related to the development, and fairly and reasonably related to it in scale and kind. The viability of the resulting contributions is being considered in a parallel study, by Aspinall Verdi.
- 2.27 As part of the evidence base informing the Area Action Plan, the study must provide justification for the AAP policies that it informs. Our findings will be a large part of the evidence that shows if the plan's proposals are deliverable in practice. That evidence must be robust, so it is upheld in the independent public examination of the plan.
- 2.28 The evidence that our study provides must also be proportionate, which means tightly focussed, without unnecessary detail.

3 Assessment method

- 3.1 This study deals with primary infrastructure – that is, infrastructure that will serve the North East Cambridge AAP area as a whole or larger geographical areas, as opposed to individual developments or plots within the AAP area. The study also differentiates between those items of infrastructure that need to be paid for from the development, and those items that will be commercially provided, state funded or have funding sources other than the NEC developments. We expand on this later in this section.
- 3.2 The types of infrastructure covered are as follows:
- Community facilities
 - Education: early years provision, primary and secondary education, special education needs and adult, further and higher education
 - Healthcare
 - Community facilities, comprising community centres, libraries and cultural provision
 - Open space and green infrastructure
 - Open space (comprising informal open space (typically open space which does not have a specific allocated use such as an amenity grass area) and play provision (typically areas with play equipment)
 - Green infrastructure (GI), which covers provision for biodiversity / habitat
 - Allotments and other food growing opportunities
 - Burial grounds
 - Sport and leisure
 - Formal outdoor provision including grass pitches (expressed as football, rugby or cricket provision)
 - Multi-use games areas (tennis, bowls, etc)
 - Artificial outdoor pitches
 - Swimming pools
 - Indoor sport facilities
 - Transport
 - Walking and cycling, public transport and highways and bridges
 - Utilities
 - Energy – electricity
 - Waste disposal, including recycling
 - Digital monitoring - SMART networks
- 3.3 The study does not deal with affordable housing – which in some contexts counts as infrastructure, but is covered elsewhere in the evidence base. It excludes Site-specific infrastructure (secondary infrastructure), which is required to create accessible,

- serviced and developable sites or plots. It is normally paid for by the developer of each individual site or plot, and routinely factored into development appraisals.
- 3.4 Typically, secondary infrastructure includes ‘plot externals’ such as internal access roads, drainage, SUDS, sewers, gas, electricity, and telecoms. It also includes some open space and play spaces, plot landscaping, public art, footpaths and cycleways within the site. There may also be ‘site abnormalities’, which comprise costs above what is normally expected, for example to remediate contaminated land.
- 3.5 Another important exclusion is water related costs. The cost of relocating and increasing capacity of the water treatment plant, which as mentioned earlier is being funded by the government through the Housing Investment Fund is excluded because it is already committed, and in any event may be attributed to removal of the previous land use and all contamination issues therein, rather than creation of new land uses.
- 3.6 Water supply is also excluded because costs associated with providing water resource, including new strategic water resource provision, will be met by the Water Companies and site connections by the developers.
- 3.7 In addition to addressing the above mentioned relocation and decontamination issues, the Core Site and other adjacent sites, two other site specific matters as outlined in the AAP:
- the need for a bund and barrier that is proposed along the northern edge of the Core Site, St John’s Innovation Park and Chesterton Sidings (along the eastern boundary) to mitigate the impact (air quality as well as sound wise) of the A14 on the wider area.
 - the need to underground the existing overhead powerlines that cross the Core Site.
- 3.8 Both of these items are site specific abnormal costs that should not be included in the IDP and are only relevant to specific development parcels and are a specific matter for the viability assessment work.
- 3.9 The study also excludes other kinds of infrastructure:
- Primary infrastructure that is provided and funded centrally by the state, such as prisons and hospitals and Adult Learning (however we do cover education, where capital investment is financed is both by the government and developer contributions, as explained earlier).
 - Services that are provided in the market sector, with providers financing their own capital investment, such as dentists, opticians and crematoria.
 - Emergency services – police, fire and ambulance that are of strategic importance and need to be considered at the Greater Cambridge Local Plan level in terms of what may be required and where any new/enhanced facilities are best located, before developer contributions can be identified.
 - Employment training is not an easily quantifiable direct infrastructure requirement and is better dealt with via S106 calculated contributions.

- Public art – will be a feature of the NEC AAP area, but in accordance with existing guidance⁷ how this will be provided will be determined on a case by case basis rather than applying the flat rate one percent for art approach that is applied for schemes of a lesser scale.
- 3.10 The boundaries between primary and secondary infrastructure, and between the public and market sectors, are not always clear-cut. Therefore, the list of what is included is partly based on judgment. Those judgments have been agreed with the client team and the consultancy Aspinall Verdi, who are preparing the viability assessment for the site. All relevant costs must appear either in our calculation as infrastructure to be paid for collectively, or in the Aspinall Verdi's calculation as site-specific costs to be paid for by individual developers. It is important that the two studies use consistent definitions to avoid costs being double-counted and others wrongly left out.
- 3.11 To assess infrastructure needs and costs, we have used three mutually complementary approaches: service standards (formulas), discussion with providers, and professional expertise both from the consultant team and officers at Greater Cambridge Shared Planning. Service standards are applied for community facilities and for sports and leisure facilities where the Sport England Sports Facilities Calculator has been used as a standard. More details of sources and specific methods for individual infrastructure categories are given in later chapters, which deal with the individual types of infrastructure.
- 3.12 Generally, land costs are excluded. The only areas where they have been included is burial grounds and power. For all other infrastructure land cost will be a matter for the viability assessment.
- 3.13 We have identified total delivery cost, including for the community facilities the level of fit out. Costs are given in cash terms without adjustment for inflation.
- 3.14 The cost calculations are best estimates relating to the nature of the infrastructure requirement as known at this time. It is possible that this may change as clarity on the projects and the costs develop as they advance and move through the delivery process.
- 3.15 Where infrastructure projects serve other development areas beside the North East Cambridge AAP, we have estimated the share of investment that is attributable to new residents and jobs in NEC, with the balance falling to other areas. In what are only a small number of cases, the NEC 'share' has been applied to both the costs and any public sector funding allocated to the infrastructure item.
- 3.16 The NEC infrastructure provision is required to deliver both the new dwellings and the new office space, and it is necessary to apportion the cost between the two land uses. Not all infrastructure will serve both, for example the need for community facilities is generated from the residents rather than the new labour force, and we therefore apportion all of the community facility costs to the residential element. The

⁷ Cambridge City Council Public Art Supplementary Planning Document, 2010

green and blue infrastructure provision is also based on resident ratios - 2.2 ha of informal open space per 1,000 persons, and a ratio in terms of burial plots, and we therefore apportion all of the green and blue infrastructure costs to the residential development. However, transport, and utilities benefit both the new residents and new workers, and thus we apportion the costs between them with each area having a different method of calculation that is explained in detail in the relevant chapter.

- 3.17 For transport the apportionment is based on person trip rates and results in a 76:24 ratio residential to office development, and this ratio is applied to all the transport infrastructure items. The apportionment of the provision of the electricity substation expansion is based on peak power demand to produce a 60:40 ratio residential to commercial.
- 3.18 We have prioritised infrastructure projects as follows:
- *Critical enabling*: provision without which we believe the development cannot proceed;
 - *Essential mitigation*: provision that we believe is necessary to mitigate the impacts arising from the development, in line with national policy and guidance; and
 - *Place-making*: projects that in our view are desirable, but if they were not taken forward the development would still be feasible and acceptable in planning terms.
- 3.19 Assigning priorities can be a matter of judgment, where there is not necessarily a right or wrong answer. In this study we have made our own judgments. The client authorities may wish to take their own view.

4 Education

Background

- 4.1 In England, there are five stages of education: Early Years, primary, secondary, Further Education (FE) and Higher Education (HE). Education is compulsory for all children between the ages of 5 and 16, which includes primary and secondary up to sixth form.
- 4.2 FE is not compulsory and covers non-advanced education which can be taken at further (including tertiary) education colleges and HE institutions (HEIs). The fifth stage, HE, is study beyond GCE A levels and their equivalent - which, for most full-time students, takes place in universities and other HEIs and colleges.
- 4.3 Our principal focus in this report is on the school levels and types for which there is a statutory requirement on the education authority, which in this case is Cambridgeshire County Council.
- 4.4 Information in this IDP has been sourced from the NEC Education Topic Paper (GCSP, 2020), various published Cambridge County Council strategies, and consultation with County Council officers.

Early Years

- 4.5 Local authorities are expected to work with Early Years providers, including maintained schools, to ensure sufficient free Early Years provision for all 3 and 4 year olds, and eligible 2 year olds. Specific statutory duties of local authorities for the provision of Early Years education are legislated in the Childcare Act 2006.
- 4.6 In Cambridgeshire, Early Years education is delivered by a mixture of private, public and voluntary providers. The majority of places is accounted for by independent providers in the private and voluntary sectors, including academies and free schools. Provision comprise pre-schools, day nurseries and through schools.
- 4.7 There is an identified current need for Early Years places in the vicinity of NEC. Cambridgeshire's 0-19 Education Organisation Plan 2021-2022 observes current pressures in Cambridge City (north) as follows:
'The demand for Early Years and childcare provision is high. For this reason, the sufficiency information is kept under continuous review. The Council is currently aware of the need for additional full day care, and in particular the need to provide more places for children under the age of two.'
- 4.8 This indicates that there is little, if any, existing capacity for additional places to educate the new residents of NEC.

Primary and secondary education

- 4.9 Section 14 of The Education Act 1996 requires local authorities to provide a school place for every child living in their area who is of statutory school age (5-16) and whose parents want their child educated in the state-funded sector.

- 4.10 There are no existing primary schools located within NEC. The nearest school to NEC's proposed residential area is Shirley Community Primary School on Nuffield Road. This school accommodates children aged 4-11 and is listed as currently having a small amount of spare capacity, with 362 of 420 places filled.⁸

SEND

- 4.11 The Children and Families Act 2014 places legal duties on local authorities to identify and assess the special educational needs and disabilities (SEND) of children and young people up to 25 for whom they are responsible. This is in addition to responsibilities under Section 14 of The Education Act 1996 which places local authorities under a general duty to provide a school place for every child living in their area of responsibility, irrespective of their needs, in mainstream or specialist provision.
- 4.12 There is a mix of SEND provision in Cambridgeshire, including 13 special schools, 6 cabins, 3 primary units and 5 secondary units.
- 4.13 Within Cambridge City, the Education Organisation Plan 2021-2022 observes that the Castle School - an Area Special School for children and young people aged 2 to 19 - is currently operating at capacity and is unable to respond to requests for places from families living in the local area.
- 4.14 In South Cambridgeshire, a new special school named the Martin Bacon Academy opened at Northstowe in 2020. This school has a total capacity of 110 pupils aged 2 to 19. This is assumed to meet current rather than future needs.

Future needs

- 4.15 Our assumptions on future population are set out in the approach to determining population estimates is discussed in Chapter 2 above. Child yield estimate assumptions used for this IDP are based on the housing mix provided by Greater Cambridge Shared Planning Service (GCSP), which has been tested against six scenarios. The preferred scenario – referred to as Scenario 6 in the NEC Education Topic Paper (November 2021) – forms the basis of the education requirements in this section.
- 4.16 It should be noted that this is for illustrative purposes only, any changes to the housing mix may alter the requirements and the costs in turn. It is only at a more advanced stage in planning, when the housing mix is finalised, that the County Council will be able to confirm its education requirements.
- 4.17 In summary, the population estimates for different age groups coming from Scenario 6 are shown in Table 4.1. We elaborate on these estimates in the subsections to follow.

⁸ Get Information About Schools database: <https://www.get-information-schools.service.gov.uk/Establishments/Establishment/Details/110663>

Table 4.1 NEC Population Estimates, Scenario 6

School level / type	Age group	Population estimate	Notes
Early years	0-3	1,362	56% of pupils (763) assumed to be eligible for funded places
Primary	4-10	790	3.8 Forms of Entry (FE)
Secondary	11-16	205	1.4 Forms of Entry (FE)
SEND	N/A	24	0.9% of school aged population

Source: Greater Cambridge Shared Planning / Stantec

Early years

- 4.18 Population estimates provided by Cambridgeshire County Council state that there are expected to be 1,363 children aged 0-3 at NEC.
- 4.19 Early years places requirements are calculated by Cambridgeshire County as the number of children assumed to be eligible for funded places, which is 56% of the population aged 0-3, or 763 children. A single Early Years class is for 26 children.

Primary education

- 4.20 Primary school needs are calculated as Forms of Entry (FEs). Primary schools typically have seven year groups from reception through to year six; therefore one FE will have 30 x 7, or 210 pupils.
- 4.21 Based on figures provided by GCSP, we understand the estimated number of primary age pupils (aged 4-11) will be 794. This means there will be a requirement for 3.8 FE at primary level from development at NEC. As it is impractical to implement partial FEs when planning for onsite delivery, it is sensible to round this requirement up to 4 FE (although we note that it is not uncommon for 0.5 FE extensions as school rolls grow).

Secondary education

- 4.22 FEs at secondary level (excluding post-16 education) accommodate five classes of 30, or 150 students.
- 4.23 Based on figures provided by GCSP, it is estimated there will be a child yield of 205 secondary-age pupils (aged 11-15), or the equivalent of 1.4 FE.

SEND

- 4.24 Feedback from Cambridge County Council⁹ states that the number of pupils attending an Area Special School, as a proportion of the total pupil population, is approximately 0.9% of pupils across the County. Although anecdotally new developments have a higher incidence of pupils with SEND, the information provided by the County Council indicates that there is not a higher demand for special school places particularly

⁹ Email dated 15 October 2021.

associated with NEC. On this basis, we assume that for North East Cambridge 0.9% of the school population would require a place at an Area Special School, which equates to 24 pupils.

Strategy and projects

Early years and primary education

- 4.25 The NEC master plan shows three location options for the provision of primary schools.
- 4.26 Based on population estimates, we expect there will be demand for up to four FE at primary level. The NEC Education Topic Paper notes that it is Cambridgeshire County Council's policy to establish primary schools serving the 4-11 age range as either 420 places (2 forms of entry), 630 places (3 forms of entry) or 840 places (4 forms of entry), with the size being considered on a case by case basis depending on the local context and the requirement of the local authority to be in a position to meet its statutory duty to secure sufficient school places in time to meet forecast demand.
- 4.27 Cambridgeshire County considers that the most appropriate means of meeting this four FE requirement is to split it across two sites of two FE each. Based on current child yield estimates, it is likely that two schools will be required, however it is Greater Cambridge Shared Planning's recommendation that a third school site should be reserved as a contingency to allow for flexibility should the housing mix change and increase the estimated child yield. Accordingly, three primary schools including nursery provision have been included in the Project Schedule.
- 4.28 It is Cambridgeshire County Council policy to provide Early Years classes alongside new primary schools proportionate to the number of primary FE. This means that for all of the two FE schools, two Early Years classes, accommodating up to 52 pupils at any time, would also be provided.
- 4.29 This will not accommodate all of the need for Early Years places discussed earlier. It is expected that shortfalls in provision will be accommodated by private and voluntary sector providers. It will therefore be necessary to allocate and market additional sites suitable for full day care provision in addition to the Early Years places based within the primary schools. The purpose of this is partly to ensure sufficient places, but also to promote choice and for families who are not entitled to funded childcare but still wish to access Early Years schooling. Alternatively, the provision of a standalone nursery, perhaps as part of the community hub, could be explored to help meet demand for places.
- 4.30 Schools often have a range of educational, recreational and sporting facilities which can be used to benefit children and the community. As planning continues, the school projects may incorporate community and/or sports facilities for use outside of school hours. The approach to this will need to be developed collaboratively alongside providers within the local authorities and Sports England.
- 4.31 It is important to note that where facilities intended for community use are located in, or adjacent to, the school site, there should be separate access arrangements to

uphold safeguarding requirements. We also note that any ancillary community and/or sports facilities would also need to be suitable for use by primary school aged children during the school day, otherwise the facility will not be justifiable.

Secondary education

- 4.32** The secondary school level requirement (for ages 11-15) is expected to be 1.4 FE.
- 4.33** As a general rule, secondary schools are much larger and fewer in number than primary schools. In Cambridgeshire for example, there are more than 210 primary schools and only 33 secondary schools by comparison. It is because of this that the demand threshold for establishing a new secondary school is typically much higher for secondary schools, often more than six FE as a minimum.
- 4.34 The impact in terms of pupil numbers generated by development at NEC at this school level therefore does not justify the establishment of a new school. Therefore a Section 106 contribution for off-site provision in the form of expansion of existing schools would be sought to mitigate the impact of the development. Contributions estimates are provided below under the Costs heading.

SEND

- 4.35 Cambridge County Council endeavours to support SEND places in mainstream schools wherever possible. However, for those children and young people for whom mainstream is not considered appropriate, there are a number of specialist education providers in the county.
- 4.36 Cambridgeshire County Council officers have indicated that a financial contribution would be sought in order to expand SEND provision off-site rather than provide an SEND unit at one of the proposed schools. NEC falls within the SEND catchment area served by Martin Bacon Academy, Northstowe, which may therefore be the logical destination for contributions towards expansion if required.

Responsibilities for delivery

- 4.37 Cambridgeshire County Council is the local education authority (LEA) responsible for the development at NEC.
- 4.38 As the LEA, it is Cambridgeshire County's role to assess the requirements for school provision from development, to determine and plan how sufficient capacity will be provided, and to secure funding including developer contributions where necessary.
- 4.39 It is common for schools to co-locate with other uses, especially community and sports facilities. In higher density, urban contexts such as NEC this may extend to housing. No plans have been determined for this however there is some potential that one or more of the school sites would be shared, which in turn would rely on upon the appointment of a suitable sponsor to run the school.

Prioritisation

- 4.40 Statutory requirements differ between Early Years, compulsory primary and secondary education, and SEND. However, these are all statutory requirements of

Cambridgeshire County Council as the LEA, which must be met in order to meet the needs of the community. Accordingly, these have been prioritised as Essential Mitigation.

Phasing

- 4.41 As the build-out of NEC is expected to take place over many years, critical points for school place demands will be reached at different stages of the development trajectory.
- 4.42 For primary schools, the Education Topic Paper notes the importance of ensuring a school is provided early to avoid putting pressure on surrounding schools. Accordingly, we have assumed one of the schools would be established in the early stages of the build out of NEC (2026/27-2030/31 in the Project Schedule). The timing of the second primary school – and third, if required – should be kept under review in order to meet the needs of growth. It is currently assumed in the Project Schedule that the second would be required in the last part of the plan period, however, it could be the case that it, along with the third, would be required outside the plan period.
- 4.43 Costs for secondary and SEND are expected to be in the form of financial contributions as part of Section 106 payments. The trigger for these payments would therefore be in alignment with key milestones associated with each development (for example, prior to occupation of the development). The development trajectory therefore gives some indication of S106 receipts over time. This has been factored into the phasing of costs in the Project Schedule.

Costs

- 4.44 There are multiple means of calculating indicative costs for schools, including the use of BCIS figures, and resources such as the National School Delivery Cost Benchmarking studies.
- 4.45 Indicative costs have been provided by Cambridgeshire County Council from various sources, with comments to this effect included in the Project Schedule. These will be subject to confirmation and refinement as planning progresses. Costs are as below:
- On-site early years and primary schools - £22,780,000, or £11,390,000 per school
These costs have been determined by Cambridgeshire County Council in a detailed order of cost estimate. Alongside numerous allowances, the net unit rate for the build is taken from the National School Delivery Cost Benchmarking report (Version 6, June 2019)¹⁰, updated to Q4 2021, and given a regional location factor for Cambridge. As the detailed design progresses there may be a need for this unit rate to rise reflecting the more compact nature of the provision and the high quality design and sustainability requirements.
 - Secondary developer contributions - £5,521,000

¹⁰ <https://ebdog.org.uk/wp-content/uploads/2019/06/F07125-National-School-Delivery-Cost-Benchmarking-Primary-Secondary-and--SEN-Schools-Final-June-2019-v6.7a.pdf>

These costs are based on school place 'scorecards', published by the Department for Education. No cost data was collected in 2019 as the Capital Spend data collection was removed from the School Capacity (SCAP) survey pending the introduction of the Capital Spend Survey. Costs are therefore based on 2018 data and indexed to Q1 2020 with regional adjustment for East of England.

- SEND developer contributions - £3,840,048

This cost is based on the contract sum for Martin Bacon Academy, the SEND school delivered in Northstowe. This was £15,351,000 (Q1 2019) for 110 places. This has been updated to Q4 2021, and 10% added for NZEB¹¹, which gives a rate of £160,002 per place.

4.46 Note that costs above do not include land costs.

Funding

4.47 Funding – in the form of Basic Need Allocations – from the Department for Education is provided to schools based on forecast school capacity for new places. These allocations are reduced however to take account of developer contributions, to avoid double funding of new school places.¹²

4.48 It is up to the local authority for education to decide the extent to which developments should be required to mitigate their direct impacts. We have assumed that developer contributions will be the source of funding for education infrastructure at NEC, and have entered into the Project Schedule accordingly.

Summary

4.49 The table below identifies the NEC housing delivery trajectory and then the costs, available funding - both committed and potential and then calculates the residual funding gap.

¹¹ Nearly Zero Energy Building

¹² PPG, Paras 07-08, Reference ID 23b-007-20190315 - 23b-008-20190315

Table 4.2 Education – costs, funding and gap analysis

Education costs and funding	2021/22 -25/26	2026/27 -30/31	2031/32 -35/36	2036/37 -40/41	Yet to be phased	Total in Plan period	Beyond Plan period	Total
Housing trajectory (homes completed)	0	700	1,450	1,750	0	3,900	4,450	8,350
	£M	£M	£M	£M	£M	£M	£M	£M
Cost to NEC								
Education								
Education - Primary	-	£11.4	-	£11.4	-	£22.8	£11.4	£34.2
Education - Secondary	£0.0	£0.4	£0.8	£1.1	-	£2.4	£3.1	£5.5
Education - SEND	£0.0	£0.3	£0.5	£0.8	-	£1.7	£2.2	£3.8
Education total	£0.1	£12.1	£1.3	£13.3	£0.0	£26.8	£16.7	£43.5
Funding available								
Committed funding	-	-	-	-	-	-	-	-
Potential funding	-	-	-	-	-	-	-	-
Gap (residual)	£0.1	£12.1	£1.3	£13.3	£0.0	£26.8	£16.7	£43.5

Source: Stantec

- 4.50 In terms of on-site education infrastructure, it is expected that NEC will require two two-FE primary schools in order to accommodate demand for places in this age group as a minimum. The option for a third primary school outside the plan period should be kept open as a contingency, the need and timing of which should be kept under review. The primary schools should incorporate proportionate nursery classes to primary FE. It is expected each of these schools could cost around £11,390,000 each. Three primary schools with nursery classes at this cost have been entered into the Project Schedule at a total of £34,170,000.
- 4.51 One of the schools will need to be delivered early in the build-out of NEC (2026/27-30/31) to ensure needs are met without putting pressure on surrounding schools, with the second in the period after next. As discussed above, a third primary school may be required as a contingency outside the plan period. There will be additional need for nursery places outside what is provided at the primary schools, which will need to be accommodated by the private/volunteer sector.
- 4.52 Offsite contributions are expected to be required to accommodate new places at secondary level, and for SEND pupils, respectively, for £5,521,000 and £3,840,048. These will not necessarily need delivering at the same location, or all in one go and so the contributions and provision is likely to follow the housing delivery with approximately £4M in plan period and £5.3M beyond.

5 Health care

Background

- 5.1 Prior to 2013, primary care estates were planned and managed in England by Primary Care Trusts. Since then, Clinical Commissioning Groups (CCG) held this responsibility. In Cambridgeshire, it was devolved to the Cambridgeshire and Peterborough NHS CCG.
- 5.2 At the end of this financial year (March 2022) CCGs in England will be replaced under the new Integrated Care System (ICS), which was introduced as part of the NHS's Long Term Plan.¹³ Planning for this significant restructuring is ongoing and there are many issues critical to healthcare infrastructure provision that are yet to be confirmed. White papers, currently being worked through in the UK Government, discuss the direction of the new system and a new Health and Care Bill to be presented to Parliament.
- 5.3 Within the ICS, Integrated Health and Care Partnerships (IHCP) will take on various local functions, comprising the NHS, local government and partners, and an ICS NHS Body. Cambridgeshire's IHCP will be divided into North and South, with NEC located in the South. At the time of writing, we have been told that the Estates function does not yet know where it will fit – this could be a corporate function or a function of the ICPs.
- 5.4 The IHCPs will have a strong collaborative mandate and will comprise health functions that are far more wide-reaching than primary care. For example, the IHCP relevant for NEC may comprise GPs as well as representatives from hospitals, social care, the ambulance service, and others.
- 5.5 What this means in practical terms for the infrastructure planning at NEC is that the typical, traditional line between primary and secondary care is becoming blurred, and as a result, what we would otherwise call a new GP surgery in the future will be less likely to focus on solely primary care. Instead, it is likely that these spaces will need to do more and have various functions, with the job for developers focussing more on flexibility and adaptability than has been the case in the past. There will be implications for costs flowing on from this, meaning that the full costs of facilities may be more variable depending on what needs are required to be met. This may be less important when considering shell and core costs only.
- 5.6 With a significantly changing model of service provision, it is difficult to know exactly what needs are expected to be met. In discussion with a representative of the CCG¹⁴, it was agreed that a suitable interim approach would be to retain focus on existing standards for calculating primary care needs and costs only, with the understanding that this change in approach is forthcoming. It is therefore limited by an assumption

¹³ <https://www.gov.uk/government/publications/working-together-to-improve-health-and-social-care-for-all/integration-and-innovation-working-together-to-improve-health-and-social-care-for-all-html-version>

¹⁴ NHS CCG Interview held via Microsoft Teams on 7 October 2021.

that the facility will resemble a more traditional GP surgery, whereas under the evolving approach discussed above, provision will need to accommodate other functions as well.

- 5.7 Below we provide an overview of the needs assessment under these terms. Information has also been sourced from the NEC Health Facilities and Wellbeing Topic Paper (draft update October 2021), NHS publications, and consultation with the CCG.

Future Need

- 5.8 The NEC Health Facilities and Wellbeing Topic Paper (November 2021) provides a detailed overview of Cambridgeshire County Council's methodology for the production of its forecast for the 16 years and over population for NEC, based on the total number of dwellings, dwelling mix, and an affordable housing assumption of 40%.
- 5.9 The NEC population within the Plan period is estimated to be 8,420. Beyond 2041 it is expected to grow to 16,355. On the back of these estimates, the Topic Paper confirms that the proposed development at NEC will generate the need for a health facility to be located within NEC itself.
- 5.10 For floorspace requirements, we have relied upon indicative square meterage calculations historically used to determine the core General Medical Services (GMS) space required for a practice from NHS Property Services from 2017. These calculations have been adopted for the purposes of infrastructure planning within the Cambridge and Peterborough CCG, and more widely at CCGs in Oxfordshire, West Kent and Essex.
- 5.11 These calculations provide a sq m figure based on various patient list sizes. For practices with patient lists between 16,000 and 18,000, this requires a 1,083 sq m facility, assumed to be spread across two storeys with one staircase and one lift (called Type B).
- 5.12 As the estimated population is 16,355, we therefore assume a 'worst case scenario' in terms of impact where more than 16,000 of the new population at NEC enrolls as a patient here over the course of the full build out (more than half of which occurs post-2041).
- 5.13 A 1,083 sq m facility is therefore the recommended floorspace requirement from NHS Property Services using this method. Greater Cambridge Shared Planning has suggested this is a minimum requirement for the facility, and requested that the larger floorspace requirement of 1,500 sq m, should be used at this indicative stage to ensure flexibility outside of the primary care. This figure, and justification as an integrated health facility, had previously been supplied to officers at Greater Cambridge Shared Planning with reference to the healthcare facility at Northstowe.
- 5.14 Cost for this facility is discussed in the relevant section below.

Strategy and projects

- 5.15 A co-located health facility has been the established preference for healthcare provision at NEC since the early stages of planning.
- 5.16 It is expected that the health facility will co-locate with other social infrastructure at NEC, such as a community facility and library, to form a community hub. There are many variations that this could take, and planning is not sufficiently advanced to know what this will look like. Each community hub is tailored to each site, with its own unique constraints, and so for practical reasons we are treating the infrastructure items separately in the absence of more specific requirements that will be determined at later stages of planning.
- 5.17 A community hub model will have implications for costs and delivery. As well as creating spatial efficiencies, there will be some rationalising of costs as parts of buildings, including outer shells for example, become shared across projects.

Responsibility for delivery

- 5.18 As discussed above the primary vehicle for delivery of the healthcare facility will be the Southern IHCP as part of the forthcoming ICS. Planning for this facility, however, is and will remain a highly collaborative effort with the councils and other health and social care providers.
- 5.19 The facility is likely to be part of a community hub, which adds an additional layer of complexity.
- 5.20 Leadership on the delivery of the healthcare floorspace within the community hub will need to be by the respective departments of the local and county authorities. However, an overall mechanism for delivery which provides leadership for the entire hub, beyond its constituent parts, will need to be established in due course.

Prioritisation

- 5.21 NEC represents a substantial increase in population over the plan period and beyond, of an estimated 16,355 people. The healthcare needs of these people will not be able to be accommodated within existing healthcare infrastructure, and access to healthcare is of critical necessity to the community. For these reasons this has been prioritised as essential mitigation.

Phasing

- 5.22 A phasing estimate has been entered into the Project Schedule, for 2031/32-35/36.
- 5.23 There is a risk to providing infrastructure too early in the plan period and having it sit empty while the population follows. The risk of providing it too late is that the growing population puts pressure on services elsewhere. The bulk of development is planned to occur towards the end of the plan period and beyond, however, lack of provision early in the development not only increases pressure on local services but has an adverse impact on the nearby community which lacks facilities already. The

implications of this impact are described in greater detail in the New Housing Developments and the Built Environment JSNA (2015/16) prepared by Cambridgeshire County Council and the Cambridgeshire and Peterborough CCG.¹⁵ We therefore recommend that this infrastructure is in place in the earlier part of the build-out of NEC.

- 5.24 Phasing will need to be kept under review. The benefit of planning for a flexible and co-located community hub may be that essential services like primary healthcare can start small and grow into a space along, alongside other uses, which may be meanwhile, while the community establishes itself.

Costs

- 5.25 BCIS provides a local rate (mean) of £2,700 per sq m gross internal floor area for the building including preliminaries for public 'Health Centres, clinics, group practice surgeries' in Cambridgeshire in 2021. Consultation with the CCG confirmed BCIS standards were appropriate for these purposes in the context of the IDP.
- 5.26 This would therefore amount to a cost of £4,050,000, for a healthcare facility of 1,500 sq m.

Funding

- 5.27 The principal mechanism for securing capital funding will be through the negotiation of contributions from Section 106 agreements with developers.

Summary

- 5.28 The table below identifies the NEC housing delivery trajectory and then the costs, available funding - both committed and potential and then calculates the residual funding gap.

¹⁵ <https://cambridgeshireinsight.org.uk/wp-content/uploads/2017/08/New-Housing-Developments-and-the-Built-Environment-JSNA-2015.pdf>

Table 5.1 Healthcare – costs, funding and gap analysis

Healthcare costs and funding	2021/22 -25/26	2026/27 -30/31	2031/32 -35/36	2036/37 -40/41	Yet to be phased	Total in Plan period	Beyond Plan period	Total
Housing trajectory (homes completed)	0	700	1,450	1,750	0	3,900	4,450	8,350
	£M	£M	£M	£M	£M	£M	£M	£M
Cost to NEC								
Healthcare								
Health Facility	-	-	£4.1	-	-	£4.1	-	£4.1
Healthcare total	£0.0	£0.0	£4.1	£0.0	£0.0	£4.1	£0.0	£4.1
Funding available								
Committed funding	-	-	-	-	-	-	-	-
Potential funding	-	-	-	-	-	-	-	-
Gap (residual)	£0.0	£0.0	£4.1	£0.0	£0.0	£4.1	£0.0	£4.1

Source: Stantec

- 5.29 The healthcare system in England is undergoing considerable change. Current models for anticipating need are likely to no longer be fit for purpose, as the Integrated Care System is introduced.
- 5.30 We have estimated primary care provision and costs, in consultation with the NHS, for a core primary care space serving a community of 16,000+. This would be a 1,500 sq m facility, with a BCIS cost estimate of £4.1M.
- 5.31 The vision, however, is for a flexible and multi-functional space dedicated to health and social care, including primary care, but not limited to it. This itself would be co-located alongside other social infrastructure in a community hub. The exact requirements of this hub are yet to be determined. However, it is likely to follow a similar delivery model to hubs employed elsewhere.

6 Community facilities

Background

- 6.1 Council supported community centres play a vital role in delivering accessible, targeted services to address deprivation and inequality in areas of the city which need them most. They also bring people together to participate in their local community, and enable communities to play an active role in improving the quality of life in neighbourhoods.
- 6.2 A community hub, incorporating a range of social infrastructure, is envisioned for NEC in the district centre. In this section we look particularly at the community facilities floorspace requirement, and libraries and also at two Council officer posts required to help shape a sustainable and fully integrated community.
- 6.3 These requirements have been determined in consultation with officers at the Councils and Cambridge County Council, with reference to earlier work for NEC such as the Cultural Placemaking Strategy (2020), and strategic work such as Cambridge City Council's Community Centres Strategy (2019).

Community centres

- 6.4 Cambridge City Council's Community Centres Strategy (2019) presented the findings of a study of existing community facilities in Cambridge City. It identified 107 existing facilities in multiple ownerships, gaps in provision, and projects for improved services across the city and fill the identified gaps.
- 6.5 The strategy identified an existing gap in the East Chesterton ward, which overlaps with NEC (under Priority 9). East Chesterton is identified as a high needs area, and that new provision should be investigated as part of planning for NEC.

Libraries

- 6.6 Cambridge County Council is the provider of local public libraries in Cambridgeshire. Our understanding of the need for library space in NEC has been taken from consultation with CCC Libraries.
- 6.7 There are no libraries located in the NEC AAP area, nor any of the directly surrounding wards. The two nearest are the libraries at Arbury Court Library on Arbury Road, and Milton Road Library in East Chesterton.
- 6.8 It is expected that a library of an appropriate scale will be provided at NEC to serve NEC itself and the surrounding communities which are underprovided for (particularly, King's Hedges, East Chesterton and Milton).

Community and sports development officers

- 6.9 These two posts (that will require a proportion of full time posts) are needed to *“create a sustainable community at NEC fully integrated with surrounding neighbourhoods.”* Healthy, mature communities can become self-sustaining and self-developing, however, new communities developed at pace require higher levels of public services, support and intervention within the early years. This has been noted time

and time again through research within major new town development both nationally and through local research.

- 6.10 In order to nurture the development of social capital, community ties community-led solutions and healthy lifestyles, two Community and Sports Development Officers are required. The Community Development Officer post is required up-front to be in place for first occupations, with a tapered approach throughout the life of the development. The Sports Development Officer post is required once local provision is secured on-site (estimated around 2029/30).

Future need

Community centres

- 6.11 The NEC Cultural Placemaking Strategy identified the need for a 1,986 sq m community facility at a cost of £7m to £8.1m. The cost of this would also include a multi-use community hall that could accommodate indoor 5 a side football or badminton and contribute to meeting indoor sport need.
- 6.12 This adopted the policy benchmark of 111 sq m per 1000 new residents, which itself was taken from South Cambridgeshire District Council's Community Facilities Assessment (2009). This is an out of date policy benchmark, however we have adopted this here in the absence of an alternative.
- 6.13 The 1,986 sq m figure referenced above was based on an earlier, larger population estimate for NEC. Using the updated figure of 16,355, this gives us a new floorspace figure of 1,816 sq m. Indicative costs for this are identified in the Costs section below.
- 6.14 The type of facility and models of delivery for community assets varies significantly across developments. The shape of these facilities are usually determined based on a detailed qualitative and quantitative analysis of local need, taking into account the population profile, distance to users, existing capacity, and so on. Generally, however, there is a trend towards community floorspace needing to do more with less, meaning there is a preference for facilities that are flexible and adaptable to community needs. For the avoidance of doubt, while the Cultural Placemaking Strategy assumed indoor sports would be included in this facility, note that we do not assume this requirement and defer to the separate analysis of sports needs in Section 8 below to cover that need.

Libraries

- 6.15 We have not been able to confirm any specific standards, for example a population ratio, that are used to determine the need for, or size of a library in Cambridgeshire. Commonly applied national standards in the past have included those by Museums Libraries and Archives (MLA) Council, which ceased to exist in 2012.
- 6.16 Cambridgeshire does not have a published policy benchmark for library provision. However, in consultation with the Cambridgeshire County Council libraries service¹⁶, it

¹⁶ Consultation held via Microsoft Teams, 11 October 2021.

is not considered appropriate to apply the MLA standards here, although these are used as basis for s106 standard charges, having increased in line with inflation since 2010.

- 6.17 In this consultation we did hear, however, that NEC is of a suitable scale for a new 'city' library and this should be provided as part of a co-located community facility or hub. Floorspace standards for a 'city' library are for 250-350 sq m, with an average of 300 sq m where about 250 sq m would be given over to library stock, and the remaining 50 sq m for other uses within the library such as meeting rooms.
- 6.18 We note that the NEC Cultural Placemaking Strategy recommends an 810 sq m library, however it is not clear how this has been determined. Consultation with CCC suggested that this is too large a facility and that provision should be made in line with the above.

Community and sports development officers

- 6.19 Community and sports development practice takes a strength based approach, working alongside and with local residents to build on the local community strengths and interests and to assist in reducing potential inequality and social exclusion issues in NEC and neighbouring areas. This approach builds on the wider community assets, networking in health, wellbeing and social support to help build and sustain strong communities. The core-focus of the work programmes are likely to include setting up of resident-led governance structures (resident associations/parish forums etc). Programmes, such as sports programmes that support early years and families, intergenerational projects, projects that tackle isolation, loneliness and promote celebration of diversity and inclusivity.
- 6.20 It is important to generate a real sense of community within the NEC area and bring together the disparate elements, as well as integrating with the surrounding neighbourhood communities who themselves are very different in character. This is an exciting opportunity and many existing landowners, businesses and community organisations have expressed interest in being involved in further community development initiatives.

Strategy and projects

- 6.21 The vision for community and library floorspace is for delivery as part of a community hub within NEC's district centre, also incorporating a health facility, as a convenient means for the community to access key social infrastructure.
- 6.22 It has already been mentioned that the exact requirements will need to be determined in time by the relevant providers, and that the requirements identified in this chapter are indicative only. There is however a consensus that community floorspace, a library, and a health facility will be central to the community hub as a minimum.
- 6.23 Community development officer should be a service available at the point of first occupation so that community initiatives can be developed with community involvement to deliver the strategic objective of a sustainable inclusive community fully integrated with the surrounding neighbourhoods. The Sports Development

Officer role can follow the point when the population begins to build. The hours involved will taper down as time moves on and community structures created.

Responsibility for delivery

- 6.24 Leadership on the delivery of community and library floorspace elements of the community hub will need to be by the respective departments of the local and county authorities. However, an overall mechanism for delivery which provides leadership for the entire hub, beyond its constituent parts, will need to be established in due course.
- 6.25 Community/Sports Development Officers are generally provided as a direct Council service, but given the nature of NEC transformation and the length of the timeframes involved it could equally be delivered through a local community or sports partner.

Prioritisation

- 6.26 A need has already been identified for a community facility in NEC by the Councils. The community hub will be an important asset for the future population of NEC and should therefore be investigated as a priority.
- 6.27 While an important part of placemaking in NEC, there is no strict statutory requirement for community and library floorspace or the Community and Sports Development Officers, and these have been prioritised as such in the Project Schedule.

Phasing

- 6.28 The Community Development Officer is needed from the very beginning of the 2026/27 period prior to first occupation and the Sports Development Officer shortly after, around 2029/30.
- 6.29 The phasing estimate for the Community hub is 2031/32-35/36. We justify this phasing under the same terms as the healthcare facility described in Section 5 Healthcare. The bulk of development is planned to occur towards the end of the plan period and beyond, however, lack of provision early in the development not only increases pressure on local services but has an adverse impact on the nearby community which lacks facilities already. We therefore recommend that this infrastructure is in place in the earlier part of the build-out of NEC.
- 6.30 The benefit of planning for a flexible and co-located community hub may be that essential services like primary healthcare can start small and grow into a space along, alongside other uses, which may be meanwhile, while the community establishes itself. Phasing will need to be kept under review

Costs

Community Floorspace

- 6.31 Costs in the NEC Cultural Placemaking Study were determined by Faithful+Gould however we take a different approach below.

- 6.32 BCIS provides a local rate (mean) of £2,164 per sq m gross internal floor area for the building, including preliminaries, for community centres sized between 500 and 2,000 sq m in Cambridgeshire in 2021. For a community centre of 1,816 sq m, this would result in a cost of £3,929,824.

Libraries

- 6.33 BCIS provides a local rate (mean) of £2,723 per sq m gross internal floor area for the building, including preliminaries, for public libraries in Cambridgeshire in 2021. For a 300 sq m library, this would generate a cost of £816,900. Note that this does not include fit out or the costs of the library stock and IT equipment. This cost is therefore interim and a higher cost that involved a full fit out would be appropriate for funding from development.

Community and sports development officers

- 6.34 The costs associated with providing these roles are based on the S106 for the Eddington development rebased to today's values, and allowing more for the Sports Development Officer given NEC does not benefit from the same arrangements as the University at Eddington, the overall contribution required is £500,000.

Funding

- 6.35 All the costs associated with these community facilities will need to be 100% provided by the NEC development because it is for this community that they are required and for which they will serve.

Summary

- 6.36 The table below identifies the NEC housing delivery trajectory and then the costs, available funding - both committed and potential and then calculates the residual funding gap.

Table 6.1 Community facilities – costs, funding and gap analysis

Community facilities costs and funding	2021/22 -25/26	2026/27 -30/31	2031/32 -35/36	2036/37 -40/41	Yet to be phased	Total in Plan period	Beyond Plan period	Total
	£M	£M	£M	£M	£M	£M	£M	£M
Housing trajectory (homes completed)	0	700	1,450	1,750	0	3,900	4,450	8,350
Cost to NEC								
Community facilities								
Community hub	-	-	£4.7	-	-	£4.7	-	£4.7
Community & Sports Development Officers	£0.3	£0.2	-	-	-	£0.5	-	£0.5
Community facilities total	£0.3	£0.2	£4.7	£0.0	£0.0	£5.2	£0.0	£5.2
Funding available								
Committed funding	-	-	-	-	-	-	-	-
Potential funding	-	-	-	-	-	-	-	-
Gap (residual)	£0.3	£0.2	£4.7	£0.0	£0.0	£5.2	£0.0	£5.2

Source: Stantec

6.37 Community facilities will be an important part of placemaking in NEC. Interim space requirements and costs have been identified for community and library floorspace in this chapter at £4.7M, with in addition £0.5M for the two officer roles. However, it is probable that these will be superseded in due course as planning of the format and content for the community hub continues.

7 Open space and green infrastructure

Local context

- 7.1 Open space includes the areas of open space which are planned and laid out as spaces which are generally free from structures and buildings, typically for public recreational use or to provide areas for nature. The National Planning Policy Framework¹⁷ defines open space as “*all open space of public value, including not just land, but also areas of water (such as rivers, canals, lakes and reservoirs) which offer important opportunities for sport and recreation and can act as a visual amenity*”. This IDP covers all elements of informal open space relevant to the NEC development comprising informal public open space and play provision, areas for biodiversity and habitat, allotments and burial grounds. Formal open spaces which are open spaces which are typically designed and laid out for formal sport uses, such as playing pitches, are considered in the ‘sport and leisure’ chapter of this IDP.
- 7.2 Green infrastructure is defined in the National Planning Policy Framework¹⁸ as “a network of multi-functional green and blue spaces and other natural features, urban and rural, which is capable of delivering a wide range of environmental, economic, health and wellbeing benefits for nature, climate, local and wider communities and prosperity”. This IDP considers all of the green infrastructure relevant to the NEC development.
- 7.3 There is significant crossover between the provision of open space and green infrastructure, as the significant majority of green infrastructure is provided within areas of open space (both private and publicly accessible open space). Gardens and planting associated within developments can also contribute to green infrastructure. However, in the context of securing green infrastructure in the long term, relying on these spaces is not a robust strategy because individual property owners or managers may remove or change the planting in these locations. Whilst the design of open spaces can change, generally these spaces are designed to incorporate green infrastructure and as such changes do not usually significantly devalue the green infrastructure offer of an open space. As such, this IDP recognises that informal open spaces generally provide green infrastructure benefits and therefore within this report, where informal open space requirements are set out, these should be taken to also comprise green infrastructure provision. The exception to this is where specific green infrastructure assets have been identified on site, which are important, but which do not necessarily come under the definition of open space. These include the Cowley Road Hedgerow and the First Drain.
- 7.4 The National Allotment Society defines allotments as “*an area of land, leased either from a private or local authority landlord, for the use of growing fruit and*

¹⁷https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NP_PF_July_2021.pdf

¹⁸https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NP_PF_July_2021.pdf

vegetables¹⁹. However, it is important to note that rather than providing allotments in their traditional form, focus has recently shifted to integrating food growing opportunities into public realm and open spaces and as part of the amenity space provided within developments, as set out in the National Design Guide²⁰. Allotments and other food growing opportunities also provide green infrastructure benefits such as habitat and connectivity.

- 7.5 There are a number of existing cemeteries in Cambridge, the largest of which is the Cambridge City Cemetery on Newmarket Road. Burial plot availability is constrained. The NEC development will in time generate a need for burial plots, but not in the plan period. Estimates of the proportion of people choosing burial over cremation are around 28%, and this has a significant land requirement implication for new provision.
- 7.6 Within the boundary of the NEC there are several existing informal open spaces (all of which provide green infrastructure) and some green infrastructure assets which are not open spaces. These include:
- Science Park Open Space;
 - Science Park Brooke;
 - Science Park Place;
 - Cambridge Regional College;
 - The First Drain is a linear drainage feature which runs through the area. This is not an area of open space but is a key green infrastructure asset;
 - The Cowley Road hedgerow is also a key green infrastructure asset which falls just inside the eastern boundary of the NEC area. This is designated as a city wildlife site.
- 7.7 In total there is 14.3 Ha of existing informal open space currently within the NEC boundary. There are no existing allotments within the NEC AAP area.
- 7.8 It is relevant to note that whilst not within the NEC AAP area there are a number of existing and proposed informal open spaces located close by that will also provide green infrastructure and recreational opportunities for NEC residents. These strategic green infrastructure initiatives are identified in the Greater Cambridge Green Infrastructure Opportunity Mapping report²¹. (2021), and are also proposed in the Greater Cambridge Local Plan Preferred Options, they include:
- the North Cambridge green space (Strategic Initiative 6) – enhanced access will be provided to / from the NEC area, including a new underpass under the A14;

¹⁹ <https://www.nsalg.org.uk/allotment-info/>

²⁰ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962113/National_design_guide.pdf (see pages 26 & 27)

²¹ <https://consultations.gretercambridgeplanning.org/greater-cambridge-local-plan-first-proposals/explore-theme/biodiversity-and-green-spaces/policy-0>

- Bramblefields Nature Reserve – the NEC AAP street layout / transport improvements will enhance access between the NEC area and this site, but this does not include direct links;
- Chesterton Fen – the street layout / transport infrastructure within the NEC AAP site, including a new pedestrian / cycle bridge over the railway, will increase accessibility to this area;
- The River Cam corridor (Strategic Initiative 2) – enhanced access to the corridor from the NEC area is proposed, including connection with the Chisholm Trail and a new pedestrian / cycle bridge over the railway.

7.9 These green infrastructure initiatives will benefit the future occupiers of NEC because they are in close proximity. The Strategic Initiatives identify areas where green infrastructure improvements have the potential to deliver significant benefits across the whole Greater Cambridge area.

Standards

- 7.10 There are no mandated national planning policy standards for the provision of informal open space, green infrastructure or allotments, as such, local evidence bases have been relied upon for the preparation of this IDP. The key evidence bases for open space planning for the NEC area include the Open Space and Recreation Strategy (2011)²² and the Draft Cambridge Planning Obligations Strategy Supplementary Planning Document (2014)²³. These informed the open space standards included in the adopted Cambridge Local Plan 2018²⁴.
- 7.11 Despite the age of the existing evidence base it is important to note that these reports are based on an empirical assessment of the provision of open space in Cambridge City. In line with the standards set out within these documents (which seek to retain the provision of open space per person), the provision of open space per person is not considered likely to have materially increased since they were published and as such they are considered to remain suitable and robust, and are therefore appropriate for use to inform this IDP.
- 7.12 There are separate standards for open space provision in South Cambridgeshire; however, the use of standards relevant for Cambridge City for the whole NEC area is also considered appropriate given the relationship of the NEC area with Cambridge City, and the density proposed, which is more akin to the city rather than the more rural area of South Cambridgeshire.
- 7.13 The National Planning Policy Framework and the Environment Act set a requirement for 10% biodiversity net gain. However, the way this gain should be provided is not mandated and therefore these standards do not result in a simple ‘area’ of green infrastructure which should be provided. The AAP seeks 20% net gain,

²² <https://www.cambridge.gov.uk/media/2467/open-space-and-recreation-strategy-2011.pdf>

²³ <https://www.cambridge.gov.uk/media/2325/cil040-draft-planning-obligations-strategy-spd-consultation-version.pdf>

²⁴ <https://www.cambridge.gov.uk/media/6890/local-plan-2018.pdf>

acknowledging to achieve this may require off site provision. However, until such time as site specific biodiversity net gain assessments are available, it is not possible to interpret how biodiversity net gain provision will be aligned with open space or green infrastructure proposals. As a consequence, at this stage the IDP cannot consider biodiversity net gain requirements and costs, but it does acknowledge that biodiversity net gain could contribute to green infrastructure provision.

- 7.14 Finally, standards for estimating future needs for burial ground provision are sourced from South Cambridgeshire District Council. Burial/cremation 'demand' per house over 100 year period is assumed to be 2.5 per property, with 30% of the population choosing burial this equates to a 0.75 burial plot requirement per dwelling.

Future needs

- 7.15 The evidence bases referred to above (the Open Space and Recreation Strategy (2011)²⁵ and the Draft Planning Obligations Strategy Supplementary Planning document (2014)²⁶), form part of the adopted Cambridge Local Plan, and set out standards for the provision of informal open space (including play provision) and allotments within new developments. These standards help to ensure that the existing informal open spaces are not inappropriately overburdened by the increase in population which results from additional development. These are:
- 2.2 ha of informal open space per 1000 people.
 - 0.3 ha of provision for children and teenagers per 1000 people (play provision).
 - 0.4 ha of allotments per 1,000 people.
 - The standards also require a maintenance contribution towards informal open space including play equipment.
- 7.16 The standards also require the provision of informal open space to be on the relevant development site wherever possible, to ensure that the new population which the open space is intended to serve can more readily access it (than would be the case if the new open space was remote from the new dwellings).
- 7.17 The additional resident population within the NEC AAP area (at 16,355 persons) will create a total need for 35.99 ha of informal open space and 4.90 ha of play provision, creating a total requirement of 40.90 Ha. It is important to note that as there is already 14.3 Ha of open space in the NEC AAP boundary that is expected to be retained, and in places enhanced, the amount of new open space to be provided is 27.58 Ha. The amount and distribution of new open space provision, in the context of that which already exists on site is explained under the 'strategy and projects' section below.
- 7.18 As set out above, there are no national standards for green infrastructure. This said, it is possible to identify two key green infrastructure assets on the site and set out the proposed approach to these. These include the Cowley Road hedgerow and the First

²⁵ <https://www.cambridge.gov.uk/media/2467/open-space-and-recreation-strategy-2011.pdf>

²⁶ <https://www.cambridge.gov.uk/media/2325/cil040-draft-planning-obligations-strategy-spd-consultation-version.pdf>

Drain. The Cowley Road Hedgerow is a city wildlife site and the development of the NEC offers the opportunity to improve this asset. The First Drain is an important green infrastructure asset and the linear park spaces will be structured around this, providing a buffer between the development and the First Drain and offering the potential to enhance its function as a green infrastructure asset.

- 7.19 In terms of the Strategic Green Infrastructure Initiatives as set out above, due to the proximity of the NEC to the North Cambridge green space (Strategic Initiative 6), we consider that a contribution towards improvements within this area would be appropriate given NEC residents are likely to want to access the area as part of the integrated offer of green infrastructure. In the same regard the provision of a new pedestrian/cycle bridge over the railway to enhance access to \ from the River Cam corridor is a suitable contribution from the NEC area in respect of Strategic Initiative 2.
- 7.20 For allotments, the increased population (at 16,355) will result in a requirement of 6.54 ha of allotments, or an equivalent area for food growing (the design may not be of traditional allotments). In accordance with the afore-mentioned standards it is anticipated that allotment provision should be made on site where possible, which may involve innovative design solutions such as rooftop provision.
- 7.21 Applying South Cambridgeshire District Council's standards for burial ground provision over the 100 year period the 8,350 new dwellings within the NEC AAP area produces a requirement of around 6,300 burial plots. Based on SCDC estimate of 3,100 plots per ha, this equates to just over 2 ha.

Strategy and projects

Open space

- 7.22 In accordance with the existing local standards referred to above which form part of the adopted Cambridge Local Plan, it is proposed to enhance existing open spaces and green infrastructure and provide new informal open spaces within the NEC AAP boundary in order to serve the new residential population. In terms of design, the NEC AAP indicates that the identified informal open space needs will be met through the provision of:
- New linear park spaces;
 - Pocket parks in residential areas with children's play space;
 - New civic, meeting and amenity green spaces; and
 - Additional communal spaces provided in podium/rooftop locations.
- 7.23 It will be essential that new and existing spaces be integrated with the area's urban form and connected with footpaths, running trails and cycle routes – in order to form a green network and support active and health lifestyles.
- 7.24 Information provided by Greater Cambridge Shared Planning Service sets out the indicative number of dwellings proposed for each land parcel within the NEC area and this has been used to calculate the need for informal open space and play provision

in accordance with the existing local plan standards. In coming to a view of how much open space each development parcel should provide, this IDP takes account of the existing open space on the site (which is 14.30 Ha) and apportions the remaining need of 27.58 Ha according to the anticipated number of people occupying each development parcel. 100% of the identified need for play space and informal open space created by the NEC development will be provided within the NEC AAP site boundary. No off-site informal open space or play provision will be required in order to meet the existing local plan standards.

- 7.25 It is assumed that the requisite informal open space will be provided on each development parcel in a layout which is consistent with the AAP – i.e. to meet the requirements set out in paragraph 7.15 above. Where a development parcel includes existing informal open space, it is expected to improve this to meet the needs of the intensified use (this particularly relates to the existing employment area within the AAP site, particularly at Cambridge Science Park).
- 7.26 The table below shows the individual development parcels and the apportionment of new informal open space required within each (this includes play provision).

Table 7.1 Development parcels and open space requirement

Development Parcel	Residential units	Population	New Informal Open Space
Chesterton Sidings	1,250	2,500	3.98
Cowley Road Industrial Estate	450	900	1.17
Anglian Water / Cambridge City Council site	5,500	11,000	18.77
St Johns Innovation Park	0	0	0
Merlin Place	125	250	0.05
Cambridge Business Park	500	1,000	1.71
Nuffield Road Industrial Estate	450	900	1.43
Trinity Hall Farm Industrial Estate	0	0	0
Milton Road Car Garages	75	150	0.24
Cambridge Science Park	0	0	0.22
Cambridge Regional College	0	0	0
TOTAL	8,350	16,700	27.58

Source: LUC. Note: population assumes average of 1.95 persons per dwelling and informal open space based on 27.58 Ha divided by new persons.

- 7.27 As set out above, it is acknowledged that, regardless of meeting the local plan open space standards on site, the population residing within the new development at NEC are likely to benefit from access to existing and potential future surrounding areas of informal open space. Financial contributions have therefore been included to the

North Cambridge green space (Strategic Initiative 6) and access to the River Cam (including pedestrian/cycle bridge crossing over the railway).

Green infrastructure

- 7.28 As set out above, the Cowley Road Hedgerow is also to be protected and enhanced as part of the NEC development and the First Drain will be protected and enhanced as part of the Linear Park proposals. The other biodiversity and habitat project will be to diversify and enhance tree cover across the site. However, this and the hedgerow project will not incur any significant costs and indeed are expected to be delivered as part of developer's biodiversity net gain contributions, and not incurring an IDP cost.

Allotments / food growing opportunities

- 7.29 Space for allotments or food growing activities should be provided to meet the existing local plan standards of 0.4 Ha per 1000 people on each development parcel. The requirement per development parcel is set out in the table below.

Table 7.2 Allotment provision

Development Parcel	Residential units	Population	Allotments (Ha)
Chesterton Sidings	1,250	2,500	1
Cowley Road Ind Estate	450	900	0.4
Anglian Water / Cambridge City Council site	5,500	11,000	4.4
St Johns Innovation Park	0	0	0
Merlin Place	125	250	0.1
Cambridge Business Park	500	1,000	0.4
Nuffield Road Industrial Estate	450	900	0.4
Trinity Hall Farm Industrial Estate	0	0	0
Milton Road Car Garages	75	150	0.1
Cambridge Science Park	0	0	0
Cambridge Regional College	0	0	0
TOTAL	8,350	16,700	6.7

Source: LUC Note: population assumes average of 1.95 persons per dwelling

- 7.30 It is envisaged that the allotments / food growing opportunities will be provided within the development areas, and will be an on-site cost and therefore we exclude from the costings here. It is recognised that novel solutions to this may be required, such as providing communal facilities as part of the built form, for example as part of roof gardens. However, should opportunities for on-site provision not fully meet the standards, then contributions for off-site provision will need to be made.
- 7.31 The 2 ha requirement for burial grounds is unlikely to be met within the NEC AAP area, and is more likely to be met through expansion of one or other of the locally established cemeteries. We therefore move on to consider the costs that will be

required through commuted sum to deliver the level of provision that will in time be required.

Responsibilities for delivery

- 7.32 In the case of informal open space including GI, play provision and allotments, in accordance with the existing local plan open space policies, developers will be solely responsible for delivery within their development sites. As set out in the AAP, informal open space, including play and GI features should be integrated into the development form, including linear park spaces, pocket parks in residential areas with children's play space; new civic, meeting and amenity green spaces; and additional space provided in podium/rooftop locations.
- 7.33 Given the size and range of open spaces to be provided at NEC, and the number of landowners involved, it is not expected that either the City Council or relevant Parish Council will adopt any of these spaces and as such it is likely that the developers will appoint a management company or trust as is standard practice in relation to open space provision. In accordance with the open space evidence base a maintenance contribution is expected to be collected as part of the developer contributions, to secure the maintenance of the open space in the future.

Prioritisation

- 7.34 Open space provision (open space including green infrastructure, play and allotments / food growing opportunities) within NEC is essential mitigation i.e. necessary to mitigate the impact of additional recreational use arising from development (for both physical and mental wellbeing) – including the impact of recreational pressure on Cambridge's network of ecosystems.
- 7.35 The Cowley Road Hedgerow Green Infrastructure improvement is considered essential mitigation as it helps to prevent damage resulting to this green infrastructure asset which may arise from development in such close proximity and is likely to form part of the biodiversity net gain requirement for the relevant development parcel.
- 7.36 The contribution to offsite green infrastructure, namely the North Cambridge green space (strategic initiative 6) is an important placemaking contribution as it will provide residents in the NEC development with the opportunity to access a much larger leisure and recreational space than will be provided on-site, thereby providing choice and a high quality alternative for residents.

Phasing

Open space and green infrastructure

- 7.37 No phasing information has been made available to inform this IDP about the likely timescales that the individual parcels will come forward. Therefore, in order to present the most 'up front delivery' scenario, it is assumed that all development parcels will commence development within the plan period. This being the case it is also assumed that the open space provision will be laid out at an early stage in the

development of each parcel, in order to reduce pressure on the surrounding open spaces and in order to facilitate more healthy lifestyles.

- 7.38 However, should more information on the trajectory of development in each parcel become available it may be possible to phase some elements of the open space and green infrastructure later on in the development timescale.

Allotments

- 7.39 Allotments are likely to be phased along with development, given they are anticipated provided to be provided as part of each development plot.
- 7.40 The expansion of burial grounds is not a requirement for the Plan period, and is identified as a post 2041 cost.

Costs

Informal open space and green infrastructure

- 7.41 As set out above, each development parcel has been allocated an amount of informal open space. This has been calculated based on the total amount of informal open space that will be required to meet the anticipated population of 16,355 persons (41.88 Ha), minus the informal open space which already exists in the NEC AAP boundary (14.3 Ha) – leaving 27.58 Ha to be provided.
- 7.42 Where informal open spaces already exist within a proposed development parcel these have been assessed using aerial photography and assumptions made about the necessary improvements required to make these suitable for the more intensive use which is envisaged.
- 7.43 Costs are set out below and are based on industry standard rates relevant to Q4 2021 which have been used by LUC in designing and costing open space and green infrastructure projects. Rates are inclusive of preliminaries, contingencies and professional fees. There is no adjustment for inflation. The cost of purchasing land has not been included, nor have the costs of remediation/ site investigation works. VAT is excluded.
- 7.44 Maintenance has been included in the costings in accordance with the requirements of the local open space standards. For open space provision less than 20Ha in scale a maintenance fee of £120 per square metre was applied in accordance with the open space evidence base. For larger sites this was reduced in accordance with LUC landscape management professionals experience of maintenance costs on sites of such scale. For sites over 20 Ha, maintenance was costed at £50 per square metre, for sites over 40 Ha, maintenance was costed at £41 per square metre and for sites over 100 Ha, maintenance was costed at £26 per square metre. These costs are in line with LUC's understanding of maintenance requirements for open spaces based on our work to design and provide open spaces and preparation of open space management plans.
- 7.45 In relation to the North Cambridge green space (Strategic Initiative 6) Greater Cambridge Shared Planning suggest a cost contribution of £1.1M to deliver footpath,

wayfinding and gateway improvements and to fund habitat enhancements, but this will be subject to further assessment through the Greater Cambridge Local Plan.

7.46 A summary of the costing for each development parcel is provided in the table below.

Table 7.3 informal open space costs including play

Development Parcel	Area (m ²)	Cost (£M)	Maintenance (£M)	Total (£M)
1 Chesterton Sidings	39,817	£3.70	£4.80	£8.50
2 Cowley Road Industrial Estate	11,723	£2.60	£1.40	£4.00
3 Anglian Water / Cambridge City Council site	187,711	£10.70	£10.80	£21.50
4 St Johns Innovation Park	14,601	£0.60	£1.80	£2.40
5 Merlin Place	481	£0.90	£0.10	£1.00
6 Cambridge Business Park	17,061	£2.80	£2.00	£4.80
7 Nuffield Road Industrial Estate	14,348	£1.40	£1.70	£3.10
8 Trinity Hall Farm Industrial Estate	0	£0.00	£0.00	£0.00
9 Milton Road Car Garages	2,399	£0.90	£0.30	£1.20
10 Cambridge Science Park	125,911	£8.00	£6.70	£14.70
11 Cambridge Regional College	4,718	£0.30	£0.60	£0.90
12 North Cambridge green space (Strategic Initiative 6)		£1.10	£0.00	£1.10
Total		£33.00	£30.00	£63.00

Source: LUC

Allotments

7.47 Given that food growing space will need to be provided on-site either through allotments or alternative means these are considered on-site provision, and no costs have been calculated for inclusion in the IDP.

Burial grounds

7.48 A 2 ha land requirement has been identified. SCDC estimate land purchase costs to be £620,000/ha and establishment costs at £250,000/ha, thus the cost is £870,000/ha. With just over 2 ha required the cost to the NEC AAP area is £1,75m.

Funding

7.49 No external funding is anticipated, and delivery of informal open space (including play), green infrastructure allotments and burial grounds will need to be funded entirely through development contributions. See notes on 'Responsibilities for delivery' concerning maintenance costs.

- 7.50 There are clear requirements in existing policy and guidance for residential development to contribute to the cost of Green and Blue infrastructure²⁷, but there is no such obligation on commercial development. However, we see it as entirely fair and appropriate where sites are being redeveloped for non-residential uses the costs involved should be borne by the new land uses.

Risks, uncertainties, caveats

- 7.51 All costs identified are subject to further design development and investigations.
- 7.52 Should it be the case following detailed master-planning and design that not all informal open space, play and allotment provision can be delivered entirely on-site within NEC, there may be a requirement to expand provision at nearby open space sites. This would require cooperation with the relevant landowners.

Summary

- 7.53 The table below identifies the NEC housing delivery trajectory and then the costs to NEC, available funding - both committed and potential and then calculates the residual funding gap.
- 7.54 NEC sits within the wider Greater Cambridge GI network, in the vicinity of key strategic features including the River Cam Corridor and the eastern fenlands. There are many biodiversity and habitat projects in the wider area, and more are likely to emerge over time that will benefit NEC. At the present time only the two mentioned earlier directly relate to NEC, but as matters currently stand neither require IDP funding. This could change as projects get developed, and also if development is unable to achieve a 20% biodiversity net gain on-site, then off-site contributions could fund improvements in the wider area. The same is the case for the areas of food production /allotments, with alternative means of delivery for on-site provision.
- 7.55 The informal open space (including play provision) required to meet the existing Cambridge Local Plan standards with the exception of contributions for green infrastructure improvements to North Cambridge green space (Strategic Initiative 6) will be provided for within the site boundaries and will not require off-site provision (other than bridge/underpass connections that straddle the NEC AAP area boundary), in line with the Regulation 19 AAP. This will take the form of a range of types of spaces, including a linear park – to be delivered through development and the planning process without reliance on external funding.
- 7.56 The funding estimate for the informal open space including that needed for burial grounds is £58.4M. The informal open space will be delivered in phases alongside development, and a phasing plan is awaited.

²⁷ Cambridge City Planning Obligations Strategy SPD 2010 and SCDC Open Space in New Developments SPD 2009

Table 7.4 Informal open space (including play) and green infrastructure – costs, funding and gap analysis

Open space and GI costs and funding	2021/22 -25/26	2026/27 -30/31	2031/32 -35/36	2036/37 -40/41	Yet to be phased	Total in Plan period	Beyond Plan period	Total
Housing trajectory (homes completed)	0	700	1,450	1,750	0	3,900	4,450	8,350
	£M	£M	£M	£M	£M	£M	£M	£M
Cost to NEC								
Informal Open Space								
Burial grounds provision	-	-	-	-	-	£0.0	£1.8	£1.8
Cambridge Business Park	-	-	-	-	£4.8	£4.8	-	£4.8
Cambridge Regional College	-	-	-	-	£0.8	£0.8	-	£0.8
Cambridge Science Park	-	-	-	-	£8.5	£8.5	-	£8.5
Chesteron Sidings Brookgate	-	-	-	-	£8.5	£8.5	-	£8.5
Contributions to strategic-scale North Cambridge green space	-	-	-	-	£1.1	£1.1	-	£1.1
Core Site AW/CCC	-	-	-	-	£21.5	£21.5	-	£21.5
Cowley Road Industrial Estate	-	-	-	-	£4.0	£4.0	-	£4.0
Merlin Place	-	-	-	-	£1.0	£1.0	-	£1.0
Nuffield Road	-	-	-	-	£3.1	£3.1	-	£3.1
St Johns Innovation Park	-	-	-	-	£2.1	£2.1	-	£2.1
VW Garages	-	-	-	-	£1.2	£1.2	-	£1.2
Informal open space total	£0.0	£0.0	£0.0	£0.0	£56.6	£56.6	£1.8	£58.4
Funding available								
Committed funding	-	-	-	-	-	-	-	-
Potential funding	-	-	-	-	-	-	-	-
Gap (residual)	£0.0	£0.0	£0.0	£0.0	£56.6	£56.6	£1.8	£58.4

Source: LUC/Stantec

8 Sport and Leisure

Local context

- 8.1 This section of the IDP assesses the need for formal open space (i.e. open spaces designed and laid out to provide for specific sports and leisure activities) and indoor sport and leisure facilities.
- 8.2 The population at NEC is expected to generate significant demand for sport and leisure facilities. In addition to the residential demand, the on-site employment development is likely to contribute to demand.
- 8.3 Existing sport and recreation provision at NEC includes:
- The Trinity Centre – an event complex which includes a fitness club.
 - Cambridge Golf Driving Range (which will not be retained).
 - Cambridge Regional College (which includes a sports hall and centre, and 3G pitch).
- 8.4 Opportunities to make existing NEC facilities publicly available at certain times, should be explored. However new provision of facilities will still be required.
- 8.5 With planned access improvements to connect NEC with communities both within other quarters of the City and north of the A14, local NEC residents would be able to access a number of open spaces, such as at Milton Village. This raises the possibility of investing some off-site formal outdoor sports contributions from NEC both at Milton Village and at other sites in the wider Cambridge area, which are accessible by sustainable transport means – such as Abbey Leisure Complex.

Future needs

- 8.6 It is important to note that an indoor sports facility strategy and playing pitch strategy are currently being prepared for Greater Cambridge. These will consider the NEC AAP area in detail and will provide more information as to the provision of formal outdoor open space and indoor pitches. As these are not available, this IDP report uses the existing Local Plan standards and Sport England Facilities Calculator to assess the requirement for formal open space and indoor facilities. The Sport England calculator provides an indicative measure of what should be provided for various sports typologies, and is appropriate for use in high-level master-planning.
- 8.7 The Cambridge Local Plan 2018 standards were used to estimate the need for additional outdoor sport facilities. These standards require 1.1 ha of outdoor pitches (grass) per 1,000 people, and 0.1 ha of artificial outdoor provision (tennis courts/multi-use games areas/bowling greens) per 1,000 people²⁸. On the basis of 16,355 persons at the NEC, this results in a requirement for NEC of:

²⁸ Greater Cambridge Shared Planning Service (2021), North East Cambridge Area Action Plan: Open Space & Recreation Topic Paper (Recreation Strategy (2011), which is currently being revised but can be found at: <https://www.cambridge.gov.uk/media/2467/open-space-and-recreation-strategy-2011.pdf>

- 18 Ha of outdoor pitches (grass)
 - 1.64 ha of tennis courts/multi-use games areas (MUGA)/bowling greens.
- 8.8 Applying the population profile of NEC to Sport England's Sport Facilities Calculator,²⁹ the demand generated for indoor and formal outdoor sports facilities is as follows:
- 4.75 courts (equivalent to 1.19 of a 4-court sports halls) almost certain to be provided as a 5 court facility;
 - 0.78 of a 4-lane swimming pool;
 - 0.7 artificial pitches; and
 - The 18 Ha of grass pitches required by the local standards is broken down by the Sport England calculator to the following typologies:
 - 14.4 ha of football pitches
 - 2.13 ha rugby pitches
 - 1.47 ha of cricket fields.

Strategy and projects

- 8.9 Delivering open spaces in high density developments such as NEC, where there is limited space available, requires innovative, high-quality means of providing facilities for sport which achieve the same outcomes as those provided in traditional residential developments.
- 8.10 The strategy will be to incorporate as much as possible on-site by using innovative types of spaces which encourage active and healthy lifestyles and are available through the year. Large outdoor sports facilities are expected to be delivered off-site, but smaller outdoor sports areas are expected to be provided on-site.
- 8.11 As set out in the NEC AAP, it is anticipated that a public indoor sports hall (minimum 4-court, but likely to be 5-court to meet provision standards) will be provided within the AAP site, most likely within the proposed centre, and that this will form the central focus for community life along with other community providers and services to help people meet their health and well-being needs. This will both reduce the need to travel to access services and will allow for more streamlined day-to-day management of the facility.
- 8.12 Given the vulnerabilities of grass pitches (e.g. flooding and not being able to be used all year round) and the large amount of space required to deliver them, it is anticipated that there will be a focus on providing artificial pitches instead. This can lead to more space efficient provision as artificial pitches are capable of more intensive use compared to grass pitches and therefore fewer are required. The detail in relation to this is likely to come from the emerging playing pitch strategy.
- 8.13 It is important that all sport facilities are designed to be multi-functional and to cater for a range of different activities, or a mix of sports and community/cultural activities.

²⁹ Sport England's Sport Facilities Calculator helps to quantify the additional demand for key community sports facilities and can be accessed at: <https://www.activeplacespower.com/>

As such, facilities may need to include superior artificial surfaces to support a wider range of activities than normal or be covered yet open on three sides.

- 8.14 Artificial courts can also be located at ground floor and in podium locations, as part of a residential block. Further land-use efficiency can be achieved by installing smaller artificial pitches (such as 5-a-side football) on a roof-top location such as a community hub or indoor sports facility.

Responsibilities for delivery

- 8.15 Responsibility for delivery of sports and leisure provision will depend on the type and location of facility in question. In accordance with the existing Cambridge Local Plan standards, it is anticipated that provision will be made on site where possible. Where features are delivered on site, these will be the responsibility of the developers. Where features cannot be accommodated within the site, Cambridge City Council and South Cambridgeshire District Council will be responsible for delivery within their respective areas, supported by appropriate developer contributions. However, smaller-scale more incidental sports and recreation facilities (such as trim trails and trail circuits) may fall under the responsibility of other delivery partners.

Prioritisation

- 8.16 Sport and leisure provision within NEC is considered as essential mitigation i.e. necessary to mitigate the impact of additional sport and recreational demand arising from development. This provision will play an important role in enabling active and healthy lifestyles.

Phasing

- 8.17 The delivery of on-site sports and leisure provision should be linked and effectively phased to the delivery of new residential units, and could therefore take many years. However, early delivery is preferred in order to embed healthy lifestyles.

Costs

- 8.18 Estimated costs for sports provision were arrived at by using the Sport England Sport Facilities Calculator (SFC). This is an online downloadable tool³⁰.
- 8.19 The building costs of facilities used in the SFC are for average facilities endorsed by Sport England. The costs exclude: site abnormal costs such as poor ground, difficult access and long service connections; VAT; and land costs.
- 8.20 It should be noted that the strategy being implemented at NEC of making efficient use of facilities (by accommodating multifunctional uses) is likely to have an impact on implied costs. Higher specification facilities may be required to withstand multifunctional use – including satisfactory floor surfaces, sound proofing and

³⁰ [Sports Facility Calculator | Sport England](#)

downward facing ceiling lights to avoid conflict with neighbouring amenity uses. This is also likely to raise associated maintenance costs.

Funding

- 8.21 It is expected that the majority of sport and leisure facilities will be provided, either on-site, or off-site through S106 contributions through development and the planning process.

Risks, uncertainties, caveats

- 8.22 As set out above the playing pitch strategy and indoor sports facility assessments are currently being updated and these will consider the NEC AAP area in detail. It is possible that, as a result of these assessments, the detailed requirements for formal open space and indoor sport facilities may change. These assessments are expected to be finalised in 2022.

Summary

- 8.23 The table below identifies the NEC housing delivery trajectory and then the costs, available funding - both committed and potential and then calculates the residual funding gap.

Table 8.1 Sports and leisure – costs, funding and gap analysis

Sports and leisure costs and funding	2021/22 -25/26	2026/27 -30/31	2031/32 -35/36	2036/37 -40/41	Yet to be phased	Total in Plan period	Beyond Plan period	Total
Housing trajectory (homes completed)	0	700	1,450	1,750	0	3,900	4,450	8,350
	£M	£M	£M	£M	£M	£M	£M	£M
Cost to NEC								
Sport & leisure								
Artificial grass pitches	-	-	-	-	£0.7	£0.7	-	£0.7
Formal outdoor provision	£1.9	£1.9	-	-	-	£3.9	-	£3.9
Sports halls	-	-	-	£3.1	-	£3.1	-	£3.1
Swimming pools	-	-	-	-	£3.2	£3.2	-	£3.2
Sports & leisure total	£1.9	£1.9	£0.0	£3.1	£3.8	£10.8	£0.0	£10.8
Funding available								
Committed funding	-	-	-	-	-	-	-	-
Potential funding	-	-	-	-	-	-	-	-
Gap (residual)	£1.9	£1.9	£0.0	£3.1	£3.8	£10.8	£0.0	£10.8

Source: LUC/Stantec

- 8.24 Given the high-density nature of NEC, traditional strategies of providing formal open space and indoor recreational facilities will not be pursued. Instead, a range of traditional and innovative spaces will be provided to achieve the vision and objectives of NEC and to enable health and active lifestyles.

- 8.25 This will mean making efficient use of space by co-locating uses and providing multi-functional spaces which can also accommodate other community needs. However, it should be recognised that this strategy is likely to imply higher costs – both capital costs and ongoing maintenance, in order to withstand these multiple uses.
- 8.26 The early phases will see the provision of the formal outdoor pitches. The sports hall will also be provided in the Plan period – given that it is intended to form part of the central focus for community life. Improvements to an off-site swimming pool at an as yet unidentified location are as yet not phased, but likely to be within the Plan period.

9 Transport

Local context

- 9.1 Existing pedestrian and cycle infrastructure accommodates sustainable travel to and within NEC. However, there are some considerable barriers to movement which present severance and reduce accessibility to surrounding areas, employment hubs and local amenities. These barriers include the A14, Cambridge to Ely railway line, Milton Road and the Busway.
- 9.2 NEC benefits from existing bus services present along Milton Road and the Busway and is within walking and cycling distance of frequent rail services at Cambridge North. It is known that bus services in the area experience delays because of peak hour traffic congestion on the local highway network. Furthermore, overcrowding is known to occur on the busway and rail services.
- 9.3 The local highway network surrounding and within NEC currently operates at or over capacity during weekday peak hours. There is a pinch point at Milton Interchange and congestion also occurs on Milton Road and King Hedges Road.

Future needs

- 9.4 Cambridgeshire County Council (CCC) in its role as the local transport authority is responsible for producing transport strategies to support growth. On behalf of CCC Mott MacDonald prepared the Transport Evidence Base required to inform the AAP for NEC³¹. The 'decide and provide' approach was taken within the Transport Evidence Base, which is underpinned by the proposed 'trip budget' concept. This has been further supported by topic papers produced for the NEC AAP on transport, future mobility and internalisation. These papers detail opportunities and preferred approaches on these topics as a framework for developer led Area Wide Transport Strategy.
- 9.5 Demand, traffic modelling and mode shift exercises for each of the NEC development scenarios are presented within the Transport Evidence Base. The exercises identify a vehicular trip budget for NEC within which growth can occur without resulting in a severe impact on the local highway network.
- 9.6 The maximum vehicular trip budget for the Area Action Plan area on to Milton Road is:
- AM Peak: 3,900 two-way trips
 - PM Peak: 3,000 two-way trips
- 9.7 For access on to Kings Hedges Road, the maximum vehicle trip budget is:
- AM Peak: 780 two-way trips
 - PM Peak: 754 two-way trips

³¹ North East Cambridge Area Action Plan Transport Evidence Base, Mott MacDonald, September 2019

9.8 The trip budgets are set at similar levels to existing vehicle trip generation associated with the NEC AAP area. The strategy and projects identified as essential for the NEC and detailed in the transport evidence base focus on facilitating mode shift away from private car usage and ownership. One item that will help to reduce trip generation, but which are not mentioned in the Transport Evidence Base, but are included in the AAP and this IDP are consolidation hubs, used to rationalise the onward movement of goods deliveries in/out of the development.

Strategy and projects

9.9 Transport projects to support growth are centred around improving accessibility and the attractiveness of sustainable modes of travel to, from and within NEC. This is closely associated with the trip budget approach, and local and national transport policies which promote the hierarchy of transport interventions.

9.10 The Transport Evidence Base and extensive stakeholder engagement, with landowners, CCC, the Cambridge and Peterborough Combined Authority, the Greater Cambridge Partnership (GCP), other public sector bodies and transport providers, has identified a long list of transport projects focused at internal, local and strategic scales to support the delivery of NEC. These include:

- Internal measures:
 - Master planning development to promote public transport, walking and cycling through wayfinding, high quality public realm and permeability
 - Segregated crossing points on Milton Road including a garden bridge and an Underpass
 - Crossing points on the busway
 - Pedestrian/cycle Bridge over railway line
 - Highway site access improvements
 - Intra-site shuttle system
 - NEC parking strategy to monitor impacts such as parking displacement in neighbouring areas and the introduction of CPZ. While the Strategy is a matter for the IDP, the Transport Evidence Base suggests the monitoring and implementation of control and enforcement measures should be considered on a site-by-site basis.
 - Travel Plan Measures and Travel Monitoring
- Local measures:
 - New segregated link from Milton Road P&R to site
 - Additional P&R spaces at Milton P&R
 - Explore Park and cycle opportunities at P&R locations
 - Milton P&R shuttle system
 - Variable Message Signage (VMS) at key locations
 - Consolidation hubs for the delivery of goods (on the Cambridge Science Park and potentially one/two others on Milton Road)

- Strategic measures:
 - Provision of additional bus services to/from NEC area
 - Provision of additional rail services to/from Cambridge North Station
 - Delivery of already planned cycle improvements including the Waterbeach Greenway network (including pedestrian/cycle underpass under the A14) and the Chisholm Trail
 - Plugging gaps in the wider cycle network to enhance routes to key residential areas
 - Delivery of the wider Public Transport network including Waterbeach to Cambridge Better Public Transport and Active Travel project
 - Milton Road GCP Scheme

Responsibilities for delivery

- 9.11 The delivery of the projects above will be contingent on various organisations and stakeholders. Most internal measures will be either developer-led or CCC will be responsible. Whilst local and strategic measures will be progressed by CCC or the GCP. Collaborative working between all three organisations will be required to ensure projects are brought forward on time to support growth at NEC.

Prioritisation

- 9.12 The projects in the long list form a full package of measures to enable development at NEC and foster mode shift to sustainable modes of travel. The Transport Evidence Base identifies most of the long list of transport measures as essential in achieving the necessary reduction in vehicle trips to meet the trip budget set for the area. The projects that are identified as desirable are:
- Variable Message Signage (VMS) at key locations
 - Consolidation hubs at Cambridge Science Park and at least one other at a yet to be determined location
 - Delivery of already planned cycle improvements including the Waterbeach Greenway network and the Chisholm Trail
 - Plugging gaps in the wider cycle network to enhance routes to key residential areas
 - Delivery of the wider Public Transport network

Phasing

- 9.13 The trip budgets for NEC are set at similar levels to existing vehicle trip generation. To realise growth at NEC, the transport projects are required at an early stage. Therefore, many of the transport projects are assigned to the early phases of development and at the beginning of the housing trajectory for NEC.

Costs

- 9.14 The transport projects are costed within the Transport Evidence Base and have been reviewed by CCC highways and GCSP officers. The costs of the long list of measures are shown in Table 9.1 below. These are the share of the overall transport project costs that require contributions from NEC development.
- 9.15 Stantec has costed the provision of the consolidation hubs that will manage last mile deliveries (row 18 in the table below). These will have (with a combined floorspace of 2,650 sq m) we have estimated a construction cost of £600/sq m, plus fees, external works and risk all at 15%.

Table 9.1 Outline Transport Measures Costs

Intervention Description	Cost (£m)
Internal Measures	
1 Master-planning	N/A
Segregated crossing points on Milton Road	
2 ■ Green Bridge over Milton Road	£13.3
3 ■ Underpass of Milton Road	£6.9
4 Crossing points on the busway	£0.6
5 Pedestrian/cycle Bridge over railway line	£6.0
6 Highway site access improvements	£0.5
7 Intra-site shuttle system	£9.0
8 NEC Parking Strategy including introduction of CPZ	£0.5
9 Travel Plan Measures and Travel Monitoring	N/A
Local Measures	
10 New segregated link from Milton Road P&R to site	£13.0
11 Additional P&R spaces at Milton P&R	£16.8
12 Explore Park and cycle opportunities at P&R locations	£0.3
13 Milton P&R shuttle system	£14.4
14 Variable Message Signage (VMS) at key locations	£1.0
15 Consolidation hubs at three locations	£2.4
Strategic Measures	
16 Provision of additional bus services to/from NEC area	N/A
Provision of additional rail services to/from Cambridge	
17 North Station	N/A
Delivery of already planned cycle improvements	
18 ■ Waterbeach Greenway including A14 Underpass	£7.1
19 ■ The Chisholm Trail	£14.8
Plugging gaps in the wider cycle network to enhance	
20 routes to key residential areas	£0.5
Delivery of the wider Public Transport network	
21 ■ Waterbeach to Cambridge Better Public Transport	£42.0
22 ■ Milton Road GCP Scheme	£23.0
Total	£172.1

Source: Table 56 of Transport Evidence Base/CCC/GCSP

- 9.16 Where projects are wider reaching and support growth in other areas an apportionment exercise has been undertaken to associate a reasonable cost to NEC. Two projects are subject to such an apportionment - the Chisholm Trail that has City-wide benefits, and the Waterbeach public transport corridor enhancement, which delivers benefits to development at Waterbeach new town and NEC in equal measure, and so we divide the cost (and funding) of these projects equally between the two. Thus, the costs within the table for these projects are costs to NEC rather

than the total project cost that in the case of Chisholm Trail is £29.6M and in the case of the Waterbeach corridor enhancement is £84M.

Funding

- 9.17 The majority of funding for internal and local projects will be via NEC developer contributions. The costs of the transport measures for the AAP will be divided between the developers in a fair and proportionate manner associated. A potential method is set out below:
- Agreed total person trip rates could be derived and converted into 'Development Units' (e.g. 500 two-way person trips = 1 Development Unit) that can be applied across land uses (e.g. 1 Development Unit = 512 homes = 37,566 sq.m. B1).
 - To establish the contribution per development, the total costs of the AAP transport measures could be divided by the number of Development Units for the AAP to give a cost per unit, which can then be applied to developments as they come forward.
- 9.18 All organisations will work together to obtain available mainstream funding sources to ensure the required infrastructure is delivered; with further sources of funding being required, including third party, S106, S278 and CIL.
- 9.19 Where strategic projects are being advanced by City Access and GCP, these have funding already committed to support delivery. An assumption provided by CCC of 50% of this funding is required from NEC, has been adopted within the calculations. There are only two schemes that benefit
- Chisholm Trail, which will have City-wide benefits and where half the committed £21M GCP/City Deal funding (and half the remaining cost) is identified for NEC – a sum of £10.5M committed funding.
 - Milton Road Corridor Improvements where £1.3M of the £23M overall cost is committed from existing S106 contributions, and the remaining cost is expected to come in equal measure from development at NEC and other funding sources – a sum of £10.85M potential funding.
- 9.20 Thus, in total the non-NEC funding to support the transport measures is estimated to be £22.7M (£10.5M + £1.3M + £10.85M). It is possible the Waterbeach to North East Cambridge public transport corridor enhancements may require GCP/City Deal support in the future.

Risks, uncertainties, caveats

- 9.21 Project delay and budget overspend present a key risk to the transport projects. The CAM is identified within the Transport Evidence Base as a project, this is no longer proceeding following the recent mayoral election and change in direction of the CPCA Transport Plan. If further local and strategic measures are deemed to be required following monitoring, contingency funding will be required to deliver these projects.

Summary

- 9.22 The transport strategy for NEC is predicated on the baseline conditions of the local highway network, the limited opportunities to increase highway capacity and the decision to implement the ‘decide and provide’ approach. The transport projects identified are key to restricting trip generation below the budget set for NEC. It is therefore crucial that the essential mitigation is phased ahead of future development stages.
- 9.23 Estimates of the high-level costs for measures have been included within the Transport Evidence Base. These estimates will need to be refined as measures are progressed from feasibility stage to delivery. There are various funding mechanisms available for the transport projects, the strategic schemes will be partially funded to the City Deal monies available to the GCP. Developer contributions will be required to fund the internal and local transport measures.
- 9.24 The table below identifies the NEC housing delivery trajectory and then the costs, available funding - both committed and potential and then calculates the residual funding gap. Unlike the other summary tables it does not list out all the projects because these are set out in the table above.

Table 9.2 Transport – costs, funding and gap analysis

Transport costs and funding	2021/22 -25/26	2026/27 -30/31	2031/32 -35/36	2036/37 -40/41	Yet to be phased	Total in Plan period	Beyond Plan period	Total
Housing trajectory (homes completed)	0	700	1,450	1,750		3,900	4,525	8,425
	£M	£M	£M	£M	£M	£M	£M	£M
Transport								
Ped/cycle	15.3	27.1	-	-	-	42.4	-	42.4
Public transport	56.1	25.4	21.4	-	-	102.8	-	102.8
Travel management	23.0	2.5	-	-	1.4	26.9	-	26.9
Transport total	94.4	54.9	21.4	0.0	1.4	172.1	0.0	172.1
Committed funding								
Ped/cycle	10.5	-	-	-	-	10.5	-	10.5
Public transport	0.0	-	-	-	-	0.0	-	0.0
Travel management	1.3	-	-	-	-	1.3	-	1.3
Committed funding total	11.8	0.0	0.0	0.0	0.0	11.8	-	11.8
Potential funding								
Ped/cycle	0.0	-	-	-	-	0.0	-	0.0
Public transport	0.0	-	-	-	-	0.0	-	0.0
Travel management	10.9	-	-	-	-	10.9	-	10.9
Potential funding total	10.9	0.0	0.0	0.0	0.0	10.9	-	10.9
Gap (residual)								
Ped/cycle	4.8	-	-	-	-	31.9	-	31.9
Public transport	56.1	-	-	-	-	102.8	-	102.8
Travel management	10.9	-	-	-	-	14.7	-	14.7
Transport Total (residual)	71.8	0.0	0.0	0.0	0.0	149.4	-	149.4
Apportionment of the residual							Per cent	£M
Residential							76%	114.2
Commercial							24%	35.2

Source: LUC/Stantec

- 9.25 The NEC share of the project costs sum to £172M. This includes two projects where a cost apportionment, based on advice from CCC Highways has been undertaken. The schemes are the Chisholm Trail which will bring City-wide benefits and the Waterbeach to NEC public transport corridor enhancements which will benefit both Waterbeach and NEC. In both cases we have apportioned the costs and funding equally - 50% of the costs and the available funding to NEC.
- 9.26 Funding of provision (committed and potential) by sources other than NEC developer contributions totals to just short of £23M with most to be spent in the first two plan phases recognising the implementation of wider sustainable transport measure across Greater Cambridge to reduce the impact of traffic and growth.

- 9.27 The overall transport projects funding gap for development at NEC stands at just below 150M. The majority of NEC transport measures will need to be in place before the population arrives to secure the expectation of sustainable movement behaviour from the outset.
- 9.28 Applying the apportionment to the funding gap using the method explained above, identifies a funding gap of £114M for the residential element and almost £35M for the commercial element.

10 Power

Local context

- 10.1 The power requirements of the NEC area are served by the Milton Road Primary Substation, which has two transformers with a combined rating of 46MVA and a firm capacity of 22.1MVA during the winter period³².
- 10.2 The Substation currently serves a mixture of development types, i.e. residential, commercial and city centre etc. Therefore, should buildings be demolished to make way for new developments then capacity will be released back to the network, theoretically increasing available capacity. However, in the context of the growth proposed at NEC this is a modest amount.
- 10.3 UK Power Networks (UKPN) have advised that the available capacity is likely to be lower than that referred to above, due mainly to committed and planned load take-up by other developments in the area. UKPN state that future available capacity will be allocated on a first come first served basis, and therefore may not be available and of insufficient rating when required by the NEC development.
- 10.4 While UKPN are aware of the need to upgrade Milton Road Primary Substation they are unable to do so ahead of the growth proposed through the NEC AAP, as UKPN (or any other Distribution Network Operators) are not permitted under their licence to upgrade / reinforce their networks ahead of need confirmed through developments in receipt of full planning permission.
- 10.5 The substation connects into the grid via pylons and overhead lines (132 kV capacity) and these transect the core site and the Science Park, and need to be relocated underground before these sites are ready to come forward for redevelopment.

Future needs

- 10.6 The NEC Site Wide Energy and Infrastructure Study and Energy Masterplan study³³ confirmed the baseline energy consumption for the proposed level of growth (full build-out) was calculated as being 61,954 MWh per annum with a diversified peak of 15.7 MW; an undiversified peak of 19.7MW was also calculated.
- 10.7 This calculation is before the application of any additional technologies and utilising the agreed building fabric and services strategy set out in the AAP (which are over and above current minimum requirements under Building Regulations). However, the load demands do assume the use of air source heat pumps (ASHP) and electric vehicle charge point provision (car barns) in the development.

³² as quoted within the WSP 'North East Cambridge Site Wide Energy and Infrastructure Study and Energy Masterplan April 2021

³³ ibid

Strategy and projects

- 10.8 We expect that the load demand for the proposed development will be met by upgrading / extending the existing UKPN Milton Road Primary Substation. The works will consist of extending the footprint of the Primary Substation, the installation of a 33/11kV 24MVA transformer, 33kV panel and 11kV switchgear.
- 10.9 At present the Arbury Grid Bulk Supply Point has sufficient capacity to take on the additional load, although this is not guaranteed until a formal connection application is made. Whether reinforcement will be needed will only become clear when more detail is available. However, we do know the costs will be apportioned between UKPN and the development as both parties' benefit.
- 10.10 A related project, but one that is a site specific abnormal cost for the two land parcels mentioned above, is the undergrounding of the power lines. While we understand that the undergrounding on the core site is relatively straight-forward, the undergrounding of the lines crossing the Science Park is likely to be difficult to achieve and would need careful consideration of the potential route, land issues, traffic management and spatial issues.

Responsibilities for delivery

- 10.11 The required upgrades to the Primary Substation will be designed and delivered by UKPN.

Prioritisation

- 10.12 The works to the Primary Substation are critical enabling, as without the additional power capacity, the proposed development will be constrained beyond 2025 – 2030.

Phasing

- 10.13 The process for upgrading the Primary Substation will take up to three years and needs to be carried out in one phase at the beginning of the programme to ensure power is available to the development.
- 10.14 The delivery timescale periods are:
- Application and offer process – 6 months
 - Acceptance of Offer to Energisation of Substation – 24 months to 30 months.

Costs

Primary Substation

- 10.15 UKPN has confirmed that the upgrade / reinforcement works to Milton Road Primary Substation would be circa £3m to £3.5m inclusive of the purchase of any land required for the expansion of the substation enclosure.
- 10.16 The costs provided are inclusive of all UKPN design works, plant, civils works in connection and land purchase costs. The area of land required to be purchased by

UKPN will be confirmed once the detailed design of the upgrades have been completed but has been estimated as 390 sq m within the WSP report³⁴.

Funding

- 10.17 As the application would be for what UKPN would be required to consider as speculative development³⁵, all costs would be attributable to the first applicant. However, for a period of 10 years after the energisation of the substation, the second comer rules (formally referred to as the Electricity Connection Charges Regulation (ECCR) would apply. The rule ensures that customers pay a fair price for a connection. Based on this premise, a second connection customer (i.e. a second comer) who benefits from infrastructure that was paid for by an earlier customer, should reimburse the earlier customer for their proportion of the infrastructure.
- 10.18 There are no other sources available to fund the works. The works will need to be entirely funded by the NEC development with apportionment between developers in line with the second comer (ECCR) regulations if connections are requested by third parties within a 10 year period. Alternatively, as the upgrade is required in the very early stages, the Council could fund the upgrade, and recoup the cost from the developments via S106.
- 10.19 The substation will serve both the residential and commercial elements of the NEC AAP area, and the cost therefore need to be apportioned. We do this by considering forecast energy consumption referred to as peak demand³⁶. The WSP report identified a residential demand of 9.72 MW compared to 14.87 MW for commercial activities – this provides a 40:60 ratio residential to commercial and based on a £3.5m cost the apportionment residential to commercial is £1.4m to £2.1m.

Risks, uncertainties, caveats

- 10.20 A formal application will need to be submitted to UKPN in a timely manner to ensure that the upgrade / reinforcement works to the substation are completed for the development window of 2023 – 2030, otherwise the lack of power capacity would be likely to stall the proposed development trajectory.

Summary

- 10.21 The table below identifies the NEC housing delivery trajectory and then the costs, available funding - both committed and potential and then calculates the residual funding gap.

³⁴ ibid

³⁵ Where proposals are submitted to UKPN without detailed planning permission, UKPN are required to deem this as speculative as load demands, building usage, development areas would be subject to change.

³⁶ source: WSP, North East Cambridge Site Wide Energy and Infrastructure Study and Energy Masterplan, page 6, undated

Table 10.1 Power – costs, funding and gap analysis

Power costs and funding	2021/22 -25/26	2026/27 -30/31	2031/32 -35/36	2036/37 -40/41	Yet to be phased	Total in Plan period	Beyond Plan period	Total
	£M	£M	£M	£M	£M	£M	£M	£M
Housing trajectory (homes completed)	0	700	1,450	1,750	0	3,900	4,450	8,350
Cost to NEC								
Power upgrade								
Milton substation upgrade	£3.5	-	-	-	-	£3.5	-	£3.5
Power total	£3.5	£0.0	£0.0	£0.0	£0.0	£3.5	£0.0	£3.5
Funding available								
Committed funding	-	-	-	-	-	-	-	-
Potential funding	-	-	-	-	-	-	-	-
Gap (residual)	£3.5	£0.0	£0.0	£0.0	£0.0	£3.5	£0.0	£3.5
Apportionment of the residual							Ratio	£M
Residential							60	2.1
Commercial							40	1.4

Source: Stantec

10.22 The substation upgrade is critical enabling infrastructure that needs to be provided in the very first phase in advance of the housing delivery phases. Its delivery is a cost that will wholly fall on the NEC developers to fund.

10.23 The apportionment between the residential and commercial elements sees a £2.1M to £1.4M division.

11 Waste

Local context

- 11.1 Waste disposal in Cambridgeshire is the responsibility of the County Council. It is managed through a network of Household Recycling Centres (HRCs) and the Waste Treatment Facility at Waterbeach, with the Milton HRC facility serving the Cambridge and Northstowe area.
- 11.2 Waste collection and transfer to the Waste Treatment facility is the responsibility of the City and District Councils, who operate a fleet of vehicles for doorstep collection and also a network of bring sites.
- 11.3 A new joint Minerals and Waste Local Plan for Cambridgeshire and Peterborough was adopted earlier this year. The plan sets out the policy context to seek to achieve net self-sufficiency in waste management set against forecast increase in waste arisings and as new communities (such as that for NEC) are formed in the period to 2036. Latest data (2017)³⁷ indicated that the plan area is a net importer of waste. The Waste Plan also states that there are sufficient sites (existing and committed) to meet the identified future need, and no need for the Plan to allocate new sites³⁸.
- 11.4 The Milton site is located at the north-eastern end of the Milton landfill site has had a number of temporary permissions, and is currently the subject of an application to redevelop, expand and make the facility permanent.
- 11.5 The County Council seeks contributions from residential and commercial development, with the approach set out in a Supplementary Planning Document (SPD) prepared by the Cambridgeshire and Peterborough Waste Partnership (RECAP) and adopted by Cambridgeshire County Council in 2012³⁹. The contribution sought for household waste disposal facilities is £190 / per dwelling.
- 11.6 Thus, the waste management facility requirements generated by growth at NEC will be provided at the Milton HRC facility (subject to the granting of the permanent planning permission), and contributions to fund the expansion of this facility will be from the established S106 source.
- 11.7 The RECAP SPD standards for residential developments require one Bring Bank site for every 800 units, and thus it is anticipated that developers will provide the space required for the Council to provide the collection bins, and that this will be addressed as an on-site cost.
- 11.8 Managing collection and disposal of commercial waste is not the responsibility of the Waste Authority, this is the responsibility of businesses and private contractors, and so is not something for consideration here.

³⁷Paragraph 3.33, Cambridgeshire and Peterborough Minerals and Waste Local Plan (July 2021)

³⁸ Paragraph 3.41 *ibid*

³⁹ RECAP Waste Management Design Guide, Cambridgeshire and Peterborough Waste Partnership 2012

11.9 The collection of household waste is a matter for consideration by the Infrastructure Delivery Plan, as the scale of growth proposed at NEC will require additional collection vehicles. The rule of thumb ratio for such provision is one collection vehicle per 3,000 dwellings for traditional wheeled bin collection serviced by a standard Refuse collection vehicle (RCV). Where underground collection system can be provided the number of vehicles will be less.

Future needs

11.10 The type and cost of the waste collection vehicles required for NEC will depend on the form of development proposed, and also how those vehicles are powered - electric or diesel.

11.11 The Regulation 19 AAP Plan shows that 92% of all the units will be flats, and for these the method of waste storage will be underground bunkers. While storing waste underground brings space and collection efficiencies, collection requires vehicles with hydraulic cranes that are more expensive than RCVs that collect from ground level.

11.12 The cleanest electric vehicles for servicing underground bins or standard wheeled bins currently cost around £420,000. compared to £380,000 for the diesel version. A standard electric refuse vehicle for traditional bins cost around £390,000 with the diesel equivalent around £190,000

11.13 The Greater Cambridge Shared Waste Service's (GCSWS) preferred approach for NEC is underground collection points. Comparative experience with this approach elsewhere is positive. Recycling performance at Eddington, the only new development where all houses and flats have underground facilities for rubbish and recycling storage and collection is well above average. The alternative approach GCSWS may consider is an underground waste transportation technology system such as ENVAC, which offers huge savings in collection costs as it centralises collection. The GCSWS also recommend Bring Bank sites are provided underground.

Strategy and projects

11.14 The waste collection needs from the full residential build-out at NEC of 8,350 dwellings will be met through the provision of three collection vehicles based on an underground collection service.

- Two hydraulic crane operated vehicles to service the underground bunkers (recycle and landfill waste)
- One electric standard RCV to collect green waste at ground level.

11.15 Where an underground scheme is not possible and traditional wheeled bin collection is used then three standard electric RCV would be required. This is based on a standard requirement of one vehicle per 3,000 dwellings. The GCSWS has indicated they do not wish to have a mixture of provision which would be the least efficient option of all.

Responsibilities for delivery

- 11.16 The Greater Cambridge Shared Waste Service and their contractor will be responsible for specifying and delivery of the waste collection vehicles.

Prioritisation

- 11.17 The provision of sufficient household waste collection vehicle capacity is essential mitigation to allow the proposed growth at NEC to come forward. Without the extra capacity, household waste in the NEC area would not be able to be collected.

Phasing

- 11.18 These vehicles would be required early in the development process, but not immediately as there is some limited capacity in the existing fleet in the short term. However, beyond the first five year period – i.e. 2026/27 onwards - both vehicles will be required.

Costs

- 11.19 Based on the unit costs the three collection vehicle requirement totals £1,230,000 (£420,000 for each electric vehicle capable of underground collection and £390,000 for the single electric standard RCV).
- 11.20 This cost is wholly attributable to the NEC development.

Funding

- 11.21 There are no contributions expected from other sources to fund the cost of the additional vehicles. The costs therefore must be met by the NEC development.

Risks, uncertainties, caveats

- 11.22 The Government are currently consulting on a new Resources and Waste Strategy for England, which may fundamentally change what and how waste is collected, and this could be from as soon as 2023.
- 11.23 At the moment storing and collecting waste from underground bunkers is the preferred method for NEC, but innovation may change this, as could the master planning of NEC and/or other factors affecting design considerations.

Summary

- 11.24 The table below identifies the NEC housing delivery trajectory and then the costs, available funding - both committed and potential and then calculates the residual funding gap.

Table 11.1 Waste collection – costs, funding and gap analysis

Waste collection costs and funding	2021/22 -25/26	2026/27 -30/31	2031/32 -35/36	2036/37 -40/41	Yet to be phased	Total in Plan period	Beyond Plan period	Total
	£M	£M	£M	£M	£M	£M	£M	£M
Housing trajectory (homes completed)	0	700	1,450	1,750	0	3,900	4,450	8,350
Cost to NEC								
Waste								
Collection vehicles	-	-	£1.2	-	-	£1.2	-	£1.2
Waste total	£0.0	£0.0	£1.2	£0.0	£0.0	£1.2	£0.0	£1.2
Funding available								
Committed funding	-	-	-	-	-	-	-	-
Potential funding	-	-	-	-	-	-	-	-
Gap (residual)	£0.0	£0.0	£1.2	£0.0	£0.0	£1.2	£0.0	£1.2

Source: Stantec

11.25 The waste collection vehicles need to be provided once the housing delivery phases build the new dwelling numbers towards 3,000, which is in the third phase from 2031/32. Waste collection is a cost that will fall wholly on the NEC residential developers to fund.

12 Digital Networks

Local context

- 12.1 There is a need to monitor all phases of the development and an opportunity to support resident and visitor safety through digital monitoring of transport routes/usage, public spaces and the environment.
- 12.2 Digital networks will utilise environmental monitoring to gather information and intelligence to inform NEC's planning, construction and post-completion stages, allowing corrective interventions to help reduce congestion and emissions, and improve air quality, public health and the environment.
- 12.3 All the monitoring that we identify below are important to deliver a successful development. One of the key activities will be monitoring transport movements and volumes, to demonstrate ongoing compliance with the individual site and NEC wide trip budgets. This includes encouraging mode shift away from private car usage and ownership, and therefore the monitoring of sustainable travel to understand capacity constraints.

Future needs and projects

- 12.4 The digital networks will be managed and operate from a digital platform that could be based in the Community Hub facility (or alternatively managed virtually). The range of environmental monitoring could encompass:
- Trip mode and trip budget analysis,
 - Environmental monitoring – noise and air quality, consumption of energy and net zero carbon, consumption of water and waste arisings.
 - Community safety – CCTV
- 12.5 There are other digital networks that will be provided at NEC such as telecoms and broadband, but these are providing private services and are paid for by the providers and the connections to developments are again either provider or developer funded. These networks are not matters for the IDP.

Responsibilities for delivery

- 12.6 The responsibility for monitoring lies with the Environmental Services teams at the Councils.

Prioritisation

- 12.7 All the monitoring is essential mitigation needed to ensure people –residents and visitors - are not subjected to harmful levels of pollutant concentrations and are safe. in the public realm.

Phasing

- 12.8 All the monitoring of transport trips, air and noise needs to be installed as soon as possible, and before development commences to ensure a baseline and understanding of background data against which the impact of the NEC growth will be measured. The monitoring of water and energy consumption and waste production should mirror the delivery of the housing and the community safety CCTV can be phased in as the population grows. The digital platform needs to be up and running in the initial phase to ensure it is ready to receive and analyse data. The phasing has a direct bearing on the management and maintenance periods and charges for the equipment and outputs.

Costs

- 12.9 Identifying the number of monitoring stations and safety cameras is a matter for a more detailed design stage, and therefore at this time our cost estimates are ballpark figures based on the best estimates of the team working on SMART technology at the Councils. It is a ballpark figure based on judgement as to what may be required, where and to what specification. The table below sets out the monitoring and safety infrastructure items and provides ballpark costs that are very much initial estimates and will be subject to change as the project progresses.

Table 12.1 Digital monitoring and community safety projects

	Capital £M	Revenue £M	Total £M
Air quality monitoring	£0.1	£0.5	£0.6
Trip mode and trip budget analysis	£0.3	£0.3	£0.5
Noise monitoring	£0.0	£0.0	£0.1
Energy consumption and net zero carbon	£0.0	£0.1	£0.1
Water Monitoring including consumption and impact on surrounding water courses	£0.0	£0.1	£0.1
Waste monitoring	£0.1	£0.1	£0.2
Community safety utilising CCTV	£0.4	£0.0	£0.4
Digital platform		£0.8	£0.8
Total Digital networks			£2.7

Source: Cambridge Council

- 12.10 Air quality monitoring estimates are provided by the Environmental Services team at the City Council and the £550,000 cost is inclusive of hardware, siting and connections, maintenance and data management services. (20 years).
- 12.11 The trip mode and trip budget estimate is based on 30 sensors that will need two technology updates, on-going maintenance and monitoring revenue costs over the Plan period (20 years).
- 12.12 Noise monitoring costs are also based on the full Plan period because this needs to record the existing baseline and subsequent changes as the development progresses.

- 12.13 Energy, water and waste monitoring relate directly to the occupation of the dwellings and commercial elements, for which sensors will be variously located. The roll out is directly related to the build-out, and so they are not needed until towards the end of the second five year period (2029/30), leaving around 12 years to the end of the Plan period, and the revenue costs are therefore based on 12 years.
- 12.14 The community safety figure is based on 15 CCTV cameras at a unit cost of £20,000 plus installation, on-going maintenance and data management. The maintenance and management is also for 12 years, as directly linked to when residents arrive which is from around 2029/30.
- 12.15 The digital platform will bring together all the data from across the development into one place, be that in the Community Hub where public interpretation could be offered or if held virtually. The management and maintenance revenue cost is calculated over a 20 year period, as the facility will need to be up and running to receive the air quality, noise and transport baseline data.
- 12.16 All prices are subject to change and inflation, so those given above are an indication only.

Funding

- 12.17 Monitoring the effects of the development is unlikely to attract public sector funding. It would require full funding from the NEC development.
- 12.18 Most of the monitoring will provide equal benefit for the residential and commercial elements (the apportionment of cost being 50:50), the exception being waste monitoring as the Councils' responsibilities do not include commercial waste. This cost £184,000 is wholly apportioned to the residential, and thus, as shown in the summary table below overall cost for residential is approximately £0.2M higher for residential compared to commercial.

Risks, uncertainties, caveats

- 12.19 The upcoming Environment Bill will enshrine World Health Organisation (WHO) limits on environmental matters such as air quality, in respect of which for particulate matter (PM) in UK law, and this will mean the more stringent particulate matter limits will need to be enforced. This may alter the specifications for what is required and increase prices.
- 12.20 The costs of connections and securing sites for the sensors and CCTV cameras has not been tested to date, and costs may rise.

Summary

- 12.21 The table below identifies the NEC housing delivery trajectory and then the costs, available funding - both committed and potential and then calculates the residual funding gap.

Table 12.2 Digital monitoring – costs, funding and gap analysis

Digital networks costs and funding	2021/22 -25/26	2026/27 -30/31	2031/32 -35/36	2036/37 -40/41	Yet to be phased	Total in Plan period	Beyond Plan period	Total
Housing trajectory (homes completed)	0	700	1,450	1,750	0	3,900	4,450	8,350
	£M	£M	£M	£M	£M	£M	£M	£M
Cost to NEC								
Digital networks								
Air quality	£0.6	-	-	-	-	£0.6	-	£0.6
Trip mode and trip budget analysis	£0.5	-	-	-	-	£0.5	-	£0.5
Noise monitoring	£0.1	-	-	-	-	£0.1	-	£0.1
Energy consumption and net zero carbon	-	£0.1	-	-	-	£0.1	-	£0.1
Water Monitoring	-	£0.1	-	-	-	£0.1	-	£0.1
Waste monitoring	-	£0.2	-	-	-	£0.2	-	£0.2
Community safety	-	£0.4	-	-	-	£0.4	-	£0.4
Digital platform	£0.8	-	-	-	-	£0.8	-	£0.8
Digital networks total	£1.9	£0.8	£0.0	£0.0	£0.0	£2.7	£0.0	£2.7
Funding available								
Committed funding	-	-	-	-	-	-	-	-
Potential funding	-	-	-	-	-	-	-	-
Gap (residual)	£1.9	£0.8	£0.0	£0.0	£0.0	£2.7	£0.0	£2.7
Apportionment of the residual							Ratio	£M
Residential							50	1.5
Commercial							50	1.3

Source: Stantec

12.22 Air quality monitoring, trip mode, noise monitoring and the digital platform all need to be provided at the very outset of site preparations to provide a baseline for what is to come. The other measures (energy, water, waste and community safety) are related to NEC build-out and occupation, which is programmed for the second period onwards.

12.23 Funding the provision and on-going maintenance / management of the digital monitoring equipment is a cost that is wholly attributable to the NEC developers.

12.24 With the exception of waste production all the other monitoring items are equally relevant to residential and commercial land uses, and we therefore apply a 50:50 split between the land uses, but residential attracts 100% of the cost for waste monitoring for residential.

13 Conclusions

13.1 This section sums up the costs, funding and residual gap as set out in the table below.

Table 13.1 NEC costs, funding and residual gap

NEC costs and funding	2021/22 -25/26	2026/27 -30/31	2031/32 -35/36	2036/37 -40/41	Yet to be phased	Total in Plan period	Beyond Plan period	Total
	£M	£M	£M	£M	£M	£M	£M	£M
Housing trajectory (homes completed)	0	700	1,450	1,750		3,900	4,450	8,350
Community facilities								
Community and Cultural Facilities	0.3	0.2	4.7	-	-	5.2	-	5.2
Education	0.1	12.1	1.3	13.3	-	26.8	16.7	43.5
Healthcare	-	-	4.1	-	-	4.1	-	4.1
Community facilities total	0.4	12.3	10.1	13.3	0.0	36.1	16.7	52.8
Green and blue networks								
Informal open space	-	-	-	-	56.6	56.6	1.8	58.4
Sport and leisure	1.9	1.9	-	3.1	3.8	10.8	-	10.8
Green and blue networks total	1.9	1.9	0.0	3.1	60.4	67.4	1.8	69.2
Transport								
Ped/cycle	15.3	27.1	-	-	-	42.4	-	42.4
Public transport	56.1	25.4	21.4	-	-	102.8	-	102.8
Travel management	23.0	2.5	-	-	1.4	26.9	-	26.9
Transport total	94.4	54.9	21.4	0.0	1.4	172.1	0.0	172.1
Utilities								
Digital	1.9	0.8	-	-	-	2.7	-	2.7
Power	3.5	-	-	-	-	3.5	-	3.5
Waste	-	-	1.2	-	-	1.2	-	1.2
Utilities total	5.4	0.8	1.2	0.0	0.0	7.5	0.0	7.5
GRAND TOTAL	102.2	69.9	32.7	16.5	61.8	283.0	18.5	301.5
Total external funding						22.7	0.0	22.7
Gap (residual)						260.4		278.9
Apportionment of the residual								£M
Residential								241.1
Commercial								37.8
Per dwelling (£s)								28,868
Per sq m commercial (£s)								201

Source: Stantec

13.2 The total cost of infrastructure provision at NEC is £301.5M.

13.3 Public funds will contribute £22.7M towards the overall cost at two major transport projects – Chisholm Trail and Milton Road Corridor Improvements.

- 13.4 The resultant residual funding gap after accounting for the public funds is £278.9M. This is the amount that needs to be financed by developer contributions (planning agreements S106, Transport agreements S278 or possibly in due course CIL).
- 13.5 On a per dwelling basis the full build-out contribution is £28,868, and for the commercial element £201/ sq m.
- 13.6 While just less than half of the dwellings are delivered in the Plan period and very little of the commercial, the bulk of the infrastructure spend needs to be in the plan period because most of the infrastructure is required to enable the development to take place and is needed ahead of occupation.
- 13.7 The table shows that over half of the total cost relates to transport projects, of which two-thirds of that cost is public transport schemes. Green and blue network costs are the next highest cost (£69.2M), albeit less than half the transport costs with the provision of open space being the bulk of that cost. The community facilities cost at £53M very largely stems from educational provision. Utility provision (excluding the costs for the relocation of the WWTP) is a relatively minor element of the overall infrastructure costs, but almost entirely critically enabling.
- 13.8 The identification of the infrastructure required to deliver the NEC AAP development and the calculations of the cost required to do so are best estimates relating to the nature of the infrastructure requirement as known at this time. It is possible that this may change as clarity on the projects and the costs develop as they advance and move through the delivery process.

Appendix A Infrastructure schedule

NEC AAP IDP - infrastructure schedule

Infra-structure group	Infrastructure sub-groups	Project name	Project description	Why is it required?	Benefiting land use	Priority	Total project cost	Total cost to NEC	Funding commitment	Funding potential	Gap / residual to NEC
Community facilities	Community and Cultural Facilities	Community hub	Community facility floorspace within community hub	On the basis of the population forecast there will be a requirement for up to 1816 sq m of community floorspace. In the absence of more specific guidance on requirements, we have based need on the benchmark used for community facilities provision (also used in the NEC AAP Cultural Placemaking Strategy). This is 111 sq m of new space per every new 1000 residents (South Cambs District Council, 'Community Facilities Assessment; A Final Report' September 2009).	Residential	Place-making	£3,929,824	£3,929,824			£3,929,824
Community facilities	Community and Cultural Facilities	Community hub	Public library floorspace within community hub	Library - There are no library facilities in NEC or and surrounding communities are not served adequately currently. CCC has determined NEC is of a suitable scale for a new 'city' library and this should be provided as part of a co-located community facility or 'hub'. Floorspace standards for a 'city' library are for 250-350 sq m, with an average of 300 sq m where about 250 sq m would be given over to library stock, and the remaining 50 sq m for other uses within the library.	Residential	Place-making	£816,900	£816,900	£0	£0	£816,900
Community facilities	Community and Cultural Facilities	Community & Sports Development Officers	Provision of two officers (Community and Sports) to work with the new community to develop sustainable and inclusive community.	In order to nurture the development of social capital, community ties community-led solutions and healthy lifestyles, two Community and Sports Development Officers are required. Both posts are required up-front to be in place for first occupations, with a tapered approach throughout the life of the development.	Residential	Place-making	£500,000	£500,000	£0	£0	£500,000
Community facilities	Education	Education - Early years	On the basis of the population forecast, there will be a requirement for 2 primary schools with early years facilities. The masterplan identifies 3 sites for primary education, located within parcels x, y and z. All three sites should be reserved to allow for flexibility should the housing mix change. Additional sites suitable for full day care provision will also need to be allocated and marketed as sufficient places will not be met by schools alone.	To meet the requirements of Childcare Act 2006 and 2016. -Estimated child yield of 1,362 early years' children, of which approximately 763 will be eligible for a funded early years' place.	Residential	Essential Mitigation	Included as part of primary school cost		£0	£0	
Community facilities	Education	Education - Primary	On the basis of the population forecast, there will be a requirement for 2 primary schools with early years facilities. The masterplan identifies 3 sites for primary education, located within parcels x, y and z. All three sites should be reserved to allow for flexibility should the housing mix change.	To meet the requirements of Childcare Act 2006, and Education Act 1996 -Estimated child yield of 790 at primary-age pupils. This is equivalent to 3.76 forms of entry (FE). -Based on this, up to two primary schools are likely to be required.	Residential	Essential Mitigation	£34,170,000	£34,170,000	£0	£0	£34,170,000

NEC AAP IDP - infrastructure schedule

Infra-structure group	Infrastructure sub-groups	Project name	Project description	Why is it required?	Benefiting land use	Priority	Total project cost	Total cost to NEC	Funding commitment	Funding potential	Gap / residual to NEC
Community facilities	Education	Education - Secondary	Population yields from development is not deemed sufficient to support a new secondary school. Likely to be in the form of contributions to expansion (s) off-site to be determined by CCC.	To meet the requirements of Childcare Act 2006, and Education Act 1996 • Estimated child yield of 205 secondary-age pupils. This is equivalent to 1.36FE.	Residential	Essential Mitigation	£5,521,000	£5,521,000	£0	£0	£5,521,000
Community facilities	Education	Education - SEND	On the basis of the population forecast there will be a requirement to seek contributions for off-site mitigation.	To meet the requirements of the Children and families Act 2014 -Provision of 24 places for children with Special Educational Needs and/or Disabilities (SEND). -Area to be served by Martin Bacon Academy, Northstowe.	Residential	Essential Mitigation	£3,840,048	£3,840,048	£0	£0	£3,840,048
Community facilities	Healthcare	Health Facility	Likely to be hub model based around GP surgery and potentially other health services yet to be determined. Primary floorspace requirements are assessed to be 1,500 sqm, however this will need to be reassessed in light of national changes to the NHS from March 2022.	Required to meet the healthcare needs of the future population at NEC, estimated to be more than 16,000 people.	Residential	Essential Mitigation	£4,050,000	£4,050,000	£0	£0	£4,050,000
Green and blue networks	Allotments	Allotment provision	7.2 ha of provision required. It is unlikely that there will be sufficient space to provide all of this space on-site in the traditional sense. As such, novel provision such as community gardens, communal shed spaces and integrated areas supporting local food production will also be an acceptable.	CCC standards require 0.4 ha per 1000 people. Local authorities are required to assess the need for and audit their provision of allotments in their area as part of planning law.	Residential	Essential Mitigation	Not yet costed		£0	£0	£0
Green and blue networks	Informal open space	Burial grounds provision	The provision of burial grounds.	Around 30% of the population chose burial rather than cremation.	Residential	Essential Mitigation	£1,750,000	£1,750,000	£0	£0	£1,750,000
Green and blue networks	Biodiversity /habitat	Enhancement of protected hedgerow east of Cowley Road (City Wildlife Site)	Enhancement, extension and improves connectivity of the City Wildlife Site.	To contribute to biodiversity targets and resilience of wider GI network and helping to achieve Biodiversity net gain. Required by Policies 5 & 10e.	Residential	Essential Mitigation	de minimis		£0	£0	£0
Green and blue networks	Biodiversity /habitat	Expansion of tree canopy cover	Increasing canopy cover within the NEC area, with a target of 30% cover as a minimum.	The Woodland Trust recommends a commitment to minimum 30% canopy cover targets on new development land. Canopy cover expansion is promoted through the Cambridge Canopy Project (CCC) as well as by the draft amendments to the NPPF (2021), which requires all new streets to be tree-lined. The Open Space topic paper for NEC also requires that summer shade is required for open space and play in order to ensure good accessibility. Tree Cover required in Policy 10e. Likely to contribute to biodiversity net gain requirements.	Residential	Essential Mitigation	de minimis		£0	£0	£0

NEC AAP IDP - infrastructure schedule

Infra-structure group	Infrastructure sub-groups	Project name	Project description	Why is it required?	Benefiting land use	Priority	Total project cost	Total cost to NEC	Funding commitment	Funding potential	Gap / residual to NEC
Green and blue networks	Informal open space	Cambridge Business Park	Local, Strategic and Neighbourhood spaces to form part of on-site provision. As shown on NEC Spatial Framework. Sites to be multifunctional to support a range of recreational activities as well as supporting features of nature conservation interest.	To contribute to public open space provision required as mitigation for development. open spaces can also help deliver biodiversity net gain to mitigate scale of development and to improve connectivity between different areas of the Action Plan area. AAP Policy 8 requires this infrastructure item.	Residential	Essential Mitigation	£4,800,000	£4,800,000	£0	£0	£4,800,000
Green and blue networks	Informal open space	Cambridge Regional College	Enhancement of existing local green space to form part of on-site provision. As shown on NEC Spatial Framework. Sites to be multifunctional to support a range of recreational activities as well as supporting features of nature conservation interest.	To contribute to public open space provision required as mitigation for development. open spaces can also help deliver biodiversity net gain to mitigate scale of development and to improve connectivity between different areas of the Action Plan area. AAP Policy 8 requires this infrastructure item.	Residential	Essential Mitigation	£800,000	£800,000	£0	£0	£800,000
Green and blue networks	Informal open space	Cambridge Science Park	Local and Strategic spaces to form part of on-site provision. As shown on NEC Spatial Framework. Sites to be multifunctional to support a range of recreational activities as well as supporting features of nature conservation interest. Includes enhancement of existing open space.	To contribute to public open space provision required as mitigation for development. open spaces can also help deliver biodiversity net gain to mitigate scale of development and to improve connectivity between different areas of the Action Plan area. AAP Policy 8 requires this infrastructure item.	Residential	Essential Mitigation	£8,500,000	£8,500,000	£0	£0	£8,500,000
Green and blue networks	Informal open space	Chesteron Sidings Brookgate	Local, Strategic and Neighbourhood spaces to form part of on-site provision. As shown on NEC Spatial Framework. Sites to be multifunctional to support a range of recreational activities as well as supporting features of nature conservation interest.	To contribute to public open space provision required as mitigation for development. open spaces can also help deliver biodiversity net gain to mitigate scale of development and to improve connectivity between different areas of the Action Plan area. AAP Policy 8 requires this infrastructure item.	Residential	Essential Mitigation	£8,500,000	£8,500,000	£0	£0	£8,500,000
Green and blue networks	Informal open space	Contributions to strategic-scale North Cambridge green space	In line with GI Mapping project Strategic Initiative 6 (North Cambridge Green Space), contributions toward a strategic scale green space - connected to the wider GI network by green corridors.	Identified in order to address recognised deficiency in accessible GI in the north of Cambridge, to reduce recreational pressure on existing sites and meet future recreational demand from development (see GI Mapping project Strategic Initiative 6) https://consultations.greatercambridgeplanning.org/greater-cambridge-local-plan-first-proposals/explore-theme/biodiversity-and-green-spaces/policy-0	Residential	Essential Mitigation	£1,100,000	£1,100,000	£0	£0	£1,100,000
Green and blue networks	Informal open space	Core Site AW/CCC	Local, Strategic and Neighbourhood spaces to form part of on-site provision. As shown on NEC Spatial Framework. Sites to be multifunctional to support a range of recreational activities as well as supporting features of nature conservation interest.	To contribute to public open space provision required as mitigation for development. open spaces can also help deliver biodiversity net gain to mitigate scale of development and to improve connectivity between different areas of the Action Plan area. AAP Policy 8 requires this infrastructure item.	Residential	Essential Mitigation	£21,500,000	£21,500,000	£0	£0	£21,500,000
Green and blue networks	Informal open space	Cowley Road Industrial Estate	Strategic and Neighbourhood spaces to form part of on-site provision. As shown on NEC Spatial Framework. Sites to be multifunctional to support a range of recreational activities as well as supporting features of nature conservation interest.	To contribute to public open space provision required as mitigation for development. open spaces can also help deliver biodiversity net gain to mitigate scale of development and to improve connectivity between different areas of the Action Plan area. AAP Policy 8 requires this infrastructure item.	Residential	Essential Mitigation	£4,000,000	£4,000,000	£0	£0	£4,000,000

NEC AAP IDP - infrastructure schedule

Infra-structure group	Infrastructure sub-groups	Project name	Project description	Why is it required?	Benefiting land use	Priority	Total project cost	Total cost to NEC	Funding commitment	Funding potential	Gap / residual to NEC
Green and blue networks	Informal open space	Merlin Place	Neighbourhood spaces to form part of on-site provision. As shown on NEC Spatial Framework. Sites to be multifunctional to support a range of recreational activities as well as supporting features of nature conservation interest.	To contribute to public open space provision required as mitigation for development. open spaces can also help deliver biodiversity net gain to mitigate scale of development and to improve connectivity between different areas of the Action Plan area. AAP Policy 8 requires this infrastructure item.	Residential	Essential Mitigation	£1,000,000	£1,000,000	£0	£0	£1,000,000
Green and blue networks	Informal open space	Nuffield Road	Local and Neighbourhood spaces to form part of on-site provision. As shown on NEC Spatial Framework. Sites to be multifunctional to support a range of recreational activities as well as supporting features of nature conservation interest.	To contribute to public open space provision required as mitigation for development. open spaces can also help deliver biodiversity net gain to mitigate scale of development and to improve connectivity between different areas of the Action Plan area. AAP Policy 8 requires this infrastructure item.	Residential	Essential Mitigation	£3,100,000	£3,100,000	£0	£0	£3,100,000
Green and blue networks	Informal open space	St Johns Innovation Park	Local and Neighbourhood spaces to form part of on-site provision. As shown on NEC Spatial Framework. Sites to be multifunctional to support a range of recreational activities as well as supporting features of nature conservation interest. Includes enhancement of existing open space.	To contribute to public open space provision required as mitigation for development. open spaces can also help deliver biodiversity net gain to mitigate scale of development and to improve connectivity between different areas of the Action Plan area. AAP Policy 8 requires this infrastructure item.	Residential	Essential Mitigation	£2,100,000	£2,100,000	£0	£0	£2,100,000
Green and blue networks	Informal open space	VW Garages	Neighbourhood spaces to form part of on-site provision. As shown on NEC Spatial Framework. Sites to be multifunctional to support a range of recreational activities as well as supporting features of nature conservation interest.	To contribute to public open space provision required as mitigation for development. open spaces can also help deliver biodiversity net gain to mitigate scale of development and to improve connectivity between different areas of the Action Plan area. AAP Policy 8 requires this infrastructure item.	Residential	Essential Mitigation	£1,200,000	£1,200,000	£0	£0	£1,200,000
Green and blue networks	Sport and leisure	Artificial grass pitches	0.7 pitches - to be provided off-site (may include improvements to existing capacity at Milton Village, accessible with connections under the A14).	Required to meet CCC open space & recreation standards, to absorb the demand expected from new residents and to enable active and healthy lifestyles.	Residential	Essential mitigation	£670,000	£670,000	£0	£0	£670,000
Green and blue networks	Sport and leisure	Formal outdoor provision	18ha outdoor pitches (14.4 ha football pitches, 2.13 ha rugby pitches, 1.47 ha cricket pitches) + 1.64 ha of tennis courts/multi-use games areas (MUGA) / bowling greens	Particularly given the high-density nature of NEC, trim trails, pedestrian paths and cycle routes can also contribute to formal outdoor space if they are of sufficient size and standard (which is maintained) to allow for sports events - routes should be of sufficient width to avoid conflict between pedestrians, runners and cyclists and of sufficient length to support regular activities such as a 5km 'park run' (Open Space topic paper). These would be separate to cycling lanes and walking trails.	Residential	Essential mitigation	£3,890,000	£3,890,000	£0	£0	£3,890,000

NEC AAP IDP - infrastructure schedule

Infra-structure group	Infrastructure sub-groups	Project name	Project description	Why is it required?	Benefiting land use	Priority	Total project cost	Total cost to NEC	Funding commitment	Funding potential	Gap / residual to NEC
Green and blue networks	Sport and leisure	Sports halls	1.19 indoor sports halls, equating to 4.75 courts - including a sports hall (at least 4-court) to be co-located alongside other community services to meet health and wellbeing needs.	Required to meet CCC open space & recreation standards, to absorb the demand expected from new residents and to enable active and healthy lifestyles.	Residential	Essential mitigation	£3,130,000	£3,130,000	£0	£0	£3,130,000
Green and blue networks	Sport and leisure	Swimming pools	0.78 of a 4-lane pool. To be provided as a contribution to swimming pool provision in West Cambridge, accessible to NEC residents.	Required to meet CCC open space & recreation standards, to absorb the demand expected from new residents and to enable active and healthy lifestyles.	Residential	Essential mitigation	£3,153,000	£3,153,000	£0	£0	£3,153,000
Transport	Ped/cycle	Chisholm Trail	The Chisholm Trail is a new walking and cycling route, creating a mostly off-road and traffic-free route between Cambridge Station and the new Cambridge North Station. It will link to Addenbrooke's Hospital and the Biomedical Campus in the south and to the business and science parks in the north. In all the full trail provides a 26 kilometre route from Trumpington and Addenbrookes to St Ives. The central section from Cambridge Central Railway Station to Cambridge North Railway Station, which this project deals with, is a 3.5 kilometre route	will increase NMU accessibility to the study area from, and across, the City	Both	Essential Mitigation	£29,640,000	£14,820,000	£10,500,000	£0	£4,320,000
Transport	Ped/cycle	Crossing points on the Busway		addressing intra-site barriers	Both	Essential Mitigation	£600,000	£600,000	£0	£0	£600,000
Transport	Ped/cycle	Cycle network improvements	Plugging gaps in the wider cycle network to enhance routes to key residential areas	will increase NMU accessibility to the study area from, and across, the City	Both	Desirable	£500,000	£500,000	£0	£0	£500,000
Transport	Ped/cycle	Park and Cycle opportunities	Park and Cycle opportunities at P&R locations	Improve Last mile connections	Both	Essential Mitigation	£280,000	£280,000	£0	£0	£280,000
Transport	Ped/cycle	Milton Road Garden Bridge	Shared pedestrian/cycle bridge connecting CSP with NEC	addressing intra-site barriers	Both	Essential Mitigation	£13,300,000	£13,300,000	£0	£0	£13,300,000
Transport	Ped/cycle	Milton Road Underpass	Shared pedestrian/cycle underpass connecting CSP with NEC	addressing intra-site barriers	Both	Essential Mitigation	£6,900,000	£6,900,000	£0	£0	£6,900,000
Transport	Ped/cycle	Bridge over Railway line	Shared pedestrian/cycle bridge connecting NEC over the railway to the east	addressing intra-site barriers	Both	Essential Mitigation	£6,000,000	£6,000,000	£0	£0	£6,000,000
Transport	Public transport	Additional P&R spaces	Additional P&R spaces at key locations (approx. 1,700 spaces, cost to vary depending on provision)	aimed at maximising current public transport provision and addressing public transport gaps in the wider area	Both	Essential Mitigation	£16,800,000	£16,800,000	£0	£0	£16,800,000
Transport	Public transport	Highway site access improvements		Improve road safety and congestion	Both	Essential Mitigation	£500,000	£500,000	£0	£0	£500,000
Transport	Public transport	Intra-site shuttle system	Provision of bus services from Cambridge to Waterbeach	aimed at maximising current public transport provision and addressing public transport gaps in the wider area	Both	Essential Mitigation	£9,000,000	£9,000,000	£0	£0	£9,000,000
Transport	Public transport	Milton Road P&R to site	New segregated link from Milton Road P&R to site	will increase NMU accessibility to the study area from P&R	Both	Essential Mitigation	£13,000,000	£13,000,000	£0	£0	£13,000,000

NEC AAP IDP - infrastructure schedule

Infra-structure group	Infrastructure sub-groups	Project name	Project description	Why is it required?	Benefiting land use	Priority	Total project cost	Total cost to NEC	Funding commitment	Funding potential	Gap / residual to NEC
Transport	Public transport	P&R shuttle system	P&R shuttle system	aimed at maximising current public transport provision and addressing public transport provision gaps in the wider area	Both	Essential Mitigation	£14,400,000	£14,400,000	£0	£0	£14,400,000
Transport	Public transport	Waterbeach Greenway	Green active travel into and out of Cambridge for walkers, cyclists and horse riders. Includes A14 underpass.	Green active travel into and out of Cambridge for walkers, cyclists and horse riders.	Both	Desirable	£7,100,000	£7,100,000	£0	£0	£7,100,000
Transport	Public transport	Waterbeach to North East Cambridge public transport corridor enhancement	Connections for sustainable modes across and between existing commercial properties and developments as well as to, from and between new developments;	Accommodate the additional housing and employment growth; Support local policy and strategies which identify a clear need to reduce congestion in order to enable the additional sustainable growth to be accommodated within the study area;	Both	Place-making	£84,000,000	£42,000,000	£0	£0	£42,000,000
Transport	Road schemes	A10 Dualling Ely to Cambridge	Dual the A10 between Ely and Cambridge		Both	Place-making	n/k		£0	£0	n/k
Transport	Travel management	Milton Road Corridor Improvements	Public transport priority measures that include new sections of outbound bus lane and new floating bus stops. Improved cycle facilities with segregated cycle provision along both sides of Milton Road and priority over side roads. This requires the removal of the existing pavement parking on Milton Road. Improved pedestrian and cycle facilities, including Copenhagen style priority crossings at side roads, segregated features at all main junctions, and the relocation of some crossings. Landscaping to areas where more greenery can be included. The development of a traffic regulation order to ban all parking on verges.	Allow faster and more reliable public transport journeys Provide better cycling and walking links Enhance the streetscape with improved and additional landscaping Reduce peak-time congestion and limit growth in traffic. Aid future economic growth. Reduce air pollution, and improve public health.	Both	Place-making	£23,000,000	£23,000,000	£1,300,000	£10,850,000	£10,850,000
Transport	Travel management	NEC parking strategy	A strategy to mitigate potential parking displacement, parking demand and capacity in areas adjacent to NEC.	The Strategy will focus on constraining traffic flows to/from the study area to the identified trip budget.	Both	Essential Mitigation	£500,000	£500,000	£0	£0	£500,000
Transport	Travel management	Variable Message Signage	Variable Message Signage (VMS) at key locations to inform drivers of P&R spaces and congestion issues at Milton Rd / Milton interchange.	to relay real-time information regarding congestion and parking availability at the P&R (and even within the NEC).	Both	Place-making	£950,000	£950,000	£0	£0	£950,000
Transport	Travel management	Consolidation hubs	Three warehouse facilities: Cambridge Science Park Local Centre (1,150sqm) and two of up to 1,500sqm in total in close proximity to Milton Road (to intercept trips).		Both	Place-making	£2,400,000	£2,400,000	£0	£0	£2,400,000

NEC AAP IDP - infrastructure schedule

Infra-structure group	Infrastructure sub-groups	Project name	Project description	Why is it required?	Benefiting land use	Priority	Total project cost	Total cost to NEC	Funding commitment	Funding potential	Gap / residual to NEC
Utilities	Digital	Air quality	Air quality monitoring - associated with monitoring the impact of traffic on the A14.	The area of North East Cambridge sits alongside the busy A14 and Milton Road, including the junction between the two routes and as such areas adjacent to / adjoining those carriageways are exposed to pollutants such as nitrous oxides and particulate matter (such as PM10 and PM2.5) resulting from vehicle emissions. To prevent sensitive receptors (such as future residents / site users) from being exposed to dangerous levels of air pollution – this includes the use of external amenity spaces and exposure at home. Local Authorities have a duty to assess / monitor air quality in areas of concern.	Both	Essential Mitigation	£550,000	£550,000	£0	£0	£550,000
Utilities	Digital	Trip mode and trip budget analysis			Both	Essential Mitigation	£521,000	£521,000	£0	£0	£521,000
Utilities	Digital	Noise monitoring			Both	Essential Mitigation	£60,000	£60,000	£0	£0	£60,000
Utilities	Digital	Energy consumption and net zero carbon			Both	Essential Mitigation	£120,000	£120,000	£0	£0	£120,000
Utilities	Digital	Water Monitoring			Both	Essential Mitigation	£109,000	£109,000	£0	£0	£109,000
Utilities	Digital	Waste monitoring			Both	Essential Mitigation	£184,000	£184,000	£0	£0	£184,000
Utilities	Digital	Community safety			Both	Essential Mitigation	£376,500	£376,500	£0	£0	£376,500
Utilities	Digital	Digital platform			Both	Essential Mitigation	£800,000	£800,000	£0	£0	£800,000
Utilities	Power	Milton substation upgrade	Upgrade to the existing Milton Road Primary Substation. The substation currently has two transformers and will need an additional transformer and associated equipment. This is very likely going to require an extension to the site to accommodate.	The existing substation is acknowledged by WSP consultants to have insufficient capacity to support the estimated 62 MWh requirement of the NEC growth.	Both	Critical Enabling	£3,500,000	£3,500,000	£0	£0	£3,500,000
Utilities	Waste	Collection vehicles	Additional collection vehicles to manage household collection.	Capacity constraint of existing services. Rule of thumb one vehicle serves circa 3,000 dwellings. Two craned vehicles are required to collect from underground bunkers where recycling and landfill waste will be stored and one standard Refuse collection vehicle (RCV) will be needed for surface collection of green waste.	Residential	Essential Mitigation	£1,230,000	£1,230,000	£0	£0	£1,230,000
GRAND TOTALS							£358,341,272	£301,521,272	£11,800,000	£10,850,000	£278,871,272