NORTH WEST cambridge

Health Impact Assessment

September 2011

NW Cambridge Health Impact and Needs Assessment – 07/09/2011

Contents

List of tables

List of figures

1 Introduction

1.1 Introduction

This report has been prepared to examine the potential health effects associated with the Proposed Development for a mixed use urban extension of up to 3,000 dwellings and 2,000 student rooms, plus additional employment land, community facilities and a hotel lying to the north west of Cambridge ("the Proposed Development").

The report provides a Health Needs Assessment (HNA) which reviews current healthcare provision, and has regard to the current population profile and healthcare needs. The HNA establishes the likely health related needs of the Proposed Development and considers the implications for resources. The report also appraises the proposed parameter plans to ensure that healthy design principles are incorporated and reflected in the design parameters and its future evolution and implementation. The report also provides the screening and scoping stages of a Health Impact Assessment (HIA).

1.2 Methodology

The wider assessment process, of which this report is one part, covers the three components of public health:

- *Health protection* – ensuring no harm to human health is done through the development. This protection aspect is mainly covered in the air quality, transport and noise chapters of the ES;
- *Health Services* – ensuring that access to health services, for example primary care, hospitals and pharmacies, is not adversely affected by the project. This aspect is addressed in sections 3-8 of this report; and
- *Health improvement* – health and wellbeing are affected by social and economic factors and so the development will provide opportunities to improve peoples' health and well-being and to reduce inequalities in health. This aspect is addressed in section 9 of this report.

This report examines the implications of the development for the second two components. It brings Health Needs Assessment and Health Impact Assessment together into a single process. This paints a comprehensive picture of future needs and effects. It also reduces duplication across the two processes.

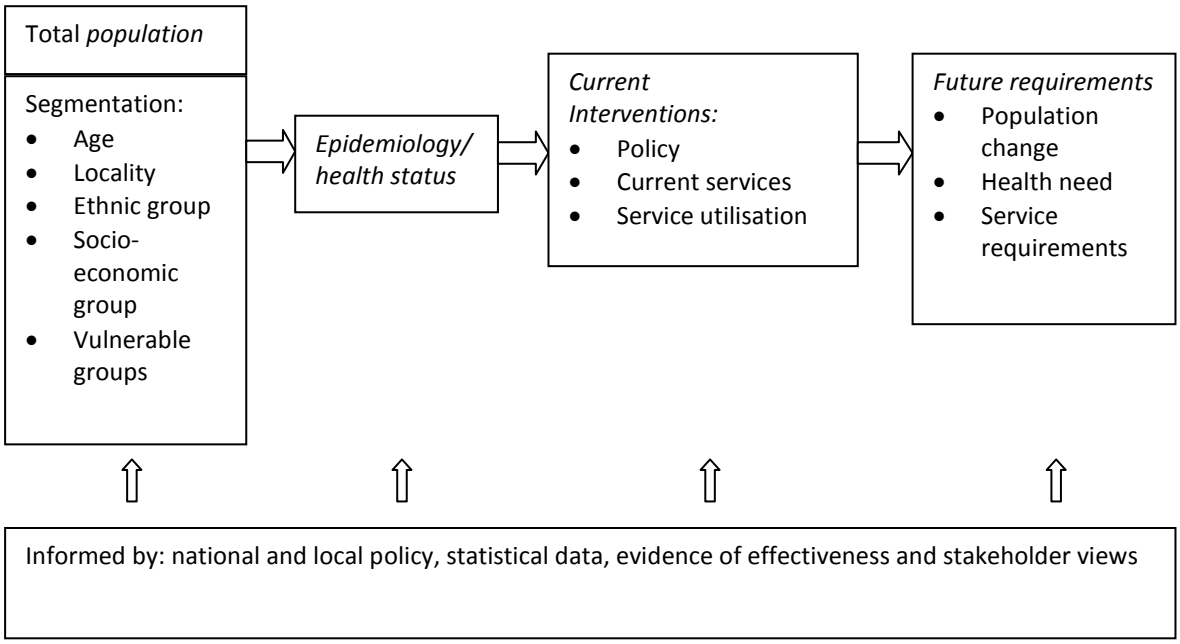
The decision was taken, in consultation and agreement with the Primary Care Trust (PCT), to focus the report on developing a profile of the population who may move into the development and the types of health issues they may bring. The report thus focuses on identifying the population who will live in the development and the more detailed conclusions in Section 10 relate to the potential healthcare requirements. The report concludes with an HIA scoping exercise to explore the effects that the proposals are likely to have on health and on inequalities in health. The HIA has not been

progressed beyond the scoping stage for the planning application as the potential health effects will become clearer as the development details are refined at the reserved matters stage and subsequently during implementation. The University will undertake further HIA work as the project progresses and the specification for any further HIA related work will need to be agreed at the appropriate time. The report has been commented upon by South Cambridgeshire DC. It has also been subject to extensive internal review.

The methodology for the HIA component is explained in section 9 starting on page 50.

Health needs assessment is "*a systematic method of identifying unmet health and health care needs of a population and making changes to meet these unmet needs. Health needs assessment is used to improve health and other service planning, priority setting, and policy development*" (2). The overall process of health needs assessment is described in Figure 1 below.

Figure 1: Model of the health needs assessment process



Source: P Brotherton 2008

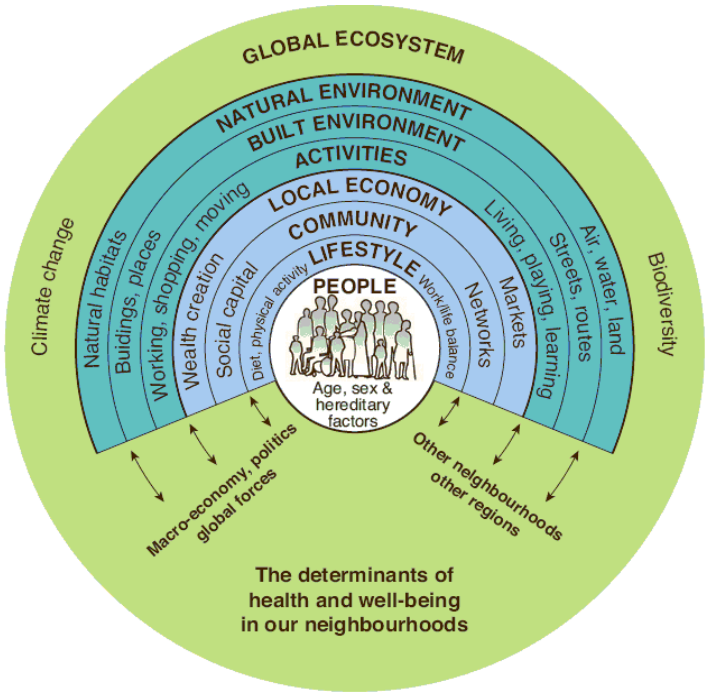
Health Impact Assessment (HIA) may be defined as *a combination of procedures, methods and tools that systematically judges the potential, and sometimes unintended, effects of a policy, plan, programme or project on the health of a population and the distribution of those effects within the population. HIA identifies appropriate actions to manage those effects* (3).

HIA is based upon a socio-ecological model of health. The HIA framework moves beyond analysing healthcare services, which help people when they are ill, to assessing the effects of development upon major health assets, which help people stay healthy (3). Figure 2 shows how many factors

influence health and wellbeing. These include housing, community networks, places to play and modes of travel and opportunities to move. These are known as determinants of health. The Proposed Development will be shaping a number of these upstream determinants of health and will therefore be able to have a positive influence on health and wellbeing. HIA is also concerned with inequalities in health: some population groups are more susceptible to changes in the social, economic and physical environments and may be more susceptible to poor health.

One of the final outputs of an HIA is a public health management plan. This management plan is an important output as it suggests ways in which health and health inequalities can continue to be addressed by all parties involved in each stage of the development beyond the life of the HIA itself.

Figure 2: Main determinants of health



Barton and Grant (4), adapted from Dahlgren and Whitehead (5)

Both Health Needs Assessment and Health Impact Assessment are evidence-based processes that incorporate a number of methods. These include reviewing current health and policy literature, interviewing key local stakeholders, analysing population and health data and estimating future effects and requirements. Future population needs are, of course, subject to many uncertainties and all projections of future need should be seen as best estimates which are subject to change, rather than as firm predictions.

An Environmental Impact Assessment is being prepared for this planning application: the EIA Directive (6)[1] requires the direct and indirect effects of a project to be identified, described and assessed on the following factors: human beings, fauna and flora, soil, water, air, climate and the

[1] The EIA Directive (6) has been amended three times (7-9) to bring it in line with UNECE Conventions (10;11) and, in 2009, to update the list of projects that come under the EIA Directive to include those related to the transport, capture and storage of carbon dioxide (CO_2).

landscape, the interaction between these factors, material assets and the cultural heritage. The EIA will also look at noise implications. Considerations about human health are included in the limit values that guide the assessment in the EIA. The reader is therefore directed to conclusions regarding transport, noise and air quality which will be of importance to the HIA.

Finally, the Application Site is one of three developments in the north and west of Cambridge, the others being Orchard Park (development of which is already underway) and the proposed NIAB site to the east of the Huntingdon Road. In practice there will be some overlaps between health service usage across these new populations (and also with existing communities). However for the purpose of this assessment all the calculations of future requirements relate only to the Application Site and do not cover the surrounding populations. The cumulative effects of the developments have been assessed within the separate Environmental Statement.

A quality assurance review has been undertaken in accordance with the Review Package for HIA that is cited in South Cambridgeshire's SPD for Health Impact Assessment, included as Appendix 1, Table 27.

1.3 Scope of Future Work

One of the recommendations for this HINA is for close work with the Primary Care Trust, and public consultation regarding health effects, to ensure that health issues continue to be addressed as the application and development proceeds, specifically in the formulation of reserved matter applications and in the proposed phasing of development parcels. Further HIA assessment work will be undertaken as the scheme progresses and the specification for any further HIA related work will need to be agreed at the appropriate time.

1.4 Acknowledgements

This report was written by Paul Brotherton and Ben Cave with additional input from Paul Burrell and Simon Chamberlayne at Pegasus; Inger O'Meara and colleagues at NHS Cambridgeshire and South Cambridgeshire District Council; Iain Green of South Cambridgeshire District Council and Sarah West and general practitioners at 1 Huntingdon Road Surgery Cambridge. Meetings were also held with the PCT and the local GP surgery which were extremely useful in helping to ensure that key issues were addressed. Dr Geraldine Linehan of Bridge Street Surgery Cambridge provided additional information on students' utilisation of primary care.

2 Scheme description

2.1 Site Location and Application Context

Development at North West Cambridge was initially identified within the Cambridgeshire and Peterborough Structure Plan 2003 which has been subsequently taken forward by the East of England Plan and a Joint Area Action Plan, for a mixed use urban extension of up to 3,000 dwellings and 2,000 student rooms plus additional employment land within the area lying between the radial routes of Madingley Road and Huntingdon Road. This area of land lies astride the Administrative Boundary of Cambridge City Council (CCC) and South Cambridgeshire District Council (SCDC). The land is to be removed from the Green Belt to facilitate the built development. In identifying the precise areas of land for development the two authorities have agreed to proceed by means of a Joint Area Action Plan which was the subject of a formal Examination with recommendations from two Inspectors. The Joint Area Action Plan was adopted by the two Authorities in November 2009.

The site is located to the north west of Cambridge, between Huntingdon Road in the north and Madingley Road to the south, with the M11 forming the western boundary of the site. The site extends to a total of approximately 150 hectares of which approximately 50 hectares is to remain in the Green Belt as open space, whilst the development area removed from the Green Belt is approximately 90 hectares. The area excluded from the Green Belt also includes a significant element of open space as well as built development. The area allocated for built development is the same as that considered via the Area Action Plan.

2.2 Development Proposals

The Planning Application seeks planning permission with details of appearance, landscaping, layout, scale and (save for the matters submitted in respect of zones A and C) access reserved within the parameters set out in the Parameter Plans and Statements.

The development proposals comprise:

Zone B:

- Up to 3,000 dwellings; (Class C3 and C4)
- Up to 2,000 student bedspaces; 98,000 sq.m. (Class C2)
- Up to 100,000 sq.m. new employment floorspace, of which:
    - Up to 40,000 sq.m. commercial employment floorspace (Class B1(b) and sui generis research uses)
    - At least 60,000 sq.m. academic employment floorspace (Class D1)
- Up to 5,300 sq.m. gross retail floorspace (Use Class A1/A2/A3/A4/A5) (of which the supermarket is not more than 2,000 sq.m. net floorspace)
- Senior living; up to 6,500sq.m. (Class C2)
- Community centre; up to 500 sq.m. (Class D1)

- Indoor sports provision, up to 450 sq.m. (Class D1)
- Police; up to 200 sq.m. (Class B1)
- Primary Health Care; up to 700 sq.m. (Class D1)
- School; up to 3,750 sq.m. (Class D1)
- Nurseries; up to 2,000 sq.m. (Class D1)
- Community Residential; up to 500 sq.m. (Class C3)
- Hotel (130 rooms); up to 7,000 sq.m. (Class C1)
- Access roads
- Pedestrian, cycle and vehicle routes
- Parking
- Energy Centre; up to 1,000 sq.m.
- Provision and/or upgrade of services and related service media and apparatus including pumping stations, substations and pressure regulators
- Drainage works (including sustainable ground and surface water attenuation and control)
- Open space and landscaping (including parks, play areas, playing fields, allotments, water features, formal/informal open space, maintenance sheds, pavilions and support facilities)
- Earthworks to provide revised ground contours
- Demolition of existing buildings

Zone A: Huntingdon Road - Highway and Utility Works

- Construction of a new three arm and a new four arm signal controlled junctions, including pedestrian and cycle crossings, to provide access to the Proposed Development from Huntingdon Road
- Installation of a toucan crossing across Huntingdon Road
- Construction of an unsegregated footway/cycleway on the southern side of Huntingdon Road
- Diversion and/or replacement and/or protection of existing utilities affected by the proposed highway works
- Provision of new telecommunications infrastructure and connection to existing utility infrastructure situated along Huntingdon Road
- Related landscaping, accommodation works, street furniture, drainage, telemetry and utilities

Zone C: Madingley Road - Highway and Utility Works

- Junction improvement works at the High Cross/Madingley Road junction to alter it from a three arm priority junction to a four arm signal controlled junction, including pedestrian and cycle crossings, to provide access to the Proposed Development
- Installation of a toucan crossing across Madingley Road
- Diversion and/or replacement and/or protection of existing utilities affected by the proposed highway works
- Installation of a retaining wall along Madingley Road

- Provision of a new pumped foul water rising main, including chamber connection, and new telecommunications, electricity and gas infrastructure and the associated connection to existing utility infrastructure situated along Madingley Road
- Related landscaping, accommodation works, street furniture, drainage, telemetry and utilities
    -

The Proposed Development will also include significant areas of open space which will remain designated as a Green Belt including the land adjacent to the M11 and a central open area incorporating the geological SSSI, following re-designation of the SSSI boundary. All the open space will be incorporated within the Application Site.

2.3 Development Phasing

The Proposed Development is intended to meet the Applicant's requirements over an extended period of 15 years with completion occurring in 2025 – 2026. Environmental assessment of all aspects has been undertaken at 2014 as this date is intended to represent the end of Phase 1 of the Proposed Development where the basic structure of the development and the construction of the central physical and social infrastructure of the new community, will be undertaken. Thereafter in the period to 2025/2026 the Proposed Development has been split into a further 3 phases (Phases 2 – 4) covering 3 – 4 year periods.

The four phases are identified in broad terms on **Figures 3.1 – 3.4** in the Environmental Statement indicating the locational extent of the phases and the access arrangements. **Table 3.1** in the Environmental Statement shows the intended development that will occur in each of the phases subdivided into the various Use Class Orders.

3 Health policy

3.1 National policy

National health policy is set out in a wide range of sources including White Papers, various strategy and operational publications and ministerial speeches. The health policy of the new coalition Government is still emerging but there are some key themes that are likely to have a lasting impact. These include:

- A focus on prevention of ill health
- Local decision-making, with fewer national targets
- Greater clinical input into decision-making (particularly general practitioners)
- A focus on health outcomes
- Greater plurality of healthcare provision, with more voluntary and independent sector providers competing for work alongside public sector bodies.

There are many policy documents dealing with specific health issues (eg heart disease, mental health etc), but the rest of this chapter highlights some important overall policy drivers. An important document to set the scene for future planning is the recent NHS White Paper (12). This has four main elements:

1. Putting patients and the public first: *'We will put patients at the heart of the NHS, though an information revolution and greater choice and control'* (12, p3).

2. Improving healthcare outcomes: *'To achieve our ambition for world-class healthcare outcomes, the service must be focussed on outcomes and the quality standards that deliver them. The Government's are to reduce mortality and morbidity, increase safety, and improve patient experience and outcomes for all'* (12, p4).

3. Autonomy, accountability and democratic legitimacy: *'The Government's reforms will empower professionals and providers, giving them more autonomy and, in return, making them more accountable for the results they achieve, accountable to patients through choice and accountable to the public at local level'* (12, p4)

4. Cutting bureaucracy and improving efficiency: 'The NHS will need to achieve unprecedented efficiency gains, with savings reinvested in front-line services, to meet the current financial challenge and the future costs of demographic and technological change' (12, p5).

This new national policy will take time to fully impact on the ground but changes in the architecture of the NHS are already being prepared. By the time the Proposed Development is built and occupied:

- Existing NHS commissioning structures in Cambridge will be replaced. There will be no Cambridgeshire Primary Care Trust, and many of its functions will be taken over by local GP commissioning consortia.

- The local authority will be a stronger player in co-ordinating health services and in promoting good health through its new role in public health
- There will be more choice of GP, hospital and other services for patients
- The existing East of England Strategic Health Authority will no longer exist and some of its functions will be taken over by a regional branch of the new NHS Commissioning Board.

It will therefore be increasingly important to ensure that general practitioners and the local authority are involved in the health response to the development proposals. The emphasis on choice and competition also means that the pattern of health service provision is likely to be different in future, with a strong possibility of new health providers being in place locally.

Within the overall policy context, some strategic priorities for the NHS are set out in a five year plan for 2010 to 2015 (13). This included a commitment to:

- More rights for patients (eg choice of hospital)
- Accelerated improvements in quality across five key areas of care (cancer, cardiac care, stroke care, maternity care and patient experience)
- Transformed services for those with a long term condition (such as diabetes, chronic obstructive pulmonary disease and dementia)
- Ensuring that a proportion of hospital income is dependent on patients experience and satisfaction with services

More detailed priorities for the NHS are set out each year in the Department of Health Operating Framework. The 2010/11 framework was revised by the new Government shortly after coming into office (14), removing some access targets and highlighting the requirement for efficiency savings. This did not fundamentally change the year's health priorities, but it is very likely that substantial changes will occur in future years. This was followed by the 2011/12 Framework which addresses transitional arrangements.

In a speech the Secretary of State for Health (15) highlighted that 'Britain now has the highest obesity rates in Europe ... among the worst rates of sexually transmitted infection, and ... rising rates of alcohol and drug problems. Even smoking, which has declined for decades, remains stubbornly high and still claims over 80,000 lives a year'. He suggested that these are too often seen as separate issues and he stressed the importance of understanding and tackling the underlying causes of health-damaging lifestyles. Longer term strategy on improving population health was published in a Government White Paper on public health (16). Issues identified include

- maternal health;
- child health;
- better physical and mental health especially through being in work;
- changing behaviour to reduce cancers, vascular dementias and circulatory disease as well as alcohol and drug abuse; and
- improving housing conditions.

3.2 Local policy

Local health policy is currently driven by the Cambridgeshire Primary Care Trust ('NHS Cambridgeshire'), which falls within regional level strategy developed by the East of England Strategic Health Authority. The SHA's strategy 'Towards the Best, Together' (17) argues for change on the grounds that:

- People are not as healthy as they could be
- Patient outcomes and safety are not good enough
- There is too much unfairness in health
- We are not meeting the expectations of those we serve
- It needs to be easier for people to choose and access the services they need
- We still send too many to hospital unnecessarily
- Specialist care is not organised well enough to deliver the best.

Six principles for change have been set out by the SHA:

- A focus on prevention, health inequalities, and timely interventions
- Services focussed on the needs of the individual and their carer
- Services localised as much as possible, but centralised where appropriate
- Services that are accessible and integrated, delivered by a flexible and skilled workforce
- Partnership with others where possible, with the patients always
- Outcomes that deliver measurable and meaningful improvement

Three local Cambridgeshire documents offer some insight into priorities that will affect the new population in the Proposed Development:

- Cambridgeshire PCT Strategic Plan 2010 to 2015 (this is a work in progress and is due to be updated in Autumn 2010)
- Building Communities that are healthy and well in Cambridgeshire 2008
- Strategy to tackle health inequalities in Cambridgeshire, a framework for action 2009-2011

The PCT Strategic Plan was published in January 2010 (18) and begins by setting out the population change expected over the next decade. It states that by 2021 there will be an extra 90,000 people living in Cambridgeshire, with particularly large increases in Cambridge City and South Cambridgeshire, where there will be a number of housing developments. A particular issue will be a forecast 60% increase in the number of people aged 65 years and over in the county between 2006 and 2021. The increase will be particularly large in South Cambridgeshire, but relatively low in Cambridge City.

The Cambridgeshire strategy articulates a number of headlines that are crucial to planning health care in future:

- 'We are facing an increasingly difficult financial position'
- 'We have struggled to manage demand in secondary care over a sustained period'

- 'Although people in Cambridgeshire generally live longer healthier lives than average this masks significant inequalities and there are some worrying signals about the longer term determinants of health'
- 'We must plan now the services and care needed for our ageing population'
- 'We are committed to delivering on key priorities but we urgently need to create capacity for radical strategic change by reducing the number of projects'.

This analysis is followed by six strategic change programmes, of which three are concerned with the internal processes of the NHS. The other three may have a more tangible effect on future service requirements and are outlined in Figure 3 below.

Figure 3: Selected strategic change programmes, NHS Cambridgeshire 2010-2015

Elective/planned care: Cambridgeshire has above the national average rate for elective inpatient care. The PCT intends to set up a referral management process with GPs to help ensure that only patients that really require hospital based care are referred there. The effect of this (and other initiatives) would be to reduce the level of outpatient activity and elective inpatient activity per head of population.

Long term conditions: The PCT intends to focus efforts on three conditions (diabetes, chronic obstructive pulmonary disease and stroke), with others to follow over time. The process involves developing a new pathway with GPs, risk stratification of patients and targeting interventions. The intended outcomes include providing higher quality care closer to home and reducing hospital admissions.

Prevention: The PCT intends to further reduce the prevalence of smoking and to emphasise cost-effectiveness in prevention interventions. The aims include reducing smoking, reducing the use of healthcare services and improving efficiency.

Source: NHS Cambridgeshire (18).

The PCT's change programmes are estimated to bring about some very ambitious reductions in activity. The PCT's figures are set out in Table 1 below and, if realised, will impact on future primary and secondary care services both in the Proposed Development and across the wider area.

Table 1: Projected changes in healthcare activity resulting from NHS Cambridgeshire's strategic change programmes, 2010/11 to 2013/14

Activity reduction	2010/11	2011/12	2012/13	2013/14
Outpatients	- 32,989	- 56,955	- 96,606	- 147,869
Elective admissions	- 4,588	- 8,389	- 14,500	- 22,252
A&E	- 290	- 1,713	- 8,514	-15,352
Non-elective admissions	- 171	- 870	- 2,974	- 6,186

NB the figures are negative as healthcare activity is projected to reduce between 2010/11 and 2013/14

Source: NHS Cambridgeshire (18).

Although the local population is relatively healthy compared to England as a whole there are some important inequalities within Cambridgeshire. The PCT has developed a strategy to reduce health

inequalities (19), which may have some impact on the future population of the Proposed Development. The strategy has four main objectives:

- To decrease the health inequalities and poverty found in the most socio-economically deprived areas in Cambridgeshire (this includes some parts of Cambridge City but non of South Cambridgeshire)
- To decrease access inequalities that impact on health and well being (including access to a healthy lifestyle, access to services and access to information)
- To decrease the health inequalities experienced by vulnerable groups that exist within the Cambridgeshire population (this is stated to include children and young people, older people, people with disabilities, people with mental health problems, travellers, migrant workers, prisoners and homeless people)
- To prevent the creation of new health inequalities (this makes specific reference to new housing developments – see Figure 4 below)

Figure 4: Statement on new communities and health inequalities

"Planning policies require an underlying commitment to fairness so that all people, especially the vulnerable groups can access the services and opportunities needed for a satisfying and healthy life. The growth agenda is about more than just building new houses but it provides the opportunity to create environmentally sustainable developments and to provide infrastructure that supports healthy equitable communities. This includes creating environments that support physical activity, good social networks which have positive effect of physical and mental health, key services and facilities, including access to and appropriate provision of health services, and good transport links ensuring that all communities are able to access services and opportunities. Alongside these there needs to be an equitable distribution of economic prosperity and social opportunity with an increase in economic opportunities for disadvantaged communities and vulnerable groups"

Source: Cambridgeshire 'Strategy to tackle health inequalities within Cambridgeshire' (19).

The PCT and other local partners have also examined health and well being in relation to the growth area more specifically (20).

With regard to relevant planning policies, the Government's commitment to sustainable development is set out within PPS1 which states that planning should facilitate and promote sustainable patterns of development by making suitable land available in line with objectives to improve the quality of life, amongst other considerations. PPS1 also promotes development that builds socially inclusive communities, and planning should address accessibility to jobs, health, housing education, shops, leisure and community facilities.

The draft National Planning Policy Framework ("the Draft NPPF"), which has been published for consultation and which will replace all national planning policy statements, recognises that planning plays a vital role in building our economy and supporting strong, vibrant and healthy communities by providing an increased supply of housing to meet the needs of present and future generations; and by creating a good quality built environment, with accessible local

services that reflect the community's needs and supports its health and well-being . The draft NPPF states that planning policies and decisions should take account of and support local strategies to improve health and wellbeing for all and Local Planning Authorities should work with public health leads and health organisations to understand and take account of the health status and needs of the local population, including expected future changes, and any information about relevant barriers to improving health and well-being.

The Regional Planning Framework consists of the East of England Plan (2008). The overall spatial vision within the East of England Plan is to realise the Region's economic potential and provide a high quality of life for its people including meeting their housing needs in sustainable inclusive communities. The vision for the Cambridge Sub-Region to 2021 is for it to continue to develop as a centre of excellence in higher education and research. The East of England Plan also states that Local Development Documents should provide for development focused on making the most of the development potential of land not only in the built-up area of Cambridge but on the periphery of the built-up area of Cambridge on land released from the green belt.

In terms of local planning policy, the adopted Cambridgeshire and Peterborough Structure Plan (2003) contains 13 saved policies, including Policy P6/1 which states that development will only be permitted where the additional infrastructure and community requirements generated by the proposals can be secured. The North West Cambridge Area Action Plan (2009) was adopted by Cambridge City Council and South Cambridgeshire District Council which provides specific policies about social and community infrastructure. Also of relevance are the policies of The South Cambridgeshire District Core Strategy (2007), The South Cambridgeshire District Council Development Control Policies Development Plan Document (2007) and the Cambridge City Local Plan (2006).

Reference and regard has also been made in preparing this report to the emerging draft guidance contained in the Health Impact Assessment Supplementary Planning Document approved by South Cambridgeshire District Council for public consultation in October 2010 (21).

Chapter 3 – key implications for the Proposed Development:

- A new health decision-making structure will be in place, with general practitioners and the local authority as key players
- New healthcare providers will emerge and patient choice will be greater
- Local health policy aims to reduce healthcare activity and switch care from hospitals into the community
- Policies to improve population health and reduce inequalities will continue to be important

4 Current health status in Cambridge

4.1 Factors affecting health

The most basic factor affecting healthcare need is the size and age structure of the population. For this exercise the current population is interpreted as that of Cambridge City and South Cambridgeshire, across whose boundaries the new development lies. These are very different populations and where possible are shown both separately and together. This allows for different assumptions to be made about the nature of the new population living in the Proposed Development. Recent statistics of population composition by age is shown in Table 2.

Table 2: Population of Cambridge City and South Cambridgeshire district by age group, 2008

Age group	Cambridge City		South Cambridgeshire		Total	
	Number	Percent	Number	Percent	Number	Percent
0-4 years	6,170	5%	8,660	6%	14,830	6%
5-14	10,260	9%	17,800	12%	28,060	11%
15-24	28,020	24%	15,280	11%	43,300	17%
25-34	22,070	19%	15,510	11%	37,580	14%
35-44	14,630	12%	22,750	16%	37,380	14%
45-54	12,070	10%	20,250	14%	32,320	12%
55-64	10,440	9%	19,050	13%	29,490	11%
65-74	6,980	6%	12,420	9%	19,400	7%
75-84	4,910	4%	7,940	6%	12,850	5%
85+	2,130	2%	2,890	2%	5,020	2%
TOTAL	117,660	100%	142,550	100%	260,210	100%

Source: Cambridgeshire JSNA, based on Cambridgeshire County Council data

This shows that Cambridge City has a youthful population compared to South Cambridgeshire (and England as a whole) with some 57% of the population being aged under 35 years. This is chiefly due to the large student population in the city.

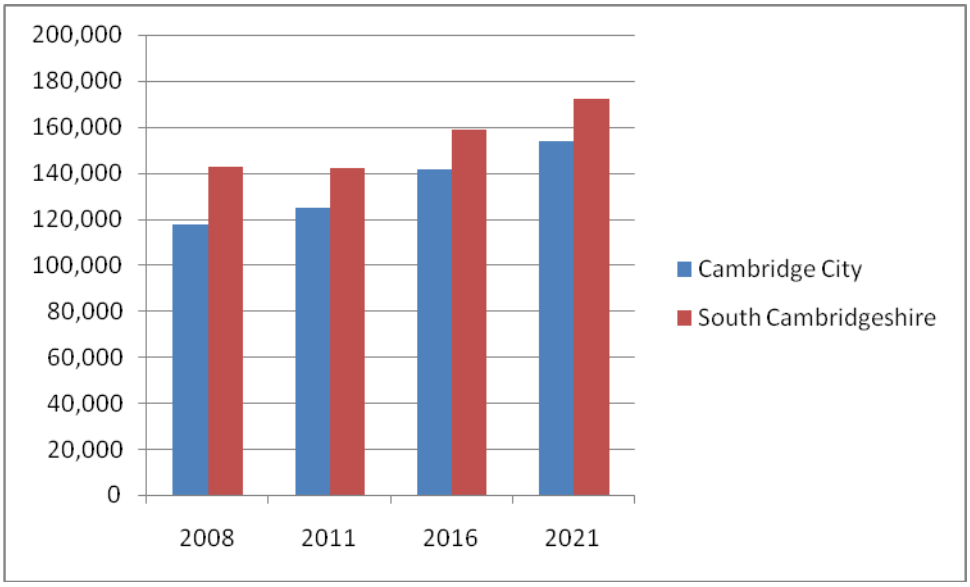
The area is part of the M11 growth corridor and current projections suggest that the area's population will increase considerably in the period to 2021. Table 3 and Figure 5 show the extent of the change in population living in the area.

Table 3: Population projections, 2008 to 2021, Cambridge City and South Cambridgeshire

Population	2008	2011	2016	2021	Percentage increase 2008-2021
Cambridge City	117,700	125,000	141,400	153,600	31%
South Cambridgeshire	142,500	142,200	158,600	171,900	21%
Total	260,200	267,200	300,000	325,500	25%

Source: Cambridgeshire JSNA, based on Cambridgeshire County Council data

Figure 5: Population projections, 2008 to 2021, Cambridge City and South Cambridgeshire



Source: Cambridgeshire JSNA, based on Cambridgeshire County Council data

Health need also varies with other factors such as socio-economic position and ethnicity. The Index of Multiple Deprivation (2007) is an overall measure of social deprivation taking into account a range of factors including employment, housing, health and others. Local authorities are given an index score and ranked in relation to all 354 local authorities in the country (with rank 1 being the most deprived and rank 354 being the least deprived). Both Cambridge City and South Cambridgeshire have lower than average levels of deprivation, with Cambridge City being ranked 236/354 and South Cambridgeshire ranked 350/354 which is almost the least deprived in the country.

The difference between Cambridge City and the surrounding district is also shown in Table 4 on ethnicity. This suggests that the City population is more diverse than the national average and the South Cambridgeshire population is less so. However one factor that may not be fully reflected in the figures is the seasonal migrant workforce that exists in much of Cambridgeshire County.

Table 4: Breakdown of the Cambridge City and South Cambridgeshire populations by broad ethnic group, 2007

Ethnic group	Cambridge City		South Cambridgeshire		England
	Number	Percent	Number	Percent	Percent
White British	87,000	72.5%	121,800	88.7%	83.6%
Other white	13,700	11.4%	6,700	4.9%	4.6%
Mixed	2,800	2.3%	1,900	1.4%	1.7%
Asian or Asian British	7,100	5.9%	2,800	2.0%	5.7%
Black or Black British	3,000	2.5%	1,800	1.3%	2.8%
Chinese or other	6,500	5.4%	2,300	1.7%	1.5%
Total	120,100	100.0%	137,300	100.0%	100.0%

Source: ONS data quoted in the Cambridgeshire JSNA 2009.

Some other specific factors that impact on health are shown in Table 5. These range from wider determinants such as employment and education to 'lifestyle' factors such as smoking and healthy eating. In most respects the current population has lower risks to poor health than the national average and this is particularly the case for South Cambridgeshire. The table is colour coded to show statistically significant differences to the national average (with green being better and red worse than England). Most of the table is green but three areas where Cambridge City is worse off than England are the numbers classed as statutory homelessness, violent crime and binge drinking.

Table 5: Selected health risk factors for Cambridge City and South Cambridgeshire, compared to England

Factor	Cambridge City	South Cambs	England
Unemployment: percent, September 2009	2.3%	1.9%	n/a
Children in poverty: percent, 2007	19.2%	8.1%	22.4%
Statutory homelessness: rate per 1000 households, 2008/09	3.1	1.5	2.5
GSCEs: percent gaining five at grade A*-C including English and Maths, 2008/09	54.9%	68.7%	50.9%
Violent crime: rate per 1000 population, 2008/09	19.4	5.7	16.4
Smoking in pregnancy: percent 2008/09	11.6%	11.6%	14.6%
Breast feeding initiation: percent 2008/09	79.9%	79.9%	72.5%
Children physically active at school: percent 2008/09	49.5%	56.4%	49.6%
Obese children: percent of reception year children, 2008/09	7.1%	6.8%	9.6%
Adults who smoke: modelled percent, 2006-2008	17.3%	13.8%	22.2%
Binge drinking adults: modelled percent, 2007-2008	27.9%	17.1%	20.1%
Healthy eating adults: modelled percent, 2006-2008	36.9%	33.6%	28.7%
Physically active adults: percent 2008/09	11.1%	11.3%	11.2%
Obese adults: modelled percent, 2006-2008	17.2%	21.4%	24.2%

Source: All from APHO Health profiles July 2010, except unemployment rate (from JSNA 2009).

4.2 Overall health indicators

The Cambridgeshire Joint Strategic Needs Assessment (JSNA) (22) provides an overview of health and well being across the county. The summary document is supplemented by more detailed JSNAs which provide a valuable source of information on the following topics:

- Children and young people
- Older people
- Adults of working age
- Adults with learning disabilities
- Adults with mental health problems
- Adults with physical disability and sensory impairment and long term conditions
- Homelessness
- International migrants

The JSNA process is designed to support the local strategic partnership in setting priorities to improve health and well being. Although it is chiefly a county-wide process it includes some information on the second tier local authorities within the county. This section on the current population features a small number of key indicators from the JSNA. More detailed data (and interpretation) can be found in the JSNA documents and are not repeated here.

Cambridge City has a substantially lower birth rate compared to South Cambridgeshire and England as a whole. The average life expectancy of people living in the city is similar to the national average while lives in South Cambridgeshire are longer than average. Table 6 and Table 7 show local and national figures.

Table 6: Crude birth rate and total period fertility rates for Cambridge City, South Cambridgeshire and England, 2007

Indicator	Cambridge City	South Cambridgeshire	England
Crude birth rate (births per 1000 females aged 15-44), 2007	42.6	66.1	62.1
Total period fertility rate*, 2007.	1.4	2.1	1.9

*the average number of births per woman during her lifetime if current local age specific birth rates were experienced.

Source: ONS data reported in the Cambridgeshire JSNA (22).

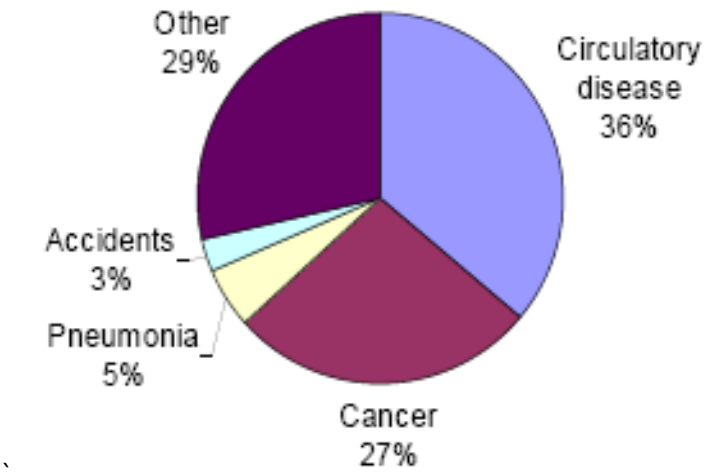
Table 7: Average life expectancy at birth for females and males in Cambridge City and South Cambridgeshire, 2006-2008

Population	Female (years)	Male (years)
Cambridge City	82.8	78.1
South Cambridgeshire	84.5	81.1
England	82.0	77.9

Source: Cambridgeshire JSNA (22)

The main causes of death in Cambridgeshire are circulatory diseases and cancers, which is consistent with the rest of the country. Figure 6 shows that in Cambridgeshire County these two conditions are responsible for some nearly two thirds of all deaths.

Figure 6: Main causes of death in Cambridgeshire, 2005-2007



Source: Cambridgeshire JSNA (22).

Some more specific health indicators are shown in Table 8. Again this is colour coded and indicates that in most cases both Cambridge City and South Cambridgeshire are in better health than England as a whole. The two issues where local health is worse are hospital stays for alcohol related harm (in Cambridge City) and road accidents (in South Cambridgeshire).

Table 8: Selected key health indicators for Cambridge City, South Cambridgeshire and England

Indicator	Cambridge City	South Cambs	England
Tooth decay in children: mean number per child aged 5 yrs, 2007/08	0.5	0.6	1.1
Teenage pregnancy: rate per 1000 females aged 15-17 yrs, 2006-2008	28.6	17.8	40.9
Incapacity benefits for mental illness: rate per 1000 working population, 2008	20.8	12.6	27.6
Hospital stays for alcohol related harm: rate* per 100,000 population, 2008/09	1800	1460	1580
People diagnosed with diabetes: percent of GP registered population, 2008/09	2.7	3.5	4.3
Hip fracture in the over 65s: rate* per 100,000 population, 2008/09	554	441	479
Deaths from smoking: rate* per 100,000 population aged 35+, 2006-2008	172.4	135.6	206.8
Early deaths from heart disease and stroke: rate* per 100,000 population aged under 75, 2006-2008	62.6	52.1	74.8

Indicator	Cambridge City	South Cambs	England
Early deaths from cancer: rate* per 100,000 population aged under 75, 2006-2008.	99.2	93.2	114.0
Road injuries and deaths: rate per 100,000 population, 2006-2008.	38.1	80.8	51.3

*Note: the rates marked with an asterix have been standardised to take the age and sex composition of the population into account.

Source: APHO health profiles

Table 9 then shows the estimated number of people in Cambridge City and South Cambridgeshire who have some particular long term health conditions. The figures are drawn from models that use a number of population characteristics to calculate prevalence and are important because people with long term conditions are substantial users of health services. The impact of these conditions can be reduced by effective preventative and primary care services and good patient care can reduce the number of hospital admissions required.

Table 9: Modelled estimates of the number of people living with selected health conditions in Cambridge City and South Cambridgeshire

Condition	Cambridge City		South Cambridgeshire		England
	Number	Percent	Number	Percent	Percent
Coronary heart disease	3,622	3.4%	4,674	4.2%	5.6%
Chronic obstructive pulmonary disease	2,374	2.2%	2,364	2.1%	3.6%
Hypertension	23,592	21.9%	32,924	29.4%	30.4%
Stroke	1,691	1.6%	2,150	1.9%	2.5%
Diabetes	3,849	3.3%	4,962	3.7%	4.5%

Source: APHO projections for 2009 except diabetes which is YHPHO estimate for 2005, reported in Cambridgeshire JSNA 2009 (22).

In the 2001 census, 14.5% of Cambridge City's population said that they had a limiting long term illness compared to 17.3% across England as a whole. There were 450 people in Cambridge City receiving disability benefits in May 2009 (22).

Common mental health problems form a key part of primary care workload. It is estimated that 226 people out of every 1000 aged 16 to 74 in Cambridge have a neurotic disorder, with the most common problems being anxiety and depression (23).

New developments tend to have a young population so child health will be an important issue. The index of child well being has been developed nationally and brings together a range of evidence about child health and the factors that affect it. The index is available at local authority level and populations are ranked out of 354 local authorities in the country (1= highest/best well being, 354= lowest/worst). The following table shows the rank position of Cambridge. Although Cambridge is a generally healthy place, the index of child well being is very much in the middle of the national

spectrum. This is based on existing circumstances in the city but the new development is in some ways an opportunity to address some of these determinants of health and well being.

Table 10: Index of Child Well Being rankings for Cambridge City (out of 354 LAs)

Child well being domain	Cambridge City
Material well being	209
Health and disability	148
Education	166
Crime	111
Housing	153
Environment	210
Children in need	215
Overall child well being	160

Source: Local Index of Child Well Being 2009, Department of Communities and Local Government

Chapter 4 – key implications for the Proposed Development:

- It is likely that the new population will have better health, on average, than England as a whole
- Some key health risks can be targeted to improve health and reduce the need for healthcare services
- Substantial numbers of people live with a long term condition in Cambridge
- Care will need to be taken to safeguard the health and well being of children

5 Current healthcare provision serving the Proposed Development

5.1 Primary care

Primary care services are those that provide the first contact for people requiring health advice or care and normally provide ongoing care over a long period of time. The focus of much health care is the general practitioner service and this is featured more prominently in this section. Other important primary care services include dental surgeries, opticians, and pharmacies, and these are complimented by a range of other community-based services such as sexual health services, podiatry, psychology and many others.

Figure 7 and Table 11 and 12 show the GP surgeries in Cambridge and the villages to the north and west of the city. There are a total of 22 practices in the city and a further 4 in the area to the north and west of the city which could be considered to be accessible to the Proposed Development.

Table 11: Location of GP services in Cambridge

Practice name	Postcode	GPs
Bridge Street Medical Centre	CB2 3LS	6
Trumpington Street Medical Centre	CB2 1RG	6
Medical Centre Anglia Ruskin University	CB1 1PT	n/a
Red House Surgery, Chesterton Road	CB4 1ER	5
Petersfield Medical Practice, Mill Road	CB1 2AB	4
Cambridge Access Surgery, Newmarket Road	CB5 8HB	3
Lensfield Medical Practice, Lensfield Road	CB2 1EH	7
1 Huntingdon Road (and its Girton Branch)	CB3 0DB	9
Newnham Walk Surgery, Wordsworth Grove	CB3 9HS	6
York Street Medical Practice	CB1 2PY	7
Woodlands Surgery, Station Road	CB1 2JH	6
Arbury Road Surgery	CB4 2JG	6
The Mill Road Surgery	CB1 3DG	5
Brookfields Health Centre, Seymour Street	CB1 3DQ	6
Nuffield Road Medical Centre	CB4 1GL	8
East Barnwell Health Centre, Ditton Lane	CB5 8SP	6
Cornford House Surgery, Cherry Hinton Road	CB1 8BA	7
The Queen Edith Medical Practice, Queen Ediths Way	CB1 8PJ	2
Cherry Hinton Surgery, High Street, Cherry Hinton	CB1 9HJ	5
Firs House Surgery, Station Road, Histon	CB24 9NP	7
Cherry Hinton Medical Centre, Fisher's Lane, C. Hinton	CB1 9HR	6
Milton Surgery, Coles Road, Milton	CB24 6BL	2

Source: NHS Choices and QoF.

Table 12: GP practices in villages to the north and west of Cambridge city.

Practice name	Postcode	GPs
58 Green End Comberton	CB23 7DY	6
Maple Surgery, Hanover Close, Bar Hill	CB23 8EH	5
Dr Grande and Partners, Telegraph Street, Cottenham	CB24 8QU	2
Cottenham Medical Practice, High Street Cottenham	CB24 8SE	5

Source: NHS Choices and QoF.

The GP surgery at 1 Huntingdon Road (and its Girton Branch) is the nearest to the Proposed Development. It is a large practice offering a range of specialist clinics. These include:

- Asthma clinic
- COPD /Asthma clinic
- Counselling
- Travel health clinic
- Diabetes clinic
- Family planning clinic
- Phlebotomy
- Mother and baby clinic
- Cardiovascular nurse clinic
- Common ailments clinic

The staff at the practice include (sources: NHS Choices website and practice website):

- 9 general practitioners
- 7 practice nurses
- District nurses working into the community
- Nursing assistant
- Phlebotomist
- Child and family health team (2 nurses providing health visiting and school nursing services plus a nursery assistant)
- Midwife
- Community physiotherapist (referral to Chesterton Medical Centre)
- 2 counsellors
- Office manager and administrative staff

The normal surgery hours are from 8.15am to 1.00pm and from 1.45pm to 6.00pm on Mondays to Fridays. Out of hours emergency general practitioner services in and around Cambridge are provided by a co-operative of GPs known as CAMDOC.

The following table provides some key indicators relating to the populations of the four GP practices near to the Proposed Development and provides a comparator to NHS development as a whole.

Each practice caters for students (as well as the wider population) and thus have relatively young populations. It should be noted that there can be differences in the extent to which GP practices record various health conditions, but the data they have submitted suggests that:

- The practices generally have low levels of social deprivation amongst their populations compared to Cambridgeshire (which itself is very low compared to England as a whole)
- The prevalence of major health problems is very low, mainly as a result of the young age profile
- The use of hospital services is very low, again largely due to the youthful population.

Table 13: Selected practice indicators for four GP practices close to the Proposed Development, 2008/09

	Bridge Street	Huntingdon Road	Newnham Walk	Trumpington Street	NHS Cambridgeshire
Total number of patients	8,820	12,684	11,391	11,588	612,923
Percent of patients aged 15-24 years	33.7%	26.9%	39.4%	43.1%	14.1%
Deprivation score (high = more deprived)	11.8	8.5	8.0	9.9	11.5
Coronary heart disease prevalence (all ages)	0.9%	2.4%	0.9%	1.2%	3.1%
Diabetes prevalence (aged 17 and over)	1.2%	3.0%	1.1%	1.3%	4.6%
Hypertension prevalence (all ages)	4.3%	11.8%	4.5%	5.3%	12.6%
Obesity prevalence (aged 16 and over)	3.4%	6.1%	2.3%	3.4%	9.2%
Depression prevalence (aged 18 and over)	7.0%	8.5%	3.3%	0.9%	9.2%
Elective hospital admission rate (per 1000 population)	83.3	91.9	63.8	100.0	112.2
Emergency hospital admission rate (per 1000)	47.7	51.4	35.3	48.0	72.3

Source: ERPHO 2008/09 practice profiles, accessed 5 October 2010.

The scores for prevalence and hospital admissions across the four local practices were then combined (using a weighted average) and compared with the PCT as a whole. The results show that on average the practices have:

- 45% of the PCT rate for coronary heart disease
- 37% of the PCT rate for diabetes
- 54% of the PCT rate for hypertension
- 42% of the PCT rate for obesity
- 53% of the PCT rate for depression
- 76% of the PCT's elective hospital admission rate
- 63% of the PCT's emergency hospital admission rate

General practice is the key to ongoing care and the gateway to many hospital and other services. It is complemented by other primary care services, and within 3 miles of central Cambridge there are a total of:

- 28 dental surgeries
- 28 pharmacies
- 16 opticians

Looking more closely at the Application Site itself, Table 14 and Figure 8 shows the primary care facilities that are within 1.5 miles of the Proposed Development. Although some new services would be expected to be developed on the Application Site, these nearby health services may also attract some of the people living in the new dwellings.

Figure 7: Location of GP services in Cambridge

KEY

Application Site Boundary Zone B

Location of GP / Medical Centre

	Practice
1	Bridge Street Medical Centre
2	Trumpington Street Medical Centre
3	Medical Centre Anglia Ruskin University
4	Red House Surgery, Chesterton Road
5	Petersfield Medical Practice, Mill Road
6	Cambridge Access Surgery, Newmarket Road
7	Lensfield Medical Practice, Lensfield Road
8	1 Huntingdon Road
9	Newnham Walk Surgery, Wordsworth Grove
10	York Street Medical Practice
11	Woodlands Surgery, Station Road
12	Arbury Road Surgery
13	The Mill Road Surgery
14	Brookfields Health Centre, Seymour Street
15	Nuffield Road Medical Centre
16	East Barnwell Health Centre, Ditton Lane
17	Cornford House Surgery, Cherry Hinton Road
18	The Queen Edith Medical Practice, Queen Ediths Way
19	Cherry Hinton Surgery, High Street, Cherry Hinton
20	Firs House Surgery, Station Road, Histon
21	Cherry Hinton Medical Centre, Fisher's Lane, C. Hinton
22	Milton Surgery, Coles Road, Milton
23	58 Green End Comberton
24	Maple Surgery, Hanover Close, Bar Hill
25	Dr Grande and Partners, Telegraph Street, Cottenham
26	Cottenham Medical Practice, High Street Cottenham

North West Cambridge

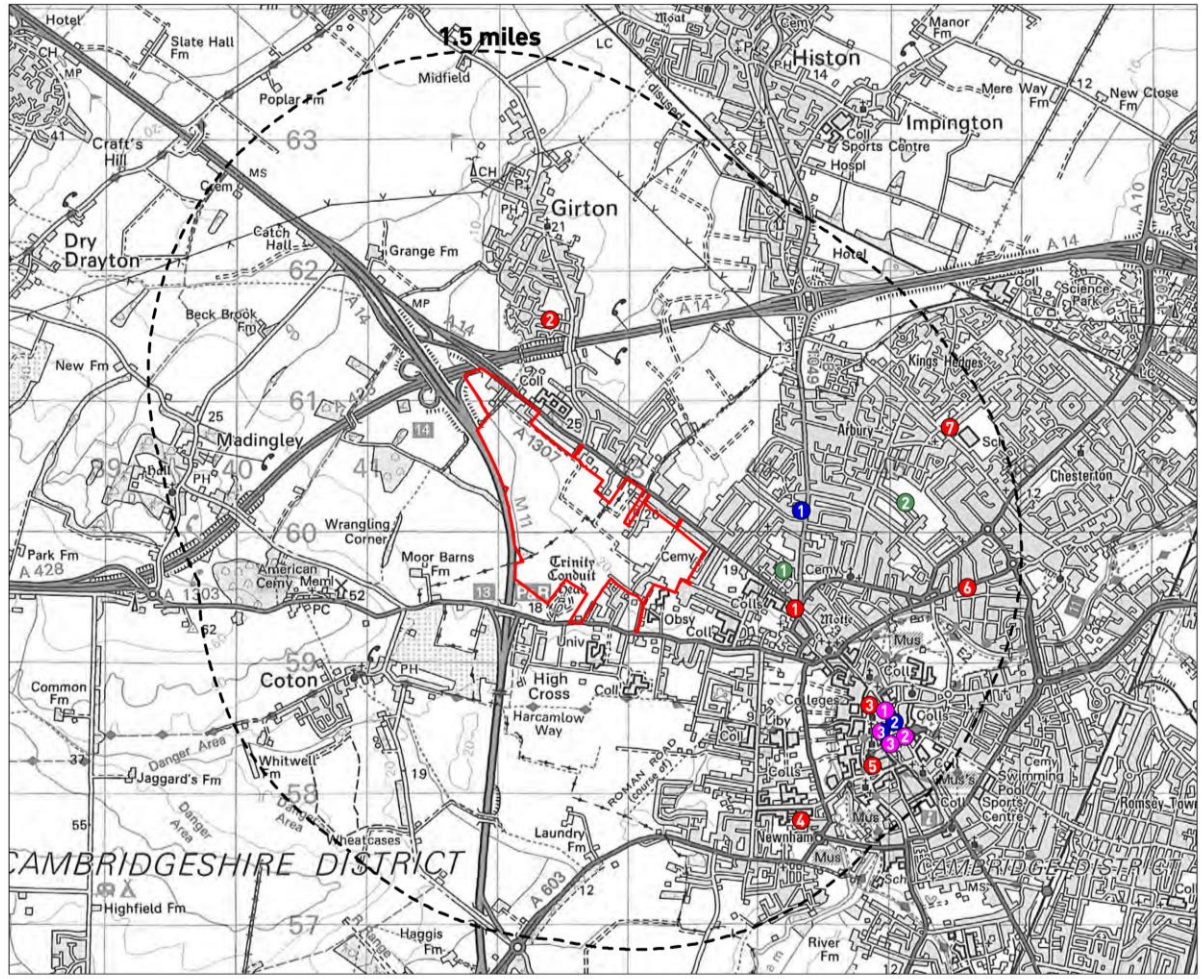
Location of GP Services in Cambridge

Drawing Ref: U.0102_01-1
Client : Cambridge University

1 : 50,000 @ A3
6th October 2010
Team SC/AD

Pegasus Environmental

Figure 8: Services within 1.5 miles of the Proposed Development



KEY

- Application Site Boundary Zone B
- Location of GP Surgeries
- Location of Pharmacies
- Location of Dentists
- Location of Opticians

	GP Surgery
1	1 Huntingdon Road
2	1 Huntingdon Road Girton Branch
3	Bridge Street Medical Centre
4	Newnham Walk Surgery
5	Trumpington Street Medical Centre
6	Red House Surgery, Chesterton Road
7	Arbury Road Surgery
	Pharmacies
1	Rowlands Pharmacy, Histon Road
2	Superdrug Pharmacy, Sidney Street
3	Boots Pharmacy, Petty Cury/Sidney Street
	Dentists
1	R Parker, Canterbury Street
2	J Blundell, Metcalfe Road
	Opticians
1	David Clulow, Sidney Street
2	Dolland and Aitchison, Lion Yard
3	Optical Express, Petty Cury
4	Boots, Petty Cury

North West Cambridge

Location of GP Surgeries, Pharmacies, Dentists and Opticians within 1.5 miles of the Site

Drawing Ref: U.0102_02-1
Client : Cambridge University

1 : 50,000 @ A3
6th October 2010
Team SC/AD

Pegasus Environmental

Table 14: GP surgeries, pharmacies, dentists and opticians within 1.5 miles of the Proposed Development

Name	Postcode
GP surgeries:	
1 Huntingdon Road	CB3 0DB
1 Huntingdon Road Girton Branch	CB3 0PA
Bridge Street Medical Centre	CB2 3LS
Newnham Walk Surgery	CB3 9HS
Trumpington Street Medical Centre	CB2 1RG
Red House Surgery, Chesterton Road	CB4 1ER
Arbury Road Surgery	CB4 2JG
Pharmacies:	
Rowlands Pharmacy, Histon Road	CB4 3HL
Superdrug Pharmacy, Sidney Street	CB2 3HX
Boots Pharmacy, Petty Cury/Sidney Street	CB2 3ND
Dentists:	
R Parker, Canterbury Street	CB4 3QF
J Blundell, Metcalfe Road	CB4 2DD
Opticians:	
David Clulow, Sidney Street	CB2 3HX
Dolland and Aitchison, Lion Yard	CB2 3NA
Optical Express, Petty Cury	CB2 3NB
Boots, Petty Cury	CB2 3ND

There is no dedicated student health service provided at the University but an arrangement has been made whereby eight specific GP practices in the city enrol students on their practice list and provide primary care services to the student population. These are collectively known as the 'Association of Student Practices in Cambridge' and comprise of:

- Bridge Street Surgery
- Huntingdon Road Surgery
- Lensfield Road Medical Practice
- Newnham Walk Surgery
- Red House Surgery
- Trumpington Street Medical Practice
- Woodlands Surgery
- York Street Surgery

In addition to these 'student' GP practices there are a small number of nurses located within some of the colleges in the University. These provide care to students, normally on a part time basis, and refer on to the GP practices where necessary. The University also provides a counselling service for students.

International students are included in the arrangement for NHS primary care if their course in over 6 months duration (which is assumed to be the case for those students occupying the planned student accommodation). The spouses and children of international students are also entitled to NHS care.

5.2 Secondary and tertiary care

Local community health services are provided mainly by the Cambridgeshire Community Services NHS Trust. This has 2,400 staff and a core annual budget of £99 million, with a further £45 million budget for provision of social care services for people aged over 65. Some of the main community services include:

- Integrated health and social care services for adults and older people (district nursing, specialist nursing, community matrons, care management and intermediate care services)
- Community rehabilitation including physiotherapy, occupational therapy and speech and language therapy
- Diagnostic services, a wide range of outpatient clinics, minor injury units and inpatient rehabilitation units based in four community hospitals including Brookfields Hospital Mill Road, Cambridge CB1 3DF.
- Community-based children's services
- Clinic based services including dental, musculo-skeletal, podiatry and sexual health
- A human papilloma virus (cervical cancer) vaccination programme
- Chlamydia screening programme for young people

Hospital services are provided from three main NHS centres, although there are also three private hospitals in Cambridge and the surrounding area. The NHS sites are:

Addenbrookes Hospital, Hills Road, Cambridge CB2 0QQ (provided by Cambridge University Hospitals NHS Foundation Trust).

This teaching hospital provides emergency, surgical and medical services for the local population and is also a centre of excellence for regional specialist services such as organ transplantation, cancer, neurosciences, paediatrics and genetics.

Rosie Hospital, Robinson Way, Cambridge CB2 2SW (also provided by Cambridge University Hospitals NHS Foundation Trust).

The 'Rosie' offers maternity and women's service including a fetal assessment unit, ultrasound department, and neonatal intensive care unit. It is the regional centre of excellence for maternity care, and also provides gynaecology services to the local and regional population.

Papworth Hospital, Papworth Everard, Cambridge CB23 3RE (provided by Papworth Hospital NHS Foundation Trust)

Papworth is a large specialist cardiothoracic hospital located outside the city. Services include cardiology, respiratory medicine, cardiothoracic surgery, and heart and lung transplantation.

The local accident and emergency department is located at Addenbrookes Hospital – there is currently no minor injuries unit or NHS Walk in Centre in Cambridge.

Mental health services are provided by the Cambridgeshire and Peterborough NHS Foundation Trust. This includes inpatient, outpatient, day care and community mental health services with specialist provision covering:

- Child and adolescent mental health services
- Adult mental health services
- Older people's mental health services
- Primary care services
- Forensic and specialist mental health services
- Substance misuse services
- Specialist learning disability services (through the Cambridgeshire Learning Disability Partnership)

The largest share of PCT healthcare funding goes to acute hospital services. Cambridgeshire's Strategic Plan states that forecast spend for 2009/10 financial year amounts to the following by category:

- Acute care £411.7m
- Mental health £66.1m
- Out of hospital care: £303.4m
- PCT support £25.1m

Cambridgeshire PCT overall has a lower than average level of spend on healthcare compared to the national average. Table 15 suggests that after weighting the population to take account of factors such as age and socio-economic position, Cambridgeshire's spend per head of population is about 4% below that of England as a whole. The table also shows the level of spending in four of the biggest health service categories

Table 15: Health spending per head of weighted population for Cambridgeshire and England, 2008/09

Category	Cambridgeshire	England	Difference
Total spending	£1476	£1531	-4%
- Cancers and tumours	£104	£95	+9%
- Mental health	£142	£191	-26%
- Circulatory	£139	£130	+7%
- Primary care	£161	£145	+11%

Source: APHO, YHPHO and Department of Health. 'Spend and outcome factsheet 2008/09 – Cambridge PCT'.

Chapter 5 – key implications for the Proposed Development:

- Cambridge has a wide range of accessible health services from primary care practices to national centres of excellence in hospital care
- There is no urgent care service providing an alternative to general practitioner or accident and emergency services
- Student health services are provided by general practice rather than by a specific University health service
- Average health spend per head of population is slightly lower than the national figure

6 Characteristics of the new population

6.1 Dwellings

The Proposed Development includes 3,000 dwellings on the Application Site, with half of them for University key workers. This section of the report assumes that on completion of the Proposed Development 3,000 dwellings would be built and that they would house a total of 6,490 people (consistent with the socio- economic assessment). An additional 100 people would occupy 'senior living' accommodation and this has been added into the estimated population aged 75+ in this section.

At 2014 it is assumed that there will be between 150-300 market housing units and 150 to 550 key worker housing units resulting in a population of between 420 and 1,270 people. Up to 100 people could occupy the senior living accommodation depending on whether this comes forward in Phase 1.

The age structure of the population is a key factor in estimating healthcare requirements. New developments tend to attract a younger population than average, and the focus on University key workers will reinforce this. The fact that the population of the key worker housing would be constantly renewing itself would also mean that the population of the Proposed Development would remain relatively youthful. For this health needs assessment we have started with an illustrative population age structure for a new development calculated by Cambridgeshire County Council. This has then been amended or supplemented in the following ways.

a) Numbers of school age children are as per the socio-economic assessment and methodology agreed with Cambridgeshire County Council

b) The numbers of adults (19+) in the market housing have been calculated using the proportions used in the Cambridgeshire CC new development illustration

c) The numbers of adults (19+) in the key worker housing have been calculated as in b) above but with age-group weightings which produce an even younger population for the reasons outlined above

d) Numbers for specific senior living accommodation and student accommodation have been added where appropriate.

These have been used to show the new Proposed Development population at 2014 and 2026 by age group in Table 17A and 16B. The table excludes the planned student accommodation, which is outlined separately in Section 6.2.

Table 16A: Estimated age composition of the new Proposed Development population (excluding students), 2014

Age Group	Market	Key worker	Senior	Total
0-3	7-28	17-47	0	**24-75**
4-10	11-44	14-38	0	**25-82**
11-15	8-30	3-7	0	**11-37**
16-18	3-12	2-6	0	**5-18**
19-24	13-50	5-14	0	**18-64**
25-34	27-106	136-361	0	**163-467**
35-44	20-80	102-273	0	**122-353**
45-54	11-45	19-51	0	**30-96**
55-64	7-28	3-8	0	**10-36**
65-74	5-19	2-6	0	**7-25**
75-84	2-10	1-3	0-79	**3-92**
85+	1-2	0-1	0-21	**1-24**
Total	**115-455**	**305-815**	**0-100**	**420-1370**

Table 17B: Estimated age composition of the new Proposed Development population (excluding students), 2026

Age Group	Market	Key worker	Senior	Total
0-3	174	225	-	**399**
4-10	278	188	-	**466**
11-15	191	46	-	**237**
16-18	76	37	-	**113**
19-24	380	55	-	**435**
25-34	811	1388	-	**2199**
35-44	612	1050	-	**1662**
45-54	343	196	-	**539**
55-64	215	31	-	**246**
65-74	145	21	-	**166**
75-84	73	10	79	**162**
85+	18	3	21	**42**
Total	**3240**	**3250**	**100**	**6590**

Source: Derived from sources described above.

The Cambridgeshire JSNA includes projections for future populations, showing not only overall growth but the way in which the whole population is likely to grow older in years to come (22). For example the Cambridge City population aged 65 and over is projected to rise from 11.9% in 2008 to 13.3% in 2021, and a bigger increase (from 16.3% to 23.8%) is projected for South Cambridgeshire over the same period. However development sites may behave differently to the surrounding area, having had different populations and circumstances in the first place. As noted above the fact that the population of the key worker housing would be constantly renewing itself would mean that the population of the Proposed Development would remain relatively youthful.

6.2 Student accommodation

The University of Cambridge has some 17,600 full-time equivalent students (Source University of Cambridge Facts and Figures for 2008/09, January 2010). Of these about two thirds (11,815) are undergraduates. Overseas students make up 10.6% of the undergraduate body with the remainder being home or European community students.

Additional provision for 2000 student bed places is to be provided by 2026. At 2014 up to 300 student bed places are anticipated to be provided. These student bed places would add a very specific population to the Application Site. For the purposes of this HINA it is understood that the population will be largely of postgraduates and would thus be mainly in their twenties. Some of the issues that can relate to student health are outlined in the next chapter.

6.3 Socio-Economic Characteristics

For the purpose of estimating health care requirements later, the wider socio-economic characteristics of the new population are held to be similar to that of the existing Cambridge City population to act as a benchmark. Two key features of Cambridge – less socially deprived than average and with a relatively ethnically diverse population - would seem appropriate given that the University sector is a key player in housing occupancy in the Proposed Development. A large percentage of the population will be employed by or be a student of the University of Cambridge. The Proposed Development has been designed with the following priorities in mind:

- Produce a scheme with a unique, outstanding University character, which blends with other uses across the Application Site;
- Use best principles and features of the University in the design and use of the University and student accommodation;
- Provide a mixed-use extension of the City with an urban rather than suburban grain;
- Apply high quality design principles that do not distinguish between University and market accommodation;
- Provide for and encourage a strong sense of community, reinforced through local facilities (including on-site sports facilities) and creation of place;
- Provide extensive, high quality landscaping with high quality urban green spaces; and
- A low carbon, sustainable development that gives priority to cycling, walking and public transport and facilitates easy access to the City and with people living and working locally.

The population should be expected, therefore, to have a sense of belonging (through work, social networks and the sense of place created by the Proposed Development).

Chapter 6 – key implications for the Proposed Development:

- There would be between 420 and 1,270 people living in dwellings, up to 100 residents living in 'senior living' accommodation (depending on whether this comes forward in Phase 1) and up to 300 students, making a population of between 650 and 2,205 in total by 2014.
- There would be an estimated 6,490 people living in dwellings, 100 residents living in 'senior living' accommodation and 2,000 students, making a population of 8,590 in total by 2026.
- The age structure of the new population has been calculated and is used later to help estimate healthcare requirements.
- The number of people in the older age groups has the potential to increase in future years but at a rate substantially lower than average, due to the particular characteristics and population profile arising from the Proposed Development.

7 Estimated health status

This chapter applies the health data outlined in Chapter 4 to the new Proposed Development population described in Chapter 6. It thus forms an estimated health profile of the new population including the numbers of people likely to have various health conditions. This sets the scene for the estimated health service requirements set out in Chapter 8. Again the population to be living in dwellings is handled differently to the population of the student accommodation. This is because they not only have different characteristics, but may also tend to use health services in a different way.

7.1 Dwellings

Table 17, Table 18 and Table 19 provide some key data on the potential health of the population living in the new dwellings as noted based on existing Cambridge City health indicators applied to the population age structure described in the previous chapter. They look at lifestyles, some key health events and the prevalence of some important long term health conditions, and show the actual numbers of people potentially affected rather than the rates.

Table 17: Illustrative numbers of people in Proposed Development at 2026 with key lifestyle factors affecting health

Lifestyle factor	Number of people At 2026
Adults who smoke	948
Binge drinking adults	1529
Healthy eating adults	2023
Physically active adults	609
Obese adults	943

Source: Derived from existing local rates applied to the new population taking broad age groups into account.

Note: Adults are defined in these indicators as people aged 16 years and over. More detailed technical information about the indicators can be found in the Indicators Guide at www.healthprofiles.info.

Table 18: Illustrative numbers of selected health events in the Proposed Development (annually)

Health event	Number at 2026
Births	92
Deaths under 75 years dues to heart disease and stroke	4
Deaths under 75 due to cancers	6
Road injuries and deaths	3

Source: Derived from existing local rates applied to the new population taking broad age groups into account. Figures for births assume a 50:50 split between females and males in the 15-44 population of the new development.

Table19: Illustrative numbers of people in the Proposed Development with selected long term health conditions

Condition	Number of people at 2026
Coronary heart disease	186
Chronic obstructive pulmonary disease	121
Hypertension	1201
Stroke	88
Diabetes	181

Source: Derived from existing local rates applied to the new population taking broad age groups into account. Figures are based on adults aged 16 years and over.

If data for Cambridge city outlined earlier in the report were to be applied to the total population of 6590 living in the dwellings at 2026 there would be about:

- 955 people with a limiting long term illness
- 25 people receiving disability benefits
- 1193 people aged 16-74 with some form of neurotic disorder. About 60% of these would have mixed anxiety and depression.

The figures above reflect the application of a Cambridge-wide multiplier to the anticipated population numbers on the Application Site. For the reasons outlined above this figure is considered to be a maximum, as the characteristics of the community and the 'higher' socio-economic profile than Cambridge City at the Proposed Development would result in a lesser effect.

There would thus be substantial numbers of people who are at risk of poor health or who have an existing health condition. However if the new population has a 'higher' socio-economic profile than Cambridge City (which is already higher than England as a whole) the above figures should be seen as a maximum and actual numbers would tend to be lower than these. The health profile of the population of the private dwellings will also vary over time, with a likely aging of the population generating greater levels of need as time progresses.

Data on health risks and medical problems needs to be supplemented with information about the views and feelings of people who live in new developments.

A recent survey by South Cambridgeshire District Council compared the views of people living in the Cambourne and Orchard Park developments with those who live in the district as a whole. Table 20 gives an overview of the results. Although people in the new developments rated their overall health as better than average (perhaps because of their younger age), other aspects such as community cohesion and perception of drunken behaviour and drug use suggest that the overall level of well being is not so good as the district as a whole. Again care needs to be taken, however, in drawing any conclusions from these indicators; the development of Cambourne includes social housing and a population of different characteristics to that at the Proposed Development.

Table 20: Comparison of community views in Cambourne and Orchard Park with South Cambridgeshire as a whole

Indicators where residents in new communities have 'better' scores than the district as a whole	Indicators where residents in new communities have 'worse' scores than the district as a whole
• People 'very well' or 'fairly well' informed about what to do in the event of a large-scale emergency • People who rate their health in general as very good or good • People who are treated with respect and consideration by local public services 'all' or 'most' of the time • People who agree the police and local public services seek people's views about anti-social behaviour and crime issues	• People who 'very' or 'fairly' strongly feel that they belong to their neighbourhood • People who perceive drunk or rowdy behaviour to be a problem in local area • People who perceive drug use or drug dealing to be a problem in local area • People who have participated in regular volunteering in last 12 months • People satisfied overall with local area • Anti-social behaviour • People who think older people receive the support they need to live independently • People who have taken part in a civic activity • People who agree they can influence decisions in their locality

Source: NHS Cambridgeshire

There is anecdotal evidence from local GPs that the growing number of newcomers to the Cambridge area bring additional health needs. There are more people who are isolated, with no family support or community networks, and who rely on health services to a greater extent. There are also reported to be a growing number of children with complex needs. Again while people moving to the Proposed Development may not have family support if moving from outside of Cambridge there should not be the sense of isolation given a large percentage of the population will be employed by the University of Cambridge and will have that affiliation. A sense of belonging should also be created through the social networks and the sense of place that will be created by the Proposed Development.

In previous developments in Cambridgeshire the population moving into new developments has been found to be younger and to have a relatively high proportion of professional couples (for example Cambourne). The health needs of the new populations have changed over time. Services for maternal and child health are required as the couples begin to start families. Mental health issues are also important for young mothers. Poor mental health and post-natal depression can be addressed by ensuring good social networks exist from the outset thereby avoiding the situation where people moving to a new development typically tend to have few acquaintances and so social support networks are more thinly spread.

The build time for large residential developments can be phased over 10 years so careful construction management practices will be adopted to ensure that early settlers will not experience noise and dust from construction work.

It is also important to ensure that support facilities are incorporated in early phases of the development, given that difficult access to food has been noted on other large scale new developments, as the larger retail outlets were waiting until there was an adequate population before opening premises on site. In the case of the Proposed Development the basic structure of the development and the construction of the central physical and social infrastructure of the new community is expected to be completed by the end of Phase 1.

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7.2 Student accommodation

There is relatively little research data or statistical information about student health. Young people are generally relatively low users of NHS services and students will often have a broadly similar health experience to many other people of their age group. Their socio-economic status might suggest relatively low levels of need in general, but there are some key issues that the Department of Health and other sources identify as being of particular concern. These include:

- Mental health
- Sexual health
- Alcohol
- Drugs

- Smoking
- Diet and physical activity

Mental health problems are the biggest single category of spending in the NHS. Students appear to report a greater prevalence of common mental health problems such as anxiety and depression than other people in their age group (24). Factors such as relationship problems, lack of family support, financial worries, academic performance problems and alcohol and drug issues are important. A smaller number experience more major conditions such as schizophrenia, bipolar disorder or eating disorders and will require specialist support.

Sexual health problems are more common amongst young people and include sexually transmitted infections and unplanned pregnancy. The most common STI amongst young people is Chlamydia which often goes undetected for some time. In Cambridgeshire there was a rate of 1,415 cases of Chlamydia detected per 100,000 people aged 15-24 in 2009, which was about two thirds of the national average (source: Health Protection Agency).

Whilst alcohol use appears to be a normal part of student life, excessive drinking is associated with a wide range of problems including accidental injury, violent crime, and many short term and longer terms risks to health. The Cambridge health profile outlined earlier would suggest that the city has a substantial alcohol problem. The level of binge drinking in Cambridge is estimated to be some 39% above the national average and the rate of hospital admissions due to alcohol is 14% higher than England.

Almost half of people aged 16-24 years have tried drugs at least once (Source: NHS Choices). This is most commonly cannabis but a smaller minority use Class A drugs such as cocaine or heroin which can have a devastating effect on the individual and those around them. There is also growing concern about the possible effects of 'legal highs'.

Levels of smoking are at their highest in the 20-24 year old age group (at 30% of males and 33% of females in 2008 (source: NHS Information Centre Smoking Statistics). There is generally a strong social class gradient and smoking prevalence is lower in groups with higher socio-economic status. Some students start smoking when living away from home and the various pressures experienced as a student can be influential.

Finally, low levels of exercise and an unhealthy diet can combine to pose serious risks to health. Although awareness is rising, there can be concerns about issues such as lack of cooking skills, time, and the cost of sports facilities. A survey among students at Leeds found that about 80% were at least a little concerned about their lack of physical activity or healthy eating (source: Leeds PCT 'Leeds student heath needs assessment' Leeds PCT 2006).

As young adults, students would be expected to have relatively low levels of health need compared to many other age groups. Their socio-economic status would also suggest a generally good health status. However as described above students are more prone to some health problems and they may also have less family and other practical support than others in their age group. There are also differences between undergraduate and post graduate students, with the latter more likely to be international students (some 37% of postgraduates at Cambridge are from outside Britain and the EU, compared to 11% of undergraduates – Source University of Cambridge Facts and Figures January

2010). Local general practitioners report that overseas postgraduate students are often accompanied by spouses and children, who may have greater needs than local residents and tend to be less aware of local health services and how to access them. There is also a higher turnover of postgraduate students, with shorter courses and high volumes of work involved in registration on local NHS systems.

Some GP practices that have large numbers of students have collected data on consultation rates within their surgeries. The practice populations are relatively young and in general less socially deprived than the national average. This would suggest that levels of health need would be low compared to England as a whole and this is reflected in the level of resources allocated according to the national formula. However the practices found that actual consultation rates were substantially higher than expected rates, leading to the conclusion that students use primary care to a greater extent than others in their age groups. The consultation rates varied between practices and it is important to note that there can be differences in the way that practice-level activity is recorded across the country. Nevertheless the key message is that students are not necessarily low users of primary care and indeed for some types of primary care the opposite may be true.

Chapter 7 – key implications for the Proposed Development:

- the Proposed Development will have characteristics which differ from those typically found on new residential developments.
- Although people in the Proposed Development will be likely to be more healthy than the national average there are also likely to be health problems or lifestyle risks based on existing risk factors for Cambridge. For example using the Cambridge-City multipliers suggest that there could be about 943 obese adults and 1529 people who binge drink on a regular basis.
- Although students will tend to be younger and healthier than the population average there are some health issues that are particularly important and students are not necessarily low users of primary care and for some services may be higher.

8 Estimated health care requirements

8.1 Dwellings

The majority of healthcare used is in primary care and the cornerstone of this sector is the GP practice. This chapter begins by making estimates of the demands on general practitioner services that may arise from the new population in the Proposed Development. As before, the assumptions about the age structure of the population living in the Proposed Development will have implications for services.

Primary care consultation rates are not routinely available for every GP practice but an annual national survey (25) provides detailed age and sex specific data that can be used for planning purposes. Table 21A and B shows the results of applying national GP practice consultation rates to the new population in the Proposed Development (including senior living but excluding students) at 2014 and 2026 respectively.

Table 21A: Estimated number of GP practice consultations per annum arising from the Proposed Development, excluding students, 2014.

Population group	Average consultations per person per annum*	Expected consultations in the Proposed Development population
0-4 years	7.6	213-661
5-14	2.5	75-250
15-24	4.2	105-374
25-34	5.2	848-2428
35-44	5.0	610-1765
45-54	5.2	156-499
55-64	6.3	63-227
65-74	8.8	62-220
75-84	11.8	35-1086
85+	13.3	13-39
Total		2180-7829

Table 21B: Estimated number of GP practice consultations per annum arising from the Proposed Development, excluding students, 2026.

Population group	Average consultations per person per annum*	Expected consultations in the Proposed Development population
0-4 years	7.6	3539
5-14	2.5	1497
15-24	4.2	2157
25-34	5.2	11448
35-44	5.0	8278
45-54	5.2	2826
55-64	6.3	1556
65-74	8.8	1466
75-84	11.8	1906
85+	13.3	546
Total	-	35,218

*Note: The source data on rates are for England as a whole and relate to small (5 year) age bands.
Consultation rates for this exercise have been derived by calculating weighted averages of the national age/sex specific rates.
Source: Calculated from the population data in chapter 6 above and national primary care consultation rates.

The population of between 420 and 1370 people in 2014 would thus generate about 2,200-7,800 general practice consultations and the population of 6,590 people in 2026 would generate about 35,200 general practice consultations. However these consultations are not all with the GP and are not all in the surgery. Table 22 and Table 23 provide estimates for the type of workload that may be generated by the Proposed Development population, again based on national survey data. The second table refers to consultations with the general practitioner only (i.e. not with nursing and other staff). It is important to note that specific patterns of utilisation may change in future as different models of care come into place.

Table 22: Breakdown of estimated general practice consultations by professional group

	2014		2026	
Professional group	Percentage of consultations	Consultations	Percentage of consultations	Consultations
GP	62.2%	1356-4870	62.2%	21,905
Nurse	34.3%	748-2685	34.3%	12,080
Other	3.5%	76-274	3.5%	1,233
Total	100.0%	2180-7829	100.0%	35,218

Source: Calculated from the population data in Chapter 6 and national primary care consultation rates.

Table23: Breakdown of estimated General Practitioner consultations by location

	2014		2026	
Location	**Percentage of GP consultations**	**Consultations**	**Percentage of GP consultations**	**Consultations**
Surgery	81.8%	1109-3984	81.8%	17,918
Telephone	11.8%	160-575	11.8%	2,585
Visit	3.5%	47-170	3.5%	767
Other	2.9%	39-141	2.9%	635
Total	100.0%	1356-4870	100.0%	21,905

Source: Calculated from the population data in chapter 6 above and national primary care consultation rates.

The current population of Cambridge City generated some 29,238 hospital admissions in 2008/09 of which 9,469 were emergencies and 11,0174 were day cases (source: HESonline). The average length of stay for those patients admitted overnight was 6.4 days.

As a general guide the population of the new development at 2026 is equivalent to about 5.4% of the Cambridge City population and 0.3% to 1.0% of the Cambridge City population at 2014. As an illustration, this would appear to suggest that at 2026 the new dwellings would generate approximately 1,580 hospital admissions per annum including 510 emergencies if similar overall rates applied and 80 to 300 admissions including 25 to 97 emergencies at 2014. However, for the reasons explained in Chapter 4 of this report, given the unique age profile and socio-economic profile of the occupants, the pattern is likely to be different to this general average.

The potential for people in new developments to have different healthcare requirements has been illustrated by some local work to assess the impact of the Cambourne development in 2005. Some of the key findings were that:

- By June 2005 over 95% of residents were registered with a local GP
- Residents consulted a GP an average of 3.8 times a year and a practice nurse 0.8 times year
- Disease prevalence was lower than expected
- There were relatively small numbers of hospital admissions

(source: NHS Cambridgeshire)

8.2 Student accommodation

Health issues associated with the student population were outlined in Chapter 7. Students will require access to the range of services used by the population as a whole but with a particular focus on issues such as:

- mental health
- sexual health and
- substance misuse

Primary care utilisation at the rate of 4.7 consultations per annum (average of the 15-24 and 25-34 year old age groups) which would generate a workload of 9,400 consultations each year in total in 2026 and 0 to 1410 consultations in 2014. This is based on a working assumption that a generally healthy profile is balanced by higher needs in some specific areas as highlighted above. It would include general practitioner, nurse and telephone consultations. While there would be some additional workload associated with registering new students each year, this may be balanced by a reduced workload during times of the year when most students are away from Cambridge. This estimate should be seen as a broad guide and plans will need to be flexible depending on the nature of the student population to be served.

8.3 Overall requirements

The overall requirement for primary care services is the total of the needs generated by the dwellings and by the student accommodation. The former includes some key worker housing which is likely to have a relative high turnover and a young population. The total primary care consultations for the dwellings at 2026 are estimated at 35,200 per annum. When the 9,400 student consultations are added the total number of primary care consultations at 2026 is 44,600. This is 5.2 per head of population, compared to a national average rate of 5.5. The socio-economic profile of the population and evidence from developments such as Cambourne would suggest a further lowering of likely need, but this might be partly counterbalanced by other factors such as the relative isolation and lack of family support structures in new developments.

The following estimated health care requirements are therefore based on two scenarios; national average rates and a reduced rate of 90% of the average to take account of the age and other factors mentioned above. They are derived from current national levels of provision and are subject to change according to changes in national policy and in the actual demographics of the population.

Table 24A: Summary of estimated primary care service requirements arising from the new population at 2014

Service requirement	Estimate based on national average provision	Estimate based on 'lower than average' need
WTE general practitioner providers (excluding trainees etc)	0.2-0.8	0.2-0.8
Dentists	0.2-0.7	0.2-0.6
Optometrists and ophthalmic medical practitioners	0.1-0.3	0.1-0.3
Community pharmacies	0.1-0.3	0.1-0.3

Table 24B: Summary of estimated primary care service requirements arising from the new population at 2026

Service requirement	Estimate based on national average provision	Estimate based on 'lower than average' need
WTE general practitioner providers (excluding trainees etc)	4.4	4.0
Dentists	3.7	3.3
Optometrists and ophthalmic medical practitioners	1.7	1.5
Community pharmacies	1.7	1.5

Source of data: NHS Information Centre (Key statistics for England 2009: 26,245 GP providers, 22,003 dentists with NHS activity, 10,023 optometrists and ophthalmic medical practitioners, 10,475 community pharmacies in contract with PCTs, England population 51.5 million)

Primary care is the cornerstone of the NHS and we estimate that there will be a need for initial primary care provision of a minimum of 4 general practitioners together with related primary care and community health services. This need may increase as primary care assumes a greater role in healthcare. It would therefore be prudent to plan for a longer term capacity of up to 5 general practitioners and related services. The range of 4 to 5 general practitioners takes into account the fact that the relatively young and healthy population in this Proposed Development may to some extent be counterbalanced by a high population turnover and the increasing role of primary care. Taking these factors into account, the figure of 5 general practitioners is considered to be a maximum future requirement as the characteristics of the community at the Proposed Development may result in a lesser effect.

Another factor that might increase future need for primary care services is the strategic plan of the Primary Care Trust which should involve a substantial shift in services from hospitals into the community. It can be expected that this strategic direction will be continued in future years by new GP Commissioning Consortia. The implications of this for specific populations are as yet unclear but there is likely to be a requirement for additional primary care, outpatients and diagnostic services in various community locations. Future plans will need to take this into account. On the other hand hospital capacity is likely to be freed up and may absorb some additional demand for hospital admissions generated by the urban extension.

9 Health effects

9.1 Approach

The brief which describes the project (26) was reviewed against criteria from the NHS Healthy Urban Development's guidance document *Watch out for health* (27) which is aimed specifically at improving health through the planning process. South Cambridgeshire DC cite this HUDU document in their draft SPD on Health Impact Assessment (21).

Table 25 below summarises the findings from the matrix in Table 26. The factors which may affect population health and wellbeing are shown in the left hand column. Table 26 shows a high-level appraisal for construction and operation phases. We are aware that this simplifies a complex process that will be delivered in stages over a period of approximately 20 years.

Table 25: Overview for Proposed Development

Determinant of health	Construction	Operation
healthy lifestyles [including opportunities for physical activity]	N	✓
housing quality	N	✓
access to work	N/✓	✓
accessibility and transport	N	✓
food access	N	✓
crime reduction and community safety	N	✓
air quality and neighbourhood amenity	N	N/✓
social cohesion and social capital	N	✓
public services	N	✓
climate change	N	N/✓

Headings adapted from NHS HUDU *Watch out for health* (27)

Key:

- ✓ the effect of the Proposed Development on population health and on health inequalities is expected to be broadly positive
- N the effect of the Proposed Development on population health and on health inequalities is likely to be neutral or of negligible effect
- X the effect of the Proposed Development on population health and on health inequalities is expected to be broadly adverse for particular population groups
- ✓X the effect of the Proposed Development on population health and on health inequalities is expected to be positive for some population groups but broadly adverse for others
- ? the effect of the Proposed Development on population health and on health inequalities is unclear

In Table 26 below the factors that affect population health are listed under the *Health determinant* column. The next column *'Is it relevant?'* determines whether the Proposed Development includes proposals which will affect factors in the health determinant column. The next column considers whether this factor is important for health and health inequalities for those people who will live in the Proposed Development. Principles for healthy development and observations about potential effects are described in the final column.

9.2 Findings

The findings of this assessment are based on data contained in the environmental impact assessment and are at a high level. As appropriate, overall conclusions are made at the end of the report.

There is inevitably uncertainty associated with the construction of a large development and with people moving into the Proposed Development as it progresses. Construction sites can be well managed but construction activity potentially can be noisy, messy and disruptive to established patterns of living. It is appropriate to anticipate inconvenience and stress for different population groups at different times over the construction period. Good communication between the residents and the different construction teams will be of paramount importance and will be an integral part of the CEMP. The results in the construction column reflect the fact that construction will be undertaken in accordance with a Construction Environment Management Plan which will ensure that the construction is undertaken with negligible effects.

This assessment suggests that it will be important to consider the health effects of the construction phases for people moving into the Proposed Development. This encompasses access to health services but also issues such as access to healthy food, to social networks and the ability to walk and cycle to and around the Proposed Development. The projected age profile of the new population suggests that it is younger women and young children who may be particularly vulnerable to adverse effects during these phases. The accompanying EIA addresses matters concerning construction and traffic, and the potential effects upon air quality and noise for both existing and future resident populations.

The results in the operational column reflect the aspirational and ambitious nature of the development. The determinants of health are expected to show improvement across the board. We consider effects on health inequalities where appropriate.

Many of the effects, whether beneficial or adverse, are likely to be on psychosocial, or mental, health and on people's state of wellbeing. Self-rated health is an important and accurate predictor of people's state of health.

The environmental limit values that will guide the Proposed Development, and which are set out in the Environmental Statement, should ensure that health is protected and that adverse physical effects are minimised. Further HIA assessment work will be undertaken as the scheme progresses, the specification of which will be agreed at the appropriate time.

Table 26: Health effects matrix

Health determinant	Proposed Development proposals	Healthy development principles
Healthy Lifestyles **Construction** / **Operation** N / ✓	• The Proposed Development parameters plans ensure a linked network of primary open spaces including sports facilities and children's play provision. and will open up a considerable amount of open space for public use not currently accessible to the wider public offering the opportunity for promoting walking and cycling and taking part in sport and physical activity. • A primary school is located at the heart of the Proposed Development, promoting accessibility by walking and cycling. • There is the opportunity for linked trips with a local/neighbourhood centre which is co-located adjacent to the proposed primary school site. This will include a food supermarket and other retail shops.	• The promotion of healthy lifestyles is of great importance to the vitality of the Proposed Development. The 2010 White Paper on public health (16) stresses the importance of providing a positive context for health while also emphasising the role, and responsibility, that individuals have in determining their own health. • In terms of the HUDU criteria the Proposed Development provides the potential to maintain and improve the health and well-being of the local population via facilitating an increase in rates of physical activity such as walking and cycling. • The health benefits in this instance refer to the prevention or management of coronary heart disease, diabetes, some cancers and obesity. It can help to improve mental health. It can also help older people to maintain independent lives (28) • The promotion of walking and walkable neighbourhoods offers the opportunity to promote social cohesion, interactions between residents of the neighbourhoods, thereby reducing rates of social isolation. This is particularly important in the case of new communities. • The positive health benefits of promoting healthy lifestyles such as increased rates of walking and cycling will, however, be dependent upon additional factors such as the availability, reliability and affordability of public transport; the levels of crime and the fear of crime within the area; and the way in which the open spaces and the green spaces are managed. • The following environmental characteristics have been found to be associated with patterns of physical activity: factors rated positively are public transport and proximity to shops, whereas traffic volume, traffic noise and road safety for cyclists are most likely to be rated negatively (29). • The overall net effect on this health determinant at the construction stage is likely to be neutral and positive for the operational phase.

Health determinant	Proposed Development proposals	Healthy development principles
Housing Quality **Construction** / **Operation** N / ✓	• The Proposed Development will offer a variety of dwellings, incorporating open market housing and key worker housing. A variety of dwelling sizes is also to be promoted within the 3,000 new dwellings proposed, comprising 1,500 key worker units and 1,500 private residential units. 2,000 student bedspaces are also proposed. • 6,500 sq.m. of C2 Senior Living provision is also included within the Proposed Development. • Details of the exact design and mix of dwellings will be established at the reserved matters stage. • The residential elements of the Proposed Development are broken down into four main neighbourhoods to reduce the scale of provision into identifiable and distinct communities, minimising through traffic while maximising walking and cycling access to the local centre, school and major open spaces. • Two clusters of collegiate student housing are located in response to likely demand and phasing.	• An appropriate level of residential accommodation with a distinctive character is required to create a successful and identifiable neighbourhood. • A mix of tenures and types of housing has the potential to attract diverse social groups with in turn can support a richer mix of uses in a local centre and a more vibrant local community. • Positive effect expected. • Tenure blind housing design may avoid visual inequalities between socio-economic groups. These perceived inequalities may have a psychological benefit by reducing the anxiety that may exist between groups. However, tenure blind housing which is not accompanied by appropriate support will do nothing to reduce the actual health inequalities that are experienced by population groups who are deprived and of low socio-economic status (SES). • The overall net effect on this health determinant at the construction stage is likely to be neutral and positive for the operational phase.

Health determinant	Proposed Development proposals	Healthy development principles
Access to Work **Construction** / **Operation** N/✓ / ✓	• Up to 40,000 sq.m of commercial employment floorspace (Class B1(b)) is proposed within the Proposed Development. • In addition, up to 60,000 sq.m of academic employment floorspace is proposed (Class D1/sui generis). • Additional job opportunities will result from the proposed retail floorspace, including a 2,000 sq.m (net) supermarket. • The Environmental Statement concludes that the total employment effects at the local level would be between 135 - 470 additional local jobs by 2014, rising to 4,350 local jobs by scheme Build Out in 2026.	• Employment is one of the key determinants of health: as such the employment opportunities in the Proposed Development are important. Employment and socio-economic status are the main drivers of social gradients in physical and mental health and mortality and there is a strong association between worklessness and poor health (31). • The extent to which the employment proposals within the plan will promote social inclusion and mobility will be dependent upon the type of employment that is available to unemployed groups within the area. Will the employment be sustainable living wage employment? . • Attention will need to be given to whether local residents will be able to access the construction jobs generated by the Proposed Development. Encouragement should be given to new business retailers to recruit locally, offering skill development and training programmes for unemployed and unskilled individuals. • Local small businesses are important in terms of creating a sense of place within a community and increasing the local multiplier effect whereby economic resources stay within the community. The parameter plans for the Proposed Development allow for a flexible approach towards the delivery of retail and associated uses. • The overall net effect on this health determinant at the construction stage is likely to be neutral and positive for the operational phase.
Accessibility and transport **Construction** / **Operation** N / ✓	• The Proposed Development incorporates a mix of uses, including houses, employment, shops and community facilities, which will support more sustainable travel choices and reduce the need to travel outside the site. • The Proposed Development has been designed to improve pedestrian and cycle movement within the Application Site, accessibility to public transport and limit residential and on-street parking, across the site and externally, with the	• Enhancing the accessibility of public services to residents, i.e., enabling people to walk to essential services such as GP surgeries, leisure and retail facilities will reduce dependence on private transport, increase physical activity and promote social inclusion. This is particularly important for those groups who are isolated due to lack of car ownership. • The levels of use, the levels of ownership and the mode of accommodation of cars are all important (32). Parked cars can obstruct vision and increase social severance making it less attractive to be a pedestrian. A high density of curb parking is associated with increased risk of injury for children (33). • The effect of traffic generation from the Proposed Development upon existing and future populations has been taken into account in the accompanying Environmental Statement. • Establish a Framework Travel Plan to provide a core framework of potential measures

Health determinant	Proposed Development proposals	Healthy development principles
	principal intention of offering residents and visitors viable alternatives to using the private motorcars. • The Proposed Development has been structured into a number of neighbourhoods, designed to improve walking and cycling routes and linkages and to ensure ease of access to the local centre at the heart of the development. • The proposed access strategy allows for both orbital and radial public transport priority routes, enhancing connections both across the outskirts of Cambridge and also providing links to areas such as the City Centre, Addenbrooke's Hospital and the railway station. Quality on site bus stops and shelters will be provided throughout the Application Site, enabled with real time information displays. The bus services will be well-advertised, frequent and sustainable. • The two main vehicular access points to the Proposed Development have been located as near as possible to the M11/A14, to remove as many vehicular movements as early as possible and so minimising the effect on Huntingdon Road and Madingley Road.	that can be implemented to encourage more sustainable and healthier modes of travel. • Ensure that public transport infrastructure is in place at an appropriate stage so that residents in the early phases of homes are not dependent on private transport. • Ensure that public transport is reliable and affordable. • The overall net effect on this health determinant at the construction stage is likely to be neutral and positive for the operational phase.

Health determinant	Proposed Development proposals	Healthy development principles
Food Access **Construction** / **Operation** N / ✓	• Provision for a 2,000 (net) sq.m supermarket have been incorporated as an integral component of the mixed use local centre, with a further 1,050sq.m of other retail and 1,350 sq.m of other Class A uses (encompassing financial and professional services, restaurants and cafes, drinking establishments and hot food takeaways). • The Proposed Development makes allowance for productive green space, in the form of allotments. Allotment gardens will be established to provide fresh produce and recreation for local residents.	• Communities need good access to affordable food: dietary change must be focused on awareness, affordability and acceptability (34). • Promoting food access is integral to delivering policies aimed at creating healthy lifestyles. This will be tempered by the cost of locally available foodstuffs. • The promotion of healthy lifestyles can be complemented via the provision of nutritious, safe and affordable foodstuffs. Cost and availability are important influences in the adoption of healthy eating particularly amongst deprived communities. • The provision of allotments is a positive move. • The overall net effect on this health determinant at the construction stage is likely to be negligible and positive for the operational phase.

Health determinant	Proposed Development proposals	Healthy development principles
Crime Reduction and Community Safety **Construction** / **Operation** N / ✓	• Details will emerge through Design Guidelines, to be approved at the Reserved Matters stage and will have regard to Secure By Design principles.	• The reduction of actual crime and fear of crime is an important cross cutting social determinant of health and one that may affect the potential of the Proposed Development to realise certain social and health benefits. This is particularly the case in terms of promoting health lifestyles via increased physical exercise, and increasing interaction and social capital between individuals within the community in the urban space. • A long-term strategy for the Proposed Development in terms of maintaining a sense of safety and community cohesion is likely to prevent signs of incivilities developing such as rundown buildings, graffiti, broken windows and general signs of decay. These are linked to an increased fear of crime and low social capital. • It is likely that the Proposed Development will have a beneficial effect but it is also important to note that linking community safety with the design of the built environment can shift the focus away from the social and political causes of crime (35). It is doubtful whether environmental changes can reduce incidents that take place in the private realm, i.e., attacks on women in the home (35). Designing out fear is underpinned by the assumption that most crime is opportunistic and offenders respond in a mechanistic way to environmental stimuli (36). • The overall net effect on this health determinant at the construction stage is likely to be neutral and positive for the operational phase.

Health determinant	Proposed Development proposals	Healthy development principles
Neighbourhood Amenity **Construction** / **Operation** N / ✓	• Open space for the new community has been designed to be an intrinsic feature of the quality of the new neighbourhood, including parks, play areas, playing fields, allotments, water features and formal/informal open space. This is secured at the outline stage by the parameters.	• People who can view green spaces from their home also report higher levels of health, well-being and satisfaction with their neighbourhood (37). • A Swedish study found a significant negative relationship between access to small areas of green space such as private gardens and allotments, and self-reported experiences of stress, i.e. if people had access to even small areas of green space, then the number of self-reported cases of stress decreased. They also found a significant positive linear relationship between reported well-being and the level of access to green space and suggested that having a green space view was as significant as having access in relation to well-being.(38) • It is likely that the proposals will have a beneficial effect. • Open space strategies often focus on form and appearance but strategies also should be in place to encourage use of the parks and open spaces (39). • In the proposed provision of open spaces such as parks it is necessary to link these proposals with that of creating safe places, free from crime and the fear of crime. In order to facilitate the use of urban spaces and increase physical activity, the local population have to feel and realistically perceive that they are safe. This is particularly important in terms of increasing rates of physical activity but also encouraging everyday interactions between residents and therefore the social cohesiveness and social capital of the neighbourhood. • The overall net effect on this health determinant at the construction stage is likely to be neutral, and positive for the operational phase.

Health determinant	Proposed Development proposals	Healthy development principles
Air Quality **Construction** / **Operation** N / N/✓	• Establishing good construction management practices in order to prevent particulate pollution has been assessed within the ES as being readily achievable as an integral part of the Proposed Development. • The potential for traffic growth and traffic emissions has been assessed in the ES. The conclusion is reached that the effects would be small to imperceptible. The opportunity for people to walk to local amenities and facilities will reduce internal traffic movements and assist in reducing traffic emissions. • The Proposed Development would include plant to provide electricity and hot water by burning gas.	• In terms of health, air quality and levels of pollution are particularly pertinent for the elderly and young children. Children are particularly susceptible to dust inhalation effects. • Fine dust levels should be considered under PM_{10} and $PM_{2.5}$ national standard levels as there are potentially toxicological effects to inhaling dust of a size that penetrates deep into the lungs. • Demolition and construction dust should be minimised to avoid annoyance and negative effects on wellbeing. Prolonged dust deposition levels that equate to a deposition rate of 200mg/m^2/day or greater should be avoided. • The accompanying ES has undertaken an assessment of effect on Air Quality of the Scheme, its associated traffic and emissions from the energy centre effects, and concludes that future year baseline air quality is very likely to improve relative to current baseline conditions and that in 2014 and 2026, the effect of the completed scheme on local air quality would be negligible. • The overall net effect on this health determinant at the construction stage is likely to be neutral and positive for the operational phase to 2026.
Social Cohesion and Social Capital **Construction** / **Operation** N / ✓	• This is an important cross cutting social determinant of health and social inclusion. • A community centre (Class D1) is to be provided as part of the Proposed Development. • A new primary school is to be provided at the heart of the Proposed Development. • A primary health care facility is also to be provided within the Proposed Development.	• Social capital and cohesion within communities are associated with a variety of health outcomes ranging from all cause mortality, cardiovascular disease, sexually transmitted diseases and obesity. • The same factors that develop or improve cohesion in one community may reduce cohesion in other communities. For example the development of a new community should act to improve the quality of life for its residents. New developments need to ensure, however, that they do not have an adverse effect on the surrounding settlements: for example by detracting services and investment from the surrounding areas. • The overall net effect on this health determinant at the construction stage is likely to be neutral, and positive for the operational phase.

Health determinant	Proposed Development proposals	Healthy development principles
Public Services **Construction** / **Operation** N / ✓	• A new primary school is to be provided at the heart of the Proposed Development. • A primary health care facility is also to be provided within the Proposed Development.	• Link to above sections • Schools and the youth service have a role to play in generating a sense of cohesion amongst the youth population. Schools are an important context in which children interact and bond with their peer groups. The relationships formed within this context can then be supplemented, supported and strengthened by the wider local community through the provision of services that consider young people's particular needs. The needs of other demographic groups, such as the elderly and ethnic minorities, should also be accounted for and considered within the design of services for the new community. • The overall net effect on this health determinant at the construction stage is likely to be neutral and positive for the operational phase.

Health determinant	Proposed Development proposals	Healthy development principles
Climate Change **Construction** / **Operation** N / N/✓	• A review of sustainability considerations are addressed within the accompanying ES within Chapter 18. • Through developing the Proposed Development, there will be an increase in energy consumption resulting in an increase in CO_2 emissions per year. The local environment is deemed to have negligible sensitivity to this predicted level of change, resulting in a negligible effect. • Moreover there is a wider drive to reduce energy consumption and CO_2 emissions to mitigate the effect of climate change. Climate Change will act at a global scale, but may have direct consequences on the local environment. In this context, it is important for all sectors to reduce emissions. Therefore a number of mitigation measures are proposed as part of the Proposed Development which result in an overall direct CO_2 reduction of 47%, with further reductions likely through offset schemes. This means that the Proposed Development will contribute to reductions in global CO_2 emissions, which may help to limit the effects of climate change.	• Climate change will affect human health in different ways (40;41): environmental conditions will affect health for example through heatwaves or flooding; social conditions, for example the conditions in which people access employment, education, leisure etc, and the means by which they access them; and the health system itself for example through a need to deal with different diseases and/or a change in the prevalence of particular conditions, or the ability to deal with extreme events. • High levels of uncertainty but potentially large scale health effects: very important to address. • Long-term effects. Important to encourage and enable adaptation. • Recent reports indicate the role that green spaces within the built environment can have in enabling adaptation to extreme weather events such as heatwaves (42). • The overall net effect on this health determinant at the construction stage is likely to be neutral and positive for the operational phase.

10 Conclusions and recommendations

10.1 Conclusions

Cambridge has a wide range of accessible health services from primary care practices to national centres of excellence in hospital care. There is no urgent care service providing an alternative to general practitioner or accident and emergency services. Student health services are provided by general practice rather than by a specific University health service. Average health spend per head of population is slightly lower than the national figure

The new population of the Proposed Development of 8,590 is likely to be relatively young and healthy compared to the England and district average. While many will have health problems or lifestyle risks based on existing risk factors for Cambridge City the overall health status of the Proposed Development is likely to be better than that of the surrounding area.

Primary care is the cornerstone of the NHS and we estimate that there will be a need for initial primary care provision of a minimum of 4 general practitioners together with related primary care and community health services. This need is likely to increase as primary care assumes a greater role in healthcare and as some of the population ages. It would therefore be prudent to plan for a longer term capacity of up to 5 general practitioners and related services. The range of 4 to 5 general practitioners takes into account the fact that the relatively young and healthy population in this Proposed Development may to some extent be counterbalanced by a high population turnover and the increasing role of primary care. Taking these factors into account, the figure of 5 general practitioners is considered to be a maximum future requirement as the characteristics of the community at the Proposed Development may result in a lesser effect.

Another factor that might increase future need for primary care services is the strategic plan of the Primary Care Trust which should involve a substantial shift in services from hospitals into the community. It can be expected that this strategic direction will be continued in future years by new GP Commissioning Consortia. The implications of this for specific populations are as yet unclear but there is likely to be a requirement for additional primary care, outpatients and diagnostic services in various community locations. Future plans will need to take this into account. On the other hand hospital capacity is likely to be freed up and may absorb some additional demand for hospital admissions generated by the urban extension.

Among the distinguishing characteristics of the Proposed Development are the influx of new and generally young people to the area and the dedicated accommodation for University students. These will both bring specific health needs and key issues have been highlighted in the report.

10.2 Recommendations

Key recommendations arising from this health impact and needs assessment are as follows:

- There should be a planned provision of primary care space for up to 5 general practitioners and their associated teams.
- The actual level of provision would need to be phased in as the population grows, as set out in the accompanying Environmental Statement.
- Services should be flexible to cater for the healthcare requirements of the occupants of the Proposed Development and for the evolution of the health service provision with the ongoing structural reforms to the NHS.
- Use of health services should be monitored carefully by the PCT, using post coded patient data to establish utilisation rates for all key services.
- There should be a close dialogue with the Primary Care Trust to discuss the future pattern of health care in the Proposed Development bearing in mind the strategic shifts in services that are being planned.
- Further HIA work may be required as the scheme progresses, and the specification for any further work will need to be agreed at the appropriate time.

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12 Appendices

1: Quality assurance for HIA

The criteria in Table 27 are based upon the Review Package for HIA (1) that is cited in South Cambridgeshire's SPD for Health Impact Assessment (21).

Table 27: Quality assurance for HIA

Review area, categories and sub-categories		HIA
1	Context[2]	
1.1	Site description and policy framework	
1.1.1	The report should describe the physical characteristics[3] of the project[4] site and the surrounding area.	Section 2
1.1.2	The report should describe the way in which the project site and the surrounding area are currently used.[5]	Section 2
1.1.3	The report should describe the policy context and state whether the project accords with significant policies[6] that protect and promote wellbeing and public health and reduce health inequalities.	Section 3
1.2	Description of project	
1.2.1	The aims and objectives of the project should be stated and the final operational characteristics of the project should be described.[7]	Section 2
1.2.2	The estimated duration of the construction phase, operational phase and, where appropriate, decommissioning phase should be given.	Section 2
1.2.3	The relationship of the project with other proposals should be stated.	Cumulative impacts not assessed
1.3	Public health profile	
1.3.1	The public health profile should establish an information base from which requirements for health protection, health improvement and health services can be assessed.	Health protection in ES Health improvement and health services Sections 4-8
1.3.2	The profile should identify vulnerable population groups. The profile should describe, where possible, inequalities in health between population groups and should include the wider determinants of health[8].	Sections 4-8

[2] If the HIA *is prepared in conjunction with an Environmental Impact Assessment, or other studies, elements of this description may be shared with those other studies.*

[3] *The physical characteristics may include the location, design, size and an outline of the area of land take during the construction and operation phase. Presentation or reference to diagrams, plans or maps will be beneficial for this purpose. Graphical material should be easy to understand without having any knowledge about planning and design.*

[4] *The review package uses the term project to mean the execution of construction works or of other installations or schemes; or other interventions in the natural surroundings and landscape including those involving the extraction of mineral resources (43;44).*

[5] *Does the site description indicate whether the site and the surrounding area are used, either formally or informally, and if so who by?*

[6] The policies may be local, regional, national or international policies or they may be sector-specific.

[7] Has a do-nothing option and other alternatives to the project been described? Does the report also describe the primary advantages and disadvantages to health of the proposal and alternatives? It should be noted if no alternatives are being assessed.

[8] People's health is influenced by the conditions in which they live. Health determinants are the personal, social, cultural, economic and environmental factors that influence the health status of individuals or populations. These include, but are not limited to, factors such as income, employment, education, social support and housing.

Review area, categories and sub-categories		HIA
1.3.3	The information in the profile should be specific about the timescale, the geographic location and the population group being described and links should be made with the proposed project.[9]	Sections 4-8
2	Management	
2.1	Identification and prediction of health impacts	
2.1.1	The report should describe the screening and scoping stages of the HIA and the methods used in these stages.[10]	Section 1.2
2.1.2	A description of how the quantitative evidence was gathered and analysed (where appropriate) should be given and its relevance to the HIA justified.[11]	Section 1.2
2.1.3	A description of how the qualitative evidence was gathered and analysed (where appropriate) should be given and its relevance to the HIA justified.[10]	Section 1.2
2.2	Governance	
2.2.1	The governance process for the HIA should be described.[12]	Section 1.2
2.2.2	The terms of reference for the HIA should be available to the reader and the geographical, temporal and population scope of the HIA should be made explicit.	Not included
2.2.3	Any constraints in preparing the HIA should be explained.[13]	Section 1.2
2.3	Engagement	
2.3.1	The report should identify relevant stakeholder groups, including organisations responsible for protecting and promoting health and wellbeing that should be involved in the HIA.	Section 1.2
2.3.2	The report should identify vulnerable population groups which should be involved in the HIA.[14]	Section 1.2
2.3.3	The report should describe the engagement strategy for the HIA.[15]	Section 1.2
3	Assessment	
3.1	Description of health effects	
3.1.1	The potential health effects of the project, both beneficial and adverse, should be identified and presented in a systematic way.[16]	Section 9
3.1.1	The identification of potential health impacts should consider the wider determinants of health such as socio-economic, physical, and mental health factors.	Section 9
3.1.1	The causal pathway leading to health effects should be outlined along with an explanation of the underpinning evidence.[17]	Section 9

[9] Does the profile include consideration of the future profile of the population?

[10] Tools or checklists are methods mostly used to screen for potential health impacts. The scoping stage often includes *consultation, workshop, matrices, specific checklists, literature review, expert advisory panels, etc.* Sometimes the scope of the HIA is predetermined by the commissioner of the HIA. *Do the authors justify the use of particular methods?*

[11] Is the use of any statistical techniques adequately justified?

[12] *Was the* HIA *guided and scrutinised by a steering group? What was the membership of the steering group? Which organisation has final ownership of/accountability for the report and its findings? Was the commissioner's relationship to the HIA process including the development of findings and reporting of the HIA made explicit?*

[13] *This might include limitations of method or availability of evidence, for example time, resources, accessibility of data, non-availability/involvement of key informants and stakeholders. It might also describe any limitations in the scope of the* HIA*.*

[14] *Does the report describe how stakeholders were identified and whether key informants have been selected as representatives?*

[15] *Does the report describe how the stakeholder groups, key informants, other stakeholders and citizens who were involved were involved? There may be reasons for not engaging or consulting members of the public. If so, are these provided and adequately explained? Does the report explain the engagement methods, and their timing, e.g., were leaflets, meetings, interviews, etc. used and at what stage and for which stakeholder groups?*

[16] *Does the identification of impacts consider short-term, long-term (and are these timescales defined?), direct and indirect impacts on health and well-being? Does the identification of health impacts distinguish between the construction phase, the operational phase and where relevant the decommissioning phase?*

Review area, categories and sub-categories		HIA
3.2	Risk assessment	
3.2.2	The nature of the potential health effects should be detailed.[18]	N/A [see intro to section 9]
3.2.2	The findings of the assessment should be accompanied by a statement of the level of certainty or uncertainty attached to the predictions of health effects.	N/A [see intro to section 9]
3.2.2	The report should identify and justify the use of any standards and thresholds used to assess the significance of health impacts.	N/A [see intro to section 9]
3.3	Analysis of distribution of effects	
3.3.3	The affected populations should be explicitly identified.	N/A [see intro to section 9]
3.3.3	Inequalities in the distribution of predicted health impacts should be investigated and the effects of these inequalities should be stated. [19]	N/A [see intro to section 9]
3.3.3	Effects on health should be examined based on the population profile. [20]	N/A [see intro to section 9]
4.	Reporting	
4.1	Discussion of results	
4.1.1	The report should describe how the engagement undertaken has influenced the HIA, in terms of results, conclusions or approach taken.	N/A [see Section 1.2]
4.1.2	The report should state the effect on the health and wellbeing of the population of the option and any alternatives which have been considered.	N/A [see Section 1.2]
4.1.3	The report should justify any conclusions reached, particularly where some evidence has been afforded greater weight than others.	N/A [see Section 1.2]
4.2	Recommendations	
4.2.1	There should be a list of recommendations to facilitate the management of health effects and the enhancement of beneficial health effects.[21]	Section 10
4.2.2	The level of commitment of the project proponent to the recommendations and mitigation methods should be stated.	N/A [see Section 1.2]
4.2.3	There should be a plan for monitoring future health effects by relevant indicators and a suggested process for evaluation.	N/A [see Section 1.2]
4.3	Communication and layout	
4.3.1	Information should be logically arranged in sections or chapters and the whereabouts of important data should be signalled in a table of contents or index.	Completed
4.3.2	There should be a lay summary (executive summary) of the main findings and conclusions of the study. Technical terms, lists of data and detailed explanations of scientific reasoning should be avoided in this summary.[22]	Section 10

[17] *The potential health effects may be presented in diagrams, which show the causal pathways and changes in intermediate factors by which the project may affect population health, or may be descriptive.*

[18] Does the assessment consider the severity of impact/exposure (intensity, reversibility and impact on vulnerable population groups), the impact magnitude (number of people affected and duration of impact/exposure) and the importance (political and ethical)? Have the health impacts of each alternative been assessed? Sometimes the health impacts are ranked and prioritized before making recommendations, if so; have the criteria for prioritizing and ranking health impacts been given?

[19] How does the report define inequalities? Inequalities are found between social groups and can be measured in different ways e.g. by geography, social class or social position, population (ethnicity, gender, sexuality etc).

[20] It should be possible to determine whether effects are more prevalent in certain demographic or vulnerable groups.

[21] Do the *recommendations cover* the construction, operational and, where appropriate, decommissioning phases in the short, medium and long term (and are these timescales defined?). *Some HIAs include recommendations as a management plan and list the roles and responsibilities of stakeholders and provide a timetable for action. Do the recommendations link with the findings of other relevant studies for example, Environmental Impact Assessment?*

[22] *Does the summary cover all main issues discussed in the* HIA *report and contain at least a brief description of the project and the potentially affected population, a description of the most important positive and negative health effects and the project's impact on equality, an account of the main recommendations and mitigation measures to be undertaken by the developer and the main*

Review area, categories and sub-categories		HIA
4.3.3	All evidence and data sources should be clearly referenced.	Completed

outline of the action plan recommended to manage, and monitor the health effects and evaluate the HIA. Is a brief explanation of the methods by which data were obtained, and an indication of the certainty which can be placed in them included?