

APPENDIX E: DETAILED POLICY JUSTIFICATION: RESPONDING TO CLIMATE CHANGE AND MANAGING RESOURCES

Section Overview

- Climate Change

- Policy 9: Carbon Reduction, Community Energy Networks, Sustainable Design and Construction and Water Use;
- Policy 10: Allowable Solutions for zero carbon development;
- Policy 11: Renewable and Low Carbon Energy Generation;
- Policy 12: Energy Efficiency Improvements in Existing Dwellings;

- Water and Flooding

- Policy 13: Integrated water management and the water cycle;
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- Policy 17: Protection of Human Health from Noise and Vibration
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Introduction To Section: How Policies in This Section Will Deliver Sustainable Development

The Local Plan will seek to ensure that Cambridge develops in the most sustainable way possible. This means delivering our social and economic aspirations without compromising the environmental limits of Cambridge for current and future generations, so that Cambridge becomes a low carbon, water sensitive city with a thriving economy. For this to be achieved, a holistic approach to sustainable development and reducing the environmental impact of development should be embedded within all development proposals from the outset.

This section focuses on how the Local Plan will contribute to the achievement of sustainable development in terms of how the plan will address the challenge of mitigating and adapting to our changing climate as well as other resource management issues. Climate change mitigation focuses on designing new communities and buildings to be energy and resource efficient, utilising renewable and low carbon energy generation and promoting patterns of development that reduce the need to travel by less environmentally friendly modes of transport. Climate change adaptation focuses on ensuring that new developments and the wider community are adaptable to our changing climate. For Cambridge, this is likely to involve an increase in the urban heat island effect due to increasing temperatures and an increase in flooding, both from rivers and watercourses and from surface water flooding following periods of intense rainfall. Policies are included with the objective of making Cambridge a water sensitive city, where new developments

contribute to an overall flood risk reduction and help improve the quality of water bodies. This section also seeks to ensure that new development contributes to improvements in the environmental quality of Cambridge, including improvements to air quality, reduction in noise and better management of waste.

ISSUE: CLIMATE CHANGE AND SUSTAINABLE DESIGN AND CONSTRUCTION

Strategic Vision/Objective:

Vision:

Cambridge will be a pioneer in its approach to sustainable development and climate change, transitioning to a low and eventually zero carbon economy. Development will contribute to making Cambridge a water sensitive city, capable of adapting to our changing climate, making best use of energy, water and other natural resources, securing radical reductions in carbon emissions and minimising environmental impact.

Objectives:

- To ensure that a water sensitive urban design approach is taken in all development proposals so that they are appropriate in terms of flood risk and water body quality, see water as a valuable resource and have a positive impact on the River Cam and other water features;
- That Cambridge contributes fully to carbon reduction targets including; by design the principles of sustainable design and construction are integrated into development proposals and through supporting community energy projects.

POLICY:

Policy 9: Carbon Reduction, Community Energy Networks, Sustainable Design and Construction and Water Use

Developments will be permitted where it is demonstrated how the proposals meet the presumption in favour of sustainable development. This will include the integration of the principles of sustainable design and construction as far as is reasonable and proportionate to do so. Developers of major development, including redevelopment of existing floor space, should prepare a Sustainability Statement as part of the Design and Access Statement submitted with their planning application, outlining their approach to tackling the following issues:

- Adaptation to climate change;
- Carbon reduction;
- Water management;
- Site waste management; and
- Use of materials.

In order to ensure that the growth of Cambridge supports the achievement of national carbon reduction targets, and does not exacerbate Cambridge's severe water stress, all new development will be required to meet the following minimum standards of sustainable construction, carbon reduction and water efficiency, unless it can be demonstrated that such provision is not technically or economically viable:

New Homes:

Year	Minimum Code for Sustainable Homes Standard	On-Site Reduction of Regulated Carbon Emissions relative to Part L 2006	Water efficiency
2014	Level 4	44%	80 litres/head/day
2016	Level 4	44% - 60% on-site, with remainder dealt with through Allowable Solutions (as per national Zero Carbon policy)	80 litres/head/day

New Non-Residential Development:

Year	Minimum BREEAM Level	On-Site Carbon Reduction	Water efficiency
2014	Very good	In line with 2013 Part L	Full credits to be achieved for category Wat 01 of BREEAM
2016	Excellent	In line with 2016 Part L	Full credits to be achieved for category Wat 01 of BREEAM
2019	Excellent	In line with national Zero Carbon policy	Full credits to be achieved for category Wat 01 of BREEAM

In order to promote the use of community energy networks, a Strategic District Heating Area is shown on the Proposals Map. Major development proposals within this area should where possible connect to existing or proposed heat networks. This requirement will be relaxed should applicants be able to provide evidence that doing so would impact on the viability of schemes.

Supporting Text:

It is increasingly recognised that one of the most important factors in delivering a successful scheme is ensuring that sustainability is a key part of the brief for any

development and is therefore integrated into the design from the outset. This almost always leads to a better design and lower overall lifetime costs, as options are greater at an early stage and there is more scope to identify options that achieve multiple aims. Sustainable design and construction is concerned with the implementation of sustainable development at the scale of individual sites and buildings. It takes account of the resources used in construction, and of the environmental, social and economic impacts of the construction process itself and how buildings are designed and used.

The choice of sustainability measures and how they are implemented may vary substantially from development to development. However, the general principles of sustainable design and construction should be applied to all scales and types of development. The following areas should be covered in the Sustainability Statement:

i) Climate Change Adaptation

Climate change adaptation is a term that describes measures that can be put into place to help new and existing communities adapt to the changes in our climate that are now inevitable. For Cambridge, the climate risks, as set out in the Council's Climate Change Risk Assessment and Management Plan (2009), are:

- Increased peak summer temperatures, with summer temperatures 1.5 degrees higher by the 2020s and 4 degrees higher by 2080;
- Drier summers with 7% less summer rain by the 2020s and 26% less by the 2080s;
- More intense storms including higher peak rainfall and winds;
- Lower overall annual rainfall.

Planning has an important role to play in shaping places and securing new development so as to minimise vulnerability and provide resilience to impacts arising from climate change, doing so in ways consistent with cutting greenhouse gas emissions. All developments should be designed to be adaptable to our changing climate, both in terms of building design and green and blue infrastructure. Adaptation measures can be implemented on a variety of scales, from individual buildings up to community and conurbation scale, as described in the Town and Country Planning Association's "Climate change adaptation by design. A guide for sustainable communities" (2007).

The Sustainability Statement within the Design and Access Statement will need to illustrate the different adaptation measures that have been implemented, and some examples of how this could be approached are provided in Figures 5, 6 and 7 below. These figures and images are for illustrative purposes only and the precise measures to be implemented will vary from development to development, taking account of the context of each specific proposal. In some instances, there may be opportunities for adaptation measures that will have benefits beyond site boundaries, and opportunities for measures that will have a cumulative impact in areas where development is to be phased should also be pursued.

Figure 5: Approaches to Climate Change Adaptation (included in Appendix D)

A: Building Scale Approaches

B: Site Scale Approaches

Figure 6: Angled façade increases solar gain in the winter and reduces unwanted heat in the summer.

Figure 7: External shutters may become a necessary addition in the UK. Image courtesy of AC Architects.

ii) Carbon Reduction

All development should be designed to minimise carbon and other greenhouse gas emissions associated with new development, taking account of the hierarchical approach to reducing carbon emissions. A three-pronged approach should be taken that minimises the energy demand of new buildings, utilises energy efficient supply through low carbon technologies and supplies energy from new, renewable energy sources, as illustrated in Figure 8 below.

Figure 8 : The energy hierarchy (included in Appendix D)

iii) Water management

Cambridge is in an area of severe water stress. The introduction of high levels of water efficiency in new developments is therefore vital to ensure the long-term sustainability and viability of development. As such, new development will need to be designed to optimise the opportunities for efficient water use, reuse and recycling, including integrated water management and water conservation. Designing water conservation measures into infrastructure and buildings to reduce per capita water demand should be a fundamental approach for all new development. Policy 9 above sets targets for water consumption in line with Levels 5 and 6 of the Code for Sustainable Homes for new housing and BREEAM standards for non-residential development.

iv) Site Waste Management

All new developments should be designed to optimise the reduction of construction waste through design and to maximise the reuse and recycling of materials at all stages of a development's life cycle. Development proposals should also provide well designed, integrated recycling and waste facilities for future occupants helping to increase recycling and reduce waste being sent to landfill. Consideration needs to be given to internal and external storage capacity. Reference should be made to the requirements set out in the [RECAP Waste Management Design Guide](#) and the Council's own guidance on household waste and recycling facilities in new developments. The Council will be supportive of innovative approaches to waste management.

v) Use of Materials

All new developments should be designed to maximise resource efficiency and identify, source, and use environmentally and socially responsible materials. There are four principle considerations that should influence the sourcing of materials:

- **Responsible sourcing** – sourcing materials from known legal and certified sources through the use of environmental management systems and chain of custody schemes including the sourcing of timber accredited by the Forestry Stewardship Scheme (FSC);
- **Secondary materials** – reclaiming and reusing material arising from the demolition of existing buildings and preparation of sites for development as well as materials from other post consumer waste streams;
- **Embodied impact of materials** – the aim should be to maximise the specification of major building elements to achieve an area-weighted rating of A or B as defined in the Green Guide to Building Specification. Consideration should also be given to locally sourced materials;
- **Healthy materials** – where possible developers should specify materials that represent a lower risk to the health of both construction workers and occupants. For example, selecting materials with zero or low volatile organic compound (VOC) levels to provide a healthy environment for residents.

As well as the consideration of these design and construction issues, the Sustainability Statement in support of the application should also address how the proposals meet all other policies relating to sustainability throughout the plan, including:

- Biodiversity and ecology;
- Land, water, noise and air pollution;
- Transport, mobility and access;
- Health and wellbeing including provision of open space;
- Culture, heritage and the quality of built form, including efficient use of land.

This policy also sets out requirements in relation to sustainable construction standards, carbon reduction and water efficiency. The Climate Change Act 2008 contains a statutory target of securing a reduction in carbon dioxide levels of 80% below 1990 levels by 2050, with an interim target of 34% reduction by 2020. The achievement of national targets for the reduction of carbon emissions will require action across all sectors of energy use. Within Cambridge, this will involve balancing the overall increase in emissions associated with new development with the opportunities that these new developments offer for reducing carbon and greenhouse gas emissions, through measures such as improving energy efficiency and the provision of on-site renewable and low carbon energy generation. A high standard of construction in new development is therefore important if the UK is to meet its legally binding carbon reduction targets.

Nationally described sustainable construction standards have been developed for both new homes (the Code for Sustainable Homes) and new non-residential buildings (BREEAM). Alongside these standards sits the Government's Zero Carbon policy agenda, which requires all new homes to be Zero Carbon by 2016, and all non-

residential buildings to be Zero Carbon by 2019, with public buildings leading the way in 2018.

There are many approaches that can be taken to meeting the construction standards required by this policy including construction methods such as Passivhaus standard. The Council will be supportive of innovative approaches to meeting and exceeding the standards set out in policy. Where other construction standards are proposed for new developments, for example LEED (Leadership in Energy and Environmental Design), these will be supported provided that it can be demonstrated that they are broadly in line with the standards set out above, particularly in relation to carbon reduction and water efficiency.

It may be possible in some areas for development to exceed the policy requirements set out above. For example, developments located within the Strategic District Heating Area may be able to achieve higher levels of carbon reduction than set out in policy, which in turn could lead to higher construction standards being achievable. In order to maximise opportunities to exceed minimum policy requirements, developers will be encouraged to engage with the Council from an early stage through pre application discussions. The policy will also be reviewed periodically so that should any significant changes be made to the construction standards, the policy can be updated to reflect these changes.

Where redevelopment/refurbishment of existing buildings is proposed, the development of bespoke assessment methodologies to assess the environmental impact of the proposals for submission with the planning application will be supported.

Community Energy Networks

The Strategic District Heating Area coincides with a district heating project being undertaken by Cambridge City Council and the University of Cambridge, as well as the findings of the [Decarbonising Cambridge Study](#) (2010) and [Cambridgeshire Renewables Infrastructure Framework](#) (2012).

A benefit of such an approach is that it can provide developers with a ready made solution for them to meet their future planning policy and Zero Carbon policy requirements at minimum cost, particularly in constrained city centre sites where opportunities for other renewable and low carbon energy generation would be limited. Requiring new buildings to be compatible with district heat networks entails the following considerations:

- Ensuring that plant rooms have access arrangements for entry of a heat main;
- Ensuring that the flow and return heating temperatures for buildings are optimised to suit the heat networks;
- Ensuring that other buried services do not create barriers to laying heat mains, and, where possible, providing suitable duct space;
- Ensuring that the layout and density of new development is such that it minimises, as far as possible, the cost of laying heat mains;

- Ensuring that individual sub-metering arrangements are put in place for each development.

How the Policy Came About:

1. Policy 9 represents a combination of a number of policy options that were consulted on at the Issues and Options stage, notably:

- Option 42 – development of a comprehensive sustainable development policy;
- Option 43 – setting of sustainable construction standards for new development (Code for Sustainable Homes and BREEAM);
- Option 44 – targets for on-site carbon reduction;
- Option 48 – Renewable and low carbon energy generation (notably references to connection to district heating);
- Option 49 – climate change adaptation;
- Option 53 – water efficiency in new residential development;
- Option 55 – water efficiency in new non-residential development.

The combination of these options into one policy should give certainty to developers as to the policy requirements related to sustainable design and construction.

2. The National Planning Policy Framework states that “the purpose of the planning system is to contribute to sustainable development”. This is key to tackling the linked challenges of climate change, resource use, economic prosperity and social well-being and cannot be achieved without sustainable buildings and communities. The principles of sustainable design and construction, which this policy seeks to embed within development proposals, focus on the implementation of sustainable development at the scale of individual sites and buildings. This approach would build upon the current approach taken in the 2006 Local Plan, which calls for the submission of a sustainable development checklist and Sustainability Statement. Where this new policy differs is that the Sustainability Statement would form part of the Design and Access Statement. Not only would such an approach assist developers in demonstrating how their proposals meet the ‘presumption in favour of sustainable development’, the integration within the Design and Access Statement will also ensure that the principles of sustainable design and construction are implemented from the outset of the design process.

3. As recognised by the Interim Sustainability Appraisal, such a policy should contribute positively across all sustainability topics, helping to maintain Cambridge’s position as a competitive city and a leader in sustainability. The Decarbonising Cambridge Study recognised that much can be done to improve sustainability, and indeed reduce demand for energy and other resources, through good design and intelligent materials selection. This is best achieved, both in terms of cost and ease of integration, at the design stage, which represents a unique opportunity to influence how a building, and indeed a

development as a whole, will perform throughout its lifetime. Good design principles and sustainable construction practices should, therefore, be encouraged from the earliest stage in new development projects.

4. The inclusion of these measures within the Design and Access Statement is in keeping with the Department of Communities and Local Government's "Guidance on Information Requirements and Validation" (2010), which at paragraph 105 states:

"Climate change considerations are integral to the planning system, including the design of new developments...Design and access statements for outline and detailed planning applications should therefore demonstrate how climate change mitigation and adaptation measures have been considered in the design of the proposals. These measures may be of particular relevance under the topic headings of amount, layout, scale, landscaping, context or access, depending on the nature of the proposed development and its anticipated impacts on the surrounding areas". By asking for this information to be submitted with the Design and Access Statement for major developments, the policy also takes account of the Growth and Infrastructure Bill, which states that information requirements for planning applications should be reasonable having regard to the nature and scale of the proposed development.

5. Some of the elements included within this policy are those that the Council is required by law to include in its local plans. For example, the Planning Act (2008) places a legal duty on all local planning authorities to include climate change adaptation policies in their plans. Other elements are supported by the National Planning Policy Framework, which, at paragraph 94, places a duty on local planning authorities to adopt "proactive strategies to mitigate and adapt to climate change, taking full account of flood risk, coastal change and water supply and demand considerations". Paragraph 95 goes on to support the setting of local requirements for a building's sustainability, as long as this is done in a way that is consistent with the Government's Zero Carbon agenda and adopts nationally described standards.
6. On the issue of setting standards for a building's sustainability, planning has an important role in encouraging and facilitating the development of buildings that meet high standards of sustainability as part of its objective to contribute to the achievement of sustainable development. For new homes, this means building to the requirements set out in the Code for Sustainable Homes, while for non-residential buildings the BREEAM standard should be used. Both of these standards consider a range of categories that form a measure of a building's sustainability including energy and water, as well as issues such as biodiversity enhancement and health and well-being of building occupants. While national standards should be used in policy, this does not rule out the use of other construction standards. Respondents to the Issues and Options Report showed support for the Passivhaus standard of construction, which can form part of the strategy for achieving a required Code for Sustainable Homes or BREEAM rating. Some flexibility has been included within the supporting text of the policy so that

if a development were to come forward using a different construction standard, for example LEED (Leadership in Energy and Environmental Design), this would be supported provided that it can be demonstrated that it is broadly in line with the standards set out in the policy. The policy also includes support for the development of bespoke construction/environmental performance standards for the redevelopment of existing buildings, which are not covered by the Code for Sustainable Homes or BREEAM.

7. The standards included in Policy 9 are based on evidence contained within the Decarbonising Cambridge Study, which considered the viability of setting sustainable construction standards through policy. With regards to BREEAM, the study suggested that BREEAM 'very good' be the minimum standard required by policy. Policy 9 suggests a stepped approach whereby BREEAM 'very good' is required up to 2016, with this rising to BREEAM 'excellent' from 2016 in light of the uplift in energy requirements required through Building Regulations and the progression towards Zero Carbon non-domestic buildings in 2019. It should be noted that the policy does not seek to merely duplicate Buildings Regulations, as the BREEAM standard covers a significantly wider range of issues than is covered by Building Regulations alone. This approach was supported by many respondents to the Issues and Options Report and is supported by the National Planning Policy Framework.
8. In terms of the Code for Sustainable Homes, the Decarbonising Cambridge Study, provided a technical and economic assessment of achieving a range of Code for Sustainable Homes levels, from Level 3 through to Level 6, which represents the highest possible standard of construction. The study concluded that Code Level 4 would be a viable standard to target through policy for all scales of development, with extra over costs ranging from 1% to 4.5%, with these costs reducing further with subsequent amendments to Building Regulations as part of the introduction of national Zero Carbon policy. A policy requirement for higher levels of the Code on small and medium scale development was considered to be difficult to achieve, partly due to the increase in costs and in part due to the technical restrictions on the use of biomass in Cambridge due to the presence of an Air Quality Management Area, which represents one of the most cost effective ways in which to achieve Levels 5 and 6 of the Code. However the policy will be expressed as a minimum so as not to discount higher standards coming forward where possible. It may also prove necessary to periodically review the policy so that should the energy requirements of Code Levels 5 and 6 be amended to be in line with national Zero Carbon policy, the policy can be updated to reflect that these higher standards may be achievable post 2016.
9. There was some concern expressed during the Issues and Options consultation as to the consistency of the policy with national Zero Carbon policy and changes to Building Regulations. The proposed changes to Building Regulations in 2010 and 2013 were always intended to provide a step change in sustainable construction, leading house building towards to introduction of Zero Carbon policy in 2016. While it is noted that a lower level of carbon reduction than originally intended is

to be introduced in the 2013 Building Regulations, this policy is still consistent with the introduction of Zero Carbon policy in that it provides a step towards Zero Carbon development in 2016. This standard is already being achieved across many development sites in Cambridge, with evidence from developers suggesting that it is a key factor influencing people’s decision to buy a new home in Cambridge. It should also be noted that standards such as the Code for Sustainable Homes, covers a significantly wider range of issues than is covered by regulation and the Government’s Zero Carbon policy. As such, its application to new development is considered in conformity with the National Planning Policy Framework, is supported by Cambridge specific evidence and is in keeping with the Vision of the Local Plan for development to help support Cambridge’s transition to a more environmentally sustainable and successful low carbon economy.

10. The National Planning Policy Framework also recognises the key role that planning has to play in securing radical reductions in greenhouse gas emissions. The Climate Change Act 2008 contains a statutory target of securing a reduction in carbon dioxide levels of 80% below 1990 levels by 2050, with an interim target of 34% reduction by 2020. The achievement of national targets for the reduction of carbon emissions will require action across all sectors of energy use. Within Cambridge, this will involve balancing the overall increase in emissions associated with new development with the opportunities that these new developments offer for reducing carbon and greenhouse gas emissions, through measures such as improving energy efficiency and the provision of on-site renewable and low carbon energy generation.

11. In arriving at the levels of on-site carbon reduction contained within Policy 9, a number of alternative policy options have been considered, as illustrated in table 1 below. In terms of the approach to non-residential development the timetable for Zero Carbon non-residential buildings (2019) would be followed, assuming that this continues as planned. Given that the pathway for Zero Carbon non-residential buildings is less well defined than that for housing, it is considered that following the levels of carbon reduction planned through future amendments to Part L of the Building Regulations would be the most appropriate approach, which was supported by a number of respondents to the Issues and Options Report.

Table 1: Carbon Reduction Options consulted on as part of the Issues and Options Report (2012)

OPTION	DESCRIPTION
Option 44	Under this option, a 44% reduction in emissions would have been required for new residential development between 2014 and 2016. This equates to the level of carbon reduction sought by level 4 of the Code for Sustainable Homes. From 2016 onwards all new homes would need to be Zero Carbon, in line with national Zero Carbon policy, and as such on-site emission reductions between 44 – 60% would be required, with

	the remainder being dealt with via Allowable Solutions.
Option 45	Under this option, a target of on-site carbon reduction would be set which would go beyond the levels set within national Zero Carbon policy. Following technical and financial viability assessment, the Decarbonising Cambridge Study suggested that the level should be set at 70% on-site for all new housing development from 2014 onwards.
Option 46	Under this option, the levels of carbon reduction for new housing would be linked to those contained within Building Regulations (Part L 2013 and 2016). In addition, up to 2016 this option would have seen a percentage renewable energy requirement continue to operate to ensure that renewable energy provision still played a role in new development proposals prior to the introduction of national Zero Carbon policy. This approach was based on the findings of the Merton Rule Study .

12. The figure of 70% on-site carbon reduction promoted via Option 45 is taken from the findings of the Decarbonising Cambridge Study (2010), which modelled the technical and economic feasibility of a range of on-site carbon reduction requirements. It concluded that 70% on-site carbon reduction, while ambitious, would be both technically and economically feasible for all scales of residential development. This conclusion is also set against the local economic climate of Cambridge, which has fared better than other parts of the UK including in terms of its housing market and house building.
13. The Decarbonising Cambridge study noted that this level of on-site carbon reduction could be subject to change but by enshrining the 70% carbon compliance level in local planning policy this would provide the opportunity to maintain a high on-site carbon reduction requirement, should Zero Carbon policy be amended to dilute the ambition in terms of on-site reduction. Indeed, the carbon compliance level has been reduced, in line with the recommendations of the Zero Carbon Hub's 2011 report on Carbon Compliance to between 44% and 60% depending on house type. There was strong support from residents for Cambridge to be ambitious in setting policy requirements for carbon reduction. The Interim Sustainability Appraisal of the Issues and Options Report also noted that taking such an approach would contribute positively to radically reducing carbon emissions across Cambridge. This would benefit Cambridge's economic position as a competitive city, putting it at the forefront of the low carbon economy, helping to address concerns surrounding fuel security and national targets for renewable energy generation.
14. Option 46 considered continuing to require percentage renewable energy provision on all development up to 2016, when national Zero Carbon policy would take effect. This option was consulted upon in light of changes being made to the 2013 version of Part L of the Building Regulations, to reduce the level of carbon reduction being sought from new housing development from 44% greater than Part L 2006, to 33%. With this approach it is likely that the utilisation of renewable energy would no longer form part of a development's

carbon reduction strategy, which is of concern due to issues such as energy security and national targets for renewable energy generation. This option was based upon the findings of the Cambridgeshire Merton Rule Study (2012), which also recommended a technology specific approach, referred to as a 'solar first' approach. Under this option, residential developments would be required to utilise either photovoltaic panels or solar thermal systems, while non-residential development would be required to utilise photovoltaics. If these systems were not viable, then other forms of renewable or low carbon energy generation would be considered. A more flexible approach was recommended for large estates such as the University of Cambridge, where a site-wide approach to renewable energy generation may be more appropriate.

15. Concerns were raised by developers as to the technology specific nature of this approach, as well as the impact on the viability of development. The arguments in favour of the solar first approach include that these technologies are relatively simple to monitor and enforce, and that costs have reduced dramatically since the introduction of the Feed In Tariff. However, in the past national planning policy has been opposed to technology specific policies, and indeed such an approach was removed from the North West Cambridge Area Action Plan at examination. There is no specific wording within the National Planning Policy Framework that would support or object to this approach, and as such it would be likely to be tested at examination.
16. In determining which policy approach to take forward into the draft Local Plan, a key factor has been the issue of conformity with the National Planning Policy Framework and its requirement for any local policy to be "consistent with the Government's Zero Carbon policy". Of the three approaches consulted on at the Issues and Options stage, the option of requiring a 44% reduction up to 2016, with the implementation of national Zero Carbon policy from 2016 is considered most likely to pass the test of conformity with the requirements of the National Planning Policy Framework. It provides developers with a step towards Zero Carbon development and indeed is the level of carbon reduction being delivered on many development sites within Cambridge at present and as such would not have a significant impact on the viability of new development.
17. While it is noted that this approach is not fully in keeping with the recommendations of the Decarbonising Cambridge Report, there is a concern that given the wording of the National Planning Policy Framework in relation to 'consistency with national Zero Carbon policy', this evidence base may not be sufficient to justify such a policy as it exceeds the level of carbon compliance which lies at the heart of the national Zero Carbon definition. Such an approach would no doubt be tested at examination. The option of setting a 44% on-site carbon reduction requirement did receive support at the Issues and Options consultation. The Interim Sustainability Appraisal of the Issues and Options Report noted that this approach would ensure that development was on the path to meeting Zero Carbon requirements in 2016, resulting in positive effects on many of the sustainability topics.

18. Officers are continuing to pursue discussions with the Department of Communities and Local Government to clarify the status of the Decarbonising Cambridge Study in light of the wording of the National Planning Policy Framework. These discussions could lead to a change in policy direction as the drafting of the Local Plan nears completion. It should also be noted that there are likely to be situations where development will be able to exceed the 44% on-site requirement, for example, where development falls within the Strategic District Heating Area. In these circumstances, the policy would require developments to connect to existing or proposed heat networks, and these developments could well achieve levels of carbon reduction much closer to the 70% figure contained within the Decarbonising Cambridge Study.
19. Some representations to the Issues and Options Report, while supporting the aspiration for developments to connect to district heating, raised concerns around the impact on the viability of development. This not only concerned the costs of connecting to district heating, but the legal issues surrounding community energy networks and whether developers would have the right to connect. The proposed Strategic District Heating Area coincides with a project being undertaken by the City Council, in partnership with the University of Cambridge, to deliver a district heating network in Cambridge City Centre. An objective of this project is to deliver a scalable scheme that will be able to expand and connect to new and existing buildings, an objective that will be written into the Governance structure of the project, overcoming any concerns about whether or not new developments will have a right to connect. Detailed technical analysis of the heat loads in the City Centre has already been carried out to inform the development and design of the heat network, as has financial analysis.
20. Given the constrained nature of many City Centre development sites, including redevelopment sites, few energy options are available to developers to meet their carbon reduction requirements. District heating offers a cost effective solution for these sites, although viability will be an important consideration in any future policy requiring connection, not just economic viability but also the ability to connect. This approach is consistent with the requirements of the National Planning Policy Framework, which at paragraph 97 states that local authorities should “identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers”. The Interim Sustainability Appraisal of the Issues and Options Report noted that connection to district heating would provide a cost effective way for developers to meet their carbon reduction obligations, and could be positive in positioning Cambridge competitively in terms of energy security and leading in low carbon initiatives. It also has the potential to help alleviate fuel poverty amongst Cambridge residents at a time of rising energy costs as there will be more local control over energy costs.

21. As such, it is felt that a policy requiring new developments to connect to district heat networks where these are available, subject to the consideration of viability issues, is appropriate. District heating will be the subject of a Local Plan allocation as other renewable energy options for Cambridge are more likely to be small scale approaches such as solar panels, which are more likely to come forward on a case by case basis. District heating represents the best opportunity for large scale energy generation in Cambridge, hence why a Local Plan allocation is considered to be important to help secure implementation of this technology in Cambridge.
22. Policy 9 also sets standards of water efficiency that will be sought from all new development, based on the requirements of the Code for Sustainable Homes and BREEAM. Cambridge is in an area of serious water stress as defined by the Environment Agency. The National Planning Policy Framework requires local authorities to adopt a pro-active approach to climate change and water supply and demand considerations (paragraph 94).
23. The Cambridge Water Company Resources Management Plan indicates that there is a finite supply of water in the region and, irrespective of climate change, action is required now to ensure the availability of water for future uses, including potable water supply and food production, without having a detrimental impact on the environment. Guidance contained in the Good Practice Guidance: Sustainable Design and Construction report (2012), produced to support the National Planning Policy Framework supports such an approach. It notes that there will be situations where it could be appropriate for Local Planning Authorities to anticipate levels of building sustainably in advance of those set out nationally, citing the example of areas where high water stress means that development without high water efficiency standards would be unacceptable for its proposed location. The main issues to consider when looking at water efficiency are the level of water consumption to be determined and the cost of any proposals. Developers have concerns that too low a consumption figure would lead to higher costs and therefore could potentially have an impact on the viability of developments. The National Planning Policy Framework states that issues such as water supply should be taken account of in the local plan over the long term. As there is a finite supply of water, higher levels of water efficiency now will ensure the viability of development in the long term.
24. Three alternative options for water efficiency in new homes and two alternative options for water efficiency on non-residential developments have been considered in reaching the final position proposed in Policy 9. For new homes options ranged from limiting water consumption to 105 litres/head/day, an option of 80 litres/head/day or requiring water neutrality. Water neutrality involves not only measures to reduce water consumption in new build, but also retrofitting water efficiency measures in the existing built environment. While such an option offers the most innovative and progressive approach to water efficiency, it may prove difficult to implement and would also be the most

expensive option, which may impact on viability. There would also be inherent difficulties in applying retrofit measures to existing properties, with associated ongoing maintenance costs. As such, this option has been rejected. It should, however, be noted that the draft Water Bill, which was published in July 2012, is giving consideration to charging mechanisms and connection charges that may enable water neutrality to be implemented in the future without the need for a specific planning policy.

25. Representing an improvement on the existing situation, a second option was put forward for all new development to be designed to achieve a maximum water consumption of 80 litres per head per day, which is in line with Levels 5 and 6 of the Code for Sustainable Homes. This would offer higher water efficiency than is being delivered elsewhere in Cambridge, apart from the North West Cambridge development. In terms of the impact of setting requirements for water efficiency on the viability of development, this is being tested through the Council's emerging viability work.
26. A third option considered a policy approach whereby new development would need to be designed to achieve maximum water consumption of 105 litres/head/day, which is in line with Code for Sustainable Homes level 3 and 4. While this policy would have presented the least expensive option, it would still lead to an increase in the amount of water being used in Cambridge each year. As a result, this option would not go far enough to address long-term water availability, which has the potential to impact on the long-term viability of development, and as such this option has also been rejected. The need to set more stringent water efficiency requirements than that suggested by this option was supported by Cambridge Water who have made representations after the end of the Issues and Options consultation period. In addition, this option would be reliant on the installation of water efficient fittings that could easily be unknowingly replaced with less water efficient fittings throughout the life of the development. Given the severity of water stress in Cambridge, it is therefore considered appropriate to set a policy requiring higher levels of water efficiency than that proposed by this option, and as such a requirement of 80 litres/head/day will be taken forward into the draft Plan.
27. A high level of water efficiency in non-domestic buildings is generally less costly as a percentage of the overall construction cost to implement than in domestic buildings and therefore has a smaller impact on potential viability. There is also a higher potential for cost savings in water bills than in domestic properties. Two options were put forward in the Issues and Options Report, both linked to the BREEAM assessment methodology. Option 55 required full credits to be achieved for BREEAM water efficiency, while Option 56, while continuing to utilise the BREEAM methodology would not have required the achievement of maximum credits for water. While the advantages of Option 56 were that there would be minimal cost associated with it, water consumption reductions could be as low as 12.5% of current usage. As such, this option would have done little to respond to the severe water stress faced by Cambridge. Cambridge Water

also objected to this approach on the grounds that it would not go far enough in dealing with issues of water shortage and its wider impacts. As such, the option of maximum BREEAM credits for water is to be taken forward into the draft Plan. This option received strong support during the Issues and Options consultation, with the Interim Sustainability Appraisal noting that it resulted in the most significant positive effects against the sustainability topics, as it is the most radical in terms of addressing the severe water stress identified in Cambridge's Water Resources Management Plan. From an economic perspective, it was noted that whilst this option is the most expensive, it would place Cambridge in a competitive position in terms of leading on water efficiency Initiatives. This Option would also result in significant carbon emissions savings associated with water production, as overall increases in supply would be kept to a minimum.

ISSUE: THE ROLE OF LOCAL PLANNING AUTHORITIES IN ALLOWABLE SOLUTIONS

Strategic Vision/Objective:

Vision:

Cambridge will be a pioneer in its approach to sustainable development and climate change, transitioning to a low and eventually zero carbon economy. Development will contribute to making Cambridge a water sensitive city, capable of adapting to our changing climate, making best use of energy, water and other natural resources, securing radical reductions in carbon emissions and minimising environmental impact.

Objectives:

- To ensure that a water sensitive urban design approach is taken in all development proposals so that they are appropriate in terms of flood risk and water body quality, see water as a valuable resource and have a positive impact on the River Cam and other water features;
- That Cambridge contributes fully to carbon reduction targets including; by design the principles of sustainable design and construction are integrated into development proposals and through supporting community energy projects.

POLICY:

Policy 10: Allowable Solutions for Zero Carbon development

Where compliance with national Zero Carbon policy necessitates the use of the Allowable Solutions Framework, developers will have the option to:

- Deliver their own allowable solutions locally;
- Make a contribution to the Cambridgeshire Community Energy Fund; or
- Offset via third-party allowable solutions providers into a project selected from a local Energy Efficiency and Renewable and Low Carbon Energy Infrastructure Projects List.

The Cambridgeshire Community Energy Fund will be used to invest in energy efficiency and renewable/low carbon energy projects that have direct benefit for Cambridgeshire. Projects for investment will be identified and form part of an Energy Efficiency and Renewable and Low Carbon Energy Infrastructure Projects List, which would then be used as the basis for allocating developers allowable solutions contributions.

Supporting Text:

By 2016 all new homes are expected to be Zero Carbon under national Zero Carbon policy. Part of the definition of Zero Carbon development includes the concept that after delivering a certain level of carbon reduction on-site, known as 'carbon compliance', developers can then choose to offset remaining emissions through a range of measures known as 'allowable solutions', as illustrated in Figure 9 below. Allowable solutions are grouped into three categories:

- On-site options (not duplicating carbon compliance measures) such as the installation of smart appliances, home electric vehicle charging and LED street lights;
- Near-site options such as the export of low carbon heat from a site based district heating scheme or retrofitting low/zero carbon technologies to local community buildings; and
- Off-site options such as investment in district heating pipework to connect new loads to existing schemes or support new schemes.

One of the measures included within the Allowable Solutions Framework is the development of community energy funds. Developers would be able to choose to pay into such a fund, to offset any residual carbon reduction that could not be delivered on-site. Money from the fund would then be used to invest in energy efficiency and renewable and low carbon energy projects. Money will be collected via a bespoke Allowable Solutions collection mechanism and not linked to the Community Infrastructure Levy or Planning Obligations.

Figure 9: The Zero Carbon Hierarchy (included in Appendix D)

The Cambridgeshire Community Energy Fund project has looked at the potential to set up an innovative locally led fund that would channel developer investment from allowable solutions into local low carbon infrastructure projects. The establishment of this fund will be an effective mechanism for ensuring that the benefits of allowable solutions remain within Cambridgeshire, having direct community benefit for the areas in which development is being undertaken.

Projects for investment will be identified and form part of an Energy Efficiency and Renewable and Low Carbon Energy Infrastructure Projects List, which would then be used for the basis of allocating developers allowable solutions contributions. Arrangements for producing the local projects list will be put into place ahead of the policy coming into effect in 2016. This list will be kept updated to ensure that

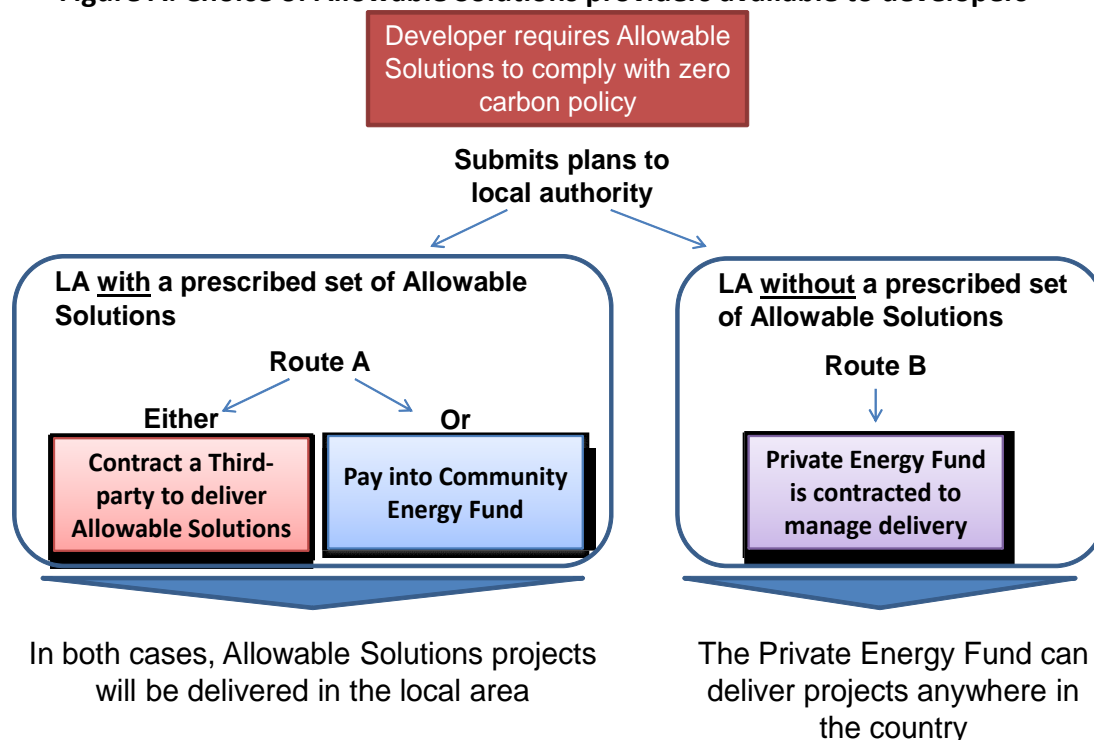
projects providing maximum benefit, both in terms of carbon savings and benefits for Cambridgeshire residents and the local economy are given priority. All projects on the list would need to meet the test of 'additionality', i.e. projects that would not otherwise be delivered via existing support mechanisms. This list is being developed as part of the Cambridgeshire wide Mobilising Local Energy Investment project.

How the Policy Came About:

28. The concept of developing a policy related to the development of a Cambridgeshire Community Energy Fund stems from the work undertaken by the Zero Carbon Hub in their 2011 report "Allowable Solutions for Tomorrow's New Homes. Towards a Workable Framework". This report put forward to Government an Allowable Solutions Framework Model that would enable developers to meet their full Zero Carbon policy requirements once they had met their on-site carbon compliance requirements. This Framework is illustrated in Figure A below, and its key elements are:

1. A choice for Local Planning Authorities to develop a policy on Allowable Solutions through Local Plans (Route A);
2. The opportunity, when working to Route A, for housing developers to seek out best value for Allowable Solutions via a Community Energy Fund or by private contract with a Third Party Provider;
3. The option of purchasing Allowable Solutions from Private Energy Funds (Route B) when the local planning authority does not have an Allowable Solutions policy;
4. A Verification and Certification Scheme to show that an investment will achieve the required carbon emission reduction. The scheme will monitor Allowable Solutions delivery and release credits, certificates and funds in a timely way to facilitate Allowable Solutions project development and Building Regulations Approval;
5. A single Allowable Solutions Fund Holding providing a secure 'Bank' for the Allowable Solutions investment flow.

Figure A: Choice of Allowable Solutions providers available to developers¹



29. A number of representations received at the Issues and Options stage raised concerns that a Carbon Offset Fund would enable developers to do things on the cheap and that the focus should be on on-site measures to reduce carbon emissions. While the Council agrees that the ideal solution would be for developers to offset all of their carbon emissions on-site, this is unlikely to be feasible on many small and medium scales sites, as evidenced by the findings of the Decarbonising Cambridge Study (2010), and national work carried out by the Zero Carbon Hub. As such, the concept of ‘allowable solutions’ has been developed. Developers would still be required to deliver the majority of carbon reduction on-site but would then have range of opportunities available to them to ‘off-set remaining emissions, including additional on-site measures or paying into a county-wide community energy fund. This approach is in keeping with the requirements of the National Planning Policy Framework, which requires local policy to be consistent with national Zero Carbon policy, in that it uses the nationally recognised Allowable Solutions Framework, which recognises a policy role for local planning authorities.

30. The types of projects that could receive investment from the fund range from energy efficiency projects through to large scale renewable and low carbon energy projects. The key element in determining appropriate projects is the idea of ‘additionality’, i.e. projects that would not otherwise be delivered via existing support mechanisms. Example projects could include improvements to existing properties that would not be eligible for Green Deal funding, for example solid wall insulation, or the investment in energy schemes that are not currently being

¹ Element Energy (2012). Cambridgeshire Community Energy Fund Stage 2 Final Report

delivered by the private sector, such as district heating. The development of a Cambridgeshire fund would also present an opportunity to focus on those projects that would have direct benefits for communities in the county, which could include community energy projects. This would be different from the current proposals for allowable solutions, which included reference to a national fund, where money generated from developments in Cambridge could be used to fund projects across the UK. The advantages of local funds were considered in the recent Zero Carbon Hub Report on [evaluating opportunities and priorities for Allowable Solutions](#) (2012), which recognised that in line with the Localism Agenda, preference would be for Allowable Solutions to be delivered locally. Developers would still be able to choose their preferred allowable solutions route, even with a policy in place, but there is recognition that local community energy funds represent an effective option, in keeping with the principles of Localism.

31. Projects for investment will be identified and form part of an Energy Efficiency and Renewable and Low Carbon Energy Infrastructure Projects List, which would then be used as the basis of allocating developers allowable solutions contributions. Work to develop this projects list is currently ongoing as part of the Mobilising Local Energy Investment Project, which is being coordinated by Cambridgeshire County Council. This work includes liaison with the Zero Carbon Hub and Department for Communities and Local Government, with the potential for the fund to be one of the Allowable Solutions Pilot Projects.
32. With regard to how such a fund would be governed and administered, work carried out by Element Energy² in 2012 considered a range of legal structures for the management of the fund. The work concluded that a Company Limited by Guarantee would be the most suitable structure as it would be suitable for the community investment mandate of an energy fund. While further work is required to determine the membership of the Company Limited by Guarantee, it would be likely that this would need to include all the district authorities who would be collecting monies into the fund. The study also considered appropriate collection mechanisms, concluding that a new purpose designed collection mechanism to enable developers to make direct payments into local community energy funds should be established nationally as opposed to utilising existing mechanisms such as S106 agreements and the Community Infrastructure Levy. Further work will need to include ongoing discussions with national government with regards to the timescales and practical arrangements for the establishment of the Allowable Solutions Framework, including the setting of an appropriate level of developer contribution into such a fund, set as a cost per tonne of CO₂. Work carried out to date has assumed a cost of £46 per tonne of CO₂.
33. The Element Energy study also considered the advantages of a county wide fund compared to a fund only covering Cambridge. Of the £55 million that a county wide fund could have generated by 2026, around £23 million would be generated

² Element Energy (Jan 2012). Cambridgeshire Community Energy Fund Stage 2 Final Report

by developments in Cambridge. The average amount being invested into the fund across the districts would be around £6 million, which is not huge in the context of capital costs of low carbon energy projects. For example, the district heating project in Cambridge City Centre has estimated capital costs of around £25 million. The relatively limited scale of the fund is considered to be a strong argument in favour of the Cambridgeshire authorities partnering in a joint community energy fund that will invest in the most beneficial projects across the county. A fund at a smaller district level scale would be too limited in terms of the funds available to significantly influence development of large-scale strategic infrastructure projects.

ISSUE: RENEWABLE AND LOW CARBON ENERGY GENERATION

Strategic Vision/Objective:

Vision:

Cambridge will be a pioneer in its approach to sustainable development and climate change, transitioning to a low and eventually zero carbon economy. Development will contribute to making Cambridge a water sensitive city, capable of adapting to our changing climate, making best use of energy, water and other natural resources, securing radical reductions in carbon emissions and minimising environmental impact.

Objectives:

- To ensure that a water sensitive urban design approach is taken in all development proposals so that they are appropriate in terms of flood risk and water body quality, see water as a valuable resource and have a positive impact on the River Cam and other water features;
- That Cambridge contributes fully to carbon reduction targets including; by design the principles of sustainable design and construction are integrated into development proposals and through supporting community energy projects.

POLICY:

Policy 11: Renewable and Low Carbon Energy Generation

Proposals for development involving the provision of renewable and/or low carbon energy generation, including community energy projects, will be supported, subject to the acceptability of their wider impacts. As part of such proposals, the following should be demonstrated:

- a) That any adverse impacts to the environment, including local amenity and impacts on the historic environment, including its setting, have been minimised as far as possible. These considerations will include air quality concerns, particularly where proposals fall within or close to the Air Quality Management Area(s) or areas where air pollution levels are approaching the EU Limit Values, as well as noise issues associated with certain renewable and low carbon technologies;

- b) That where any localised adverse environmental effects remain, that these are outweighed by the wider environmental, economic or social benefits of the scheme.

Supporting Text:

Increasing the proportion of energy generated from renewable and low carbon sources will help Cambridge to meet its vision of a low carbon city. As well as national targets for carbon reduction, there are also targets in relation to energy supplied from renewable energy sources, with a legal commitment for the UK to meet 15% of its energy requirements from renewable sources by 2020³.

A number of studies have assessed Cambridge's potential for renewable and low carbon energy generation. These studies suggest that the main focus for renewable and low carbon energy generation will be from the potential Cambridge offers for the development of district heat networks and the utilisation of microgeneration such as solar panels. The Council recognises that the opportunities for stand-alone renewable energy schemes within Cambridge are limited. However, it is keen to support opportunities where they arise, in particular small-scale and community schemes that are most likely to be viable within Cambridge.

While the Council wishes to promote renewable and low carbon energy generation, there is also a need to balance this desire against other objectives for Cambridge such as minimising pollution and protection and enhancement of the historic environment. Applicants are expected to have taken appropriate steps to mitigate any adverse impacts through careful consideration of:

- Location, scale, design and other measures, including those necessary to minimise any noise impacts;
- Cumulative impacts;
- Impacts on the landscape, the built environment, cultural heritage and biodiversity.

Other policies in the Local Plan concern the safeguarding of the natural and historic environment and the protection of international, national or locally designated sites and buildings, and these should be taken into account in applications for energy schemes.

Potential impacts may be acceptable if they are minor, or are outweighed by wider benefits including the need for energy from renewable and low carbon sources, which will contribute to reducing carbon and other emissions.

How the Policy Came About:

34. Paragraph 97 of the National Planning Policy Framework requires local planning authorities to recognise the responsibility on all local communities to contribute to energy generation from renewable or low carbon sources. It requires local

³ As of 2011, 4.1% of the UK's primary energy requirements came from renewable sources (data source: DECC National Renewable Energy Statistics)

planning authorities to have a positive strategy to promote energy from renewable and low carbon sources while ensuring that any adverse impacts are addressed. This policy seeks to provide this positive strategy, building upon the energy resource evidence provided by the Decarbonising Cambridge Study (2010) and the Cambridgeshire Renewables Infrastructure Framework (2012), which mapped the potential of a range of renewable and low carbon energy sources in Cambridge, including district heating, wind, solar and biomass.

35. These studies have shown that the opportunities for stand-alone renewable energy schemes within Cambridge are limited and new projects within the city are likely to be relatively small-scale. Even so, the Council wishes to support renewable and low carbon energy projects that will contribute to overall carbon reduction across Cambridge, while at the same time ensuring that there will be no unacceptable impact on the local environment. These considerations will include air quality concerns associated with proposals utilising biomass combustion, particularly where these fall within or close to the Air Quality Management Area or areas where air pollution levels approach the EU Limit Values, as well as noise issues associated with certain renewable and low carbon technologies. There could be links between identified projects and the proposals to develop a Cambridgeshire Community Energy Fund, in that some of these projects may be eligible for funding from the Community Energy Fund. Possible projects would be identified and form part of an energy efficiency and renewable and low carbon energy infrastructure projects list, which would then be used for the basis of allocating developers allowable solutions contributions.
36. The Interim Sustainability Appraisal of the Issues and Options Report concluded that such a policy would be likely to have a positive effect on key issues identified under the climate change mitigation and renewable energy themes. This included ensuring the greater deployment of renewable energy technologies and reducing carbon emissions from new developments. The Appraisal did note that there would be a need to balance energy provision against other objectives such as protection and enhancement of the historic environment, which is provided for under Policy 11.

ISSUE: ENERGY EFFICIENCY IN EXISTING DWELLINGS

Strategic Vision/Objective:

Vision:

Cambridge will be a pioneer in its approach to sustainable development and climate change, transitioning to a low and eventually zero carbon economy. Development will contribute to making Cambridge a water sensitive city, capable of adapting to our changing climate, making best use of energy, water and other natural resources, securing radical reductions in carbon emissions and minimising environmental impact.

Objectives:

- To ensure that a water sensitive urban design approach is taken in all development proposals so that they are appropriate in terms of flood risk and water body quality, see water as a valuable resource and have a positive impact on the River Cam and other water features;
- That Cambridge contributes fully to carbon reduction targets including; by design the principles of sustainable design and construction are integrated into development proposals and through supporting community energy projects.

POLICY:

Policy 12: Energy Efficiency Improvements in Existing Dwellings

In order to assist with achievement of the Plan's vision for a low carbon city, and to tackle issues of rising fuel costs for residents, applications for extensions to existing dwellings and/or the conversion of ancillary residential floorspace to living accommodation, should be accompanied by cost effective improvements to the energy efficiency of the existing dwelling, where such measures have not already been implemented.

Supporting Text:

In order for Cambridge to play a role in meeting national targets for carbon reduction, there is a need to reduce emissions from existing buildings as well as new. Policy 12 above seeks to utilise the opportunities that arise for making cost effective energy efficiency improvements when works to extend existing homes are undertaken. Applicants will be asked to complete a simple online home energy questionnaire, which will help to identify measures suitable for implementation.

The aim of the policy is to help homeowners implement measures that will enhance the energy efficiency of their homes, therefore helping to reduce fuel costs at a time of rising energy prices. In some cases this might help to reduce the risk of homeowners finding themselves in fuel poverty, or in cases where residents are already in fuel poverty, help to get them out of this situation.

The focus is on cost effective measures with a simple payback of seven years or less and that would be relatively simple to install with limited disruption. Many of these measures will be eligible for funding through the Green Deal. Cambridge City Council, alongside the other Cambridgeshire local authorities and Cambridgeshire County Council will be taking a partnership approach to delivering the Green Deal across the county, in order to ensure that it is a success and that the uptake of energy efficiency measures in buildings is maximised. Working with a local Green Deal provider the authorities will be taking an active role in promoting the Green Deal to local residents, which will assist with the delivery of this policy.

Care will need to be taken in applying the policy to Listed Buildings and other heritage assets to ensure that they are not damaged by inappropriate interventions.

The implementation of the policy will be on a case by case basis, with officers recommending measures that would be suitable for that particular property, bearing in mind its age, type of construction and historic significance. There may be cases where improvements cannot be made to an existing dwelling without causing harm to the significance of the heritage asset, and in such circumstances the requirements of this policy will not be implemented.

How the Policy Came About:

37. In order for Cambridge to play a role in tackling national targets for carbon reduction, it is important to tackle emissions from existing buildings as well as new. Such an approach is supported by the National Planning Policy Framework, which at paragraph 95 states that local planning authorities should “actively support energy efficiency improvements to existing buildings”. For non-residential buildings there are many drivers for organisations to improve the efficiency of their buildings, but this is not the case for existing houses. At present requirements to improve the energy efficiency of new homes, sought through Building Regulations, only apply to dwellings over 1,000m², and as such many homes within Cambridge would not be required to comply with these Regulations.
38. The Council’s 2009 Housing Stock Survey found that of a total stock of 41,500 dwellings, there was scope for energy efficiency improvements in 95% of properties, including measures such as loft insulation, cavity wall insulation and cylinder insulation. Energy efficiency improvements typically provide relatively cost-effective carbon reduction, but can also help reduce energy bills for residents, which will become increasingly important in the face of rising energy costs. It is estimated that fuel poverty affects 14% of households in Cambridge, with this figure likely to rise as energy costs increase. A recent report by the Committee on Climate Change recognises the scope for local authorities to require energy efficiency improvements in return for granting planning permission for extensions, citing Uttlesford District Council’s approach as an example of best practice.
39. The intention is to introduce a policy, similar to that developed by Uttlesford District Council, which would apply to planning applications for works such as an extensions or loft conversions. Works that would be covered by the General Permitted Development Order, would not need to meet the requirements of this policy. The policy would require the implementation of cost effective measures to improve the energy efficiency of the entire property where such measures had not already been undertaken. These measures are considered in more detail in table 2 below. Concerns expressed during the Issues and Options consultation surrounding the expense to homeowners of such a policy are recognised, but the focus would be on cost effective measures, defined as measures having a simple pay back of seven years or less. The type of measures that will be promoted include upgrading loft insulation, insulating cavity walls, improving draft proofing, heating controls upgrade and the installation of low energy lighting.

Many of these measures may also be eligible for funding through the Green Deal, which came into effect in January 2013. As such, the cost to homeowners would be limited, but they would still benefit from reduced energy costs as a result of increase the energy efficiency of their home.

40. Some respondents to the Issues and Options consultation raised concerns that such an approach would increase 'red tape' for those wishing to extend their homes. It is not the intention of the policy to increase red tape, but to encourage residents to take advantage of the opportunities that carrying out works to their homes present: opportunities that should help to reduce energy bills and enhance the comfort of their homes. There will also be further advantages in implementing this policy, as by making improvements to the efficiency of their homes, this will enable residents to access other financial incentives such as the Feed in Tariff, with access to the higher tariff levels influenced by the energy performance of homes. There could be some risks associated with such a policy approach given the Government's recent announcements on increasing the size of household extensions that will be considered under permitted development rights. This could reduce the number of applications received for household extensions, thereby reducing the application of this policy, although planning permission would still be required within Conservation Areas.
41. The focus of the policy would be on existing homes as opposed to non-residential properties, which are more likely to be covered by existing Building Regulations requirements for consequential improvements. As such, it would not apply to College buildings etc, which are considered in more detail in the policy on works to address climate change in heritage assets. Care will need to be taken in applying the proposed policy to historic buildings to ensure that they are not damaged by inappropriate interventions. The implementation of the policy will be on a case by case basis, with officers recommending measures that would be suitable for that particular property, bearing in mind its age, type of construction and historic significance.
42. It is helpful to consider the development of this policy against the Governments recent announcement that they will not be requiring consequential improvements to existing homes through the 2013 update of Building Regulations. One of the main arguments for not pursuing this was that research indicated that the majority of people were not in favour of such an approach and that it would put them off making improvements to their homes. The research in question was undertaken on behalf of the Energy Savings Trust in the Report "Exploratory Research into Building Regulations in relation to the Green Deal". The statistic quoted by the Government was that 38% of householders and businesses would be put off improving their homes if they had to make consequential improvements at the same time. However, as noted by the Energy Savings Trust⁴ in their response to the Government's announcement to abolish the proposed amendments to consequential improvements, this overlooks the

⁴ <http://www.energysavingtrust.org.uk/blog/2012/12/17/consequential-improvements-behind-the-headlines/>

fact that 58% of respondents would still be likely to go ahead with such improvements. Further findings of the study were that:

- Seven out of ten homeowners asked think that energy efficiency of homes has a major impact of Britain's carbon emissions;
- Over three-quarters (77%) felt that "more should be done by Government to help people make their homes more energy efficient";
- Extending building regulations was felt to be reasonable by 63% of respondents, with this figure increasing to 76% when the Green Deal could be used to finance the additional energy efficiency improvements;
- Only 6% of respondents thought that consequential improvements would be "wholly unreasonable".

43. There are also examples of local consequential improvements policies that have worked well. Uttlesford District Council has been running a version of consequential improvements since 2006 to great success. Between 2006 and 2009 it was applied to 1,400 householder applications, with expected carbon savings of around 398,000 Kg CO₂ per year. Uttlesford District Council is looking to continue this approach with a policy in their Draft Local Plan (June 2012)⁵.

44. Concerns surrounding the take up of the Green Deal and the possibility of residents being misled by rogue traders, highlighted in Aecom's 2012 report on Consequential Improvements, should be overcome by the Council's role as a Green Deal Promoter. Cambridge City Council, alongside the other Cambridgeshire local authorities and Cambridgeshire County Council will be taking a partnership approach to delivering the Green Deal across the county, in order to ensure that it is a success and that the uptake of energy efficiency measures in buildings is maximised. Working with a local Green Deal provider, the authorities will be taking an active role in promoting the Green Deal to local residents, which will assist with the delivery of this policy. There are a number of benefits for residents in the authorities taking such an approach, including:

- Helping to reduce fuel poverty amongst Cambridge residents;
- Ensuring good value, high quality energy efficiency installations with outstanding quality of work and customer care; and
- Boosting the local economy through employment, skills and learning and expansion and development of the energy efficiency and micro-generation business sector.

⁵ Policy EN1 – Sustainable Energy requires proportionate improvements to the energy efficiency of existing dwellings when granting permission for residential extensions and/or the conversion of ancillary floorspace to living accommodation.

Table 2: Measures for implementation under Policy 12

MEASURE (Detached house or bungalow)	REQUIRED FOR	TYPICAL INSTALLATION COST @2013	SAVING (£/YR) AND PAYBACK (YRS) All savings assume gas central heating	ELIGIBILITY FOR FUNDING
Cavity wall insulation	Any dwelling that has empty cavity walls, subject to a check for suitability from an accredited installer (and approval by local authority building control).	£300	Saving = £210 - £250 Payback = less than 2 years	
Loft insulation (250mm)	Any dwelling with an accessible loft and less than 100mm depth of existing insulation.	New installation = £250	New installation: Saving = £210 - £250 Payback = Less than 1 year	
		Top up = £260	Top up: Saving = £60 - £70 Payback = Around 4 years	
Replacement condensing boiler (A-rated)	Any dwelling with a 'wet' central heating system with a non-condensing gas or oil boiler more than 15 years old.		Saving = £130 - £160	
Heating controls upgrade	Any dwelling with central heating that lacks a programmable timer, room thermostat or thermostatic radiator valves.	£200	Saving = £70 - £90 Payback = Between 2 – 3 years	
Hot water insulation	Any dwelling that has an uninsulated hot water tank or a tank has an		Saving = approx £20	

package	existing jacket that is in poor repair.			
Draught proofing	Any dwelling that has an excessive air leakage as judged by a building surveyor (could the Heat Seekers project provide us with this information?).	£75	Saving = Approx £20 Payback – Around 4 years	
MEASURE (Semi-detached or end-of- terrace)	REQUIRED FOR	TYPICAL INSTALLATION COST @2013	SAVING (£/YR) AND PAYBACK (YRS) All savings assume gas central heating	ELIGIBILITY FOR FUNDING
Cavity wall insulation	Any dwelling that has empty cavity walls, subject to a check for suitability from an accredited installer (and approval by local authority building control).	£260	Saving = £130 - £160 Payback = Less than 2 years	
Loft insulation (250mm)	Any dwelling with an accessible loft and less than 100mm depth of existing insulation.	New installation = £180 – £220 Top up = £50 - £60	New installation: Saving = £180 - £220 Payback = Less than 2 years	
			Top up: Saving = £50 - £60 Payback = Around 4 years	
Replacement condensing boiler (A-rated)	Any dwelling with a 'wet' central heating system with a non-condensing gas or oil boiler more than 15 years old.		Saving = £100 – £120	
Heating controls	Any dwelling with central heating	£200	Saving = £60 - £70	

upgrade	that lacks a programmable timer, room thermostat or thermostatic radiator valves.		Payback = Around 3 years	
Hot water insulation package	Any dwelling that has an uninsulated hot water tank or a tank has an existing jacket that is in poor repair.		Saving = Approx £20	
Draught proofing	Any dwelling that has an excessive air leakage as judged by a building surveyor (could the Heat Seekers project provide us with this information?).	£75	Saving = Approx £20 Payback = Around 4 years	

ISSUE: INTEGRATED WATER MANAGEMENT

Strategic Vision/Objective:

Vision:

Cambridge will be a pioneer in its approach to sustainable development and climate change, transitioning to a low and eventually zero carbon economy. Development will contribute to making Cambridge a water sensitive city, capable of adapting to our changing climate, making best use of energy, water and other natural resources, securing radical reductions in carbon emissions and minimising environmental impact.

Objectives:

- To ensure that a water sensitive urban design approach is taken in all development proposals so that they are appropriate in terms of flood risk and water body quality, see water as a valuable resource and have a positive impact on the River Cam and other water features.

Policy:

Policy 13: Integrated water management and the water cycle

Development will be permitted provided that the design:

- a) Surface water is managed close to its source and on the surface where it reasonably practicable to do so;
- b) Priority is given to the use of nature services⁶;
- c) Water is seen as a resource and is re-used where practicable, offsetting potable water demand and that a water sensitive approach is taken to the design of the development;
- d) The features that manage surface water are commensurate with the design of the development in terms of size, form and materials and make an active contribution to making places for people.
- e) Surface water management features are multi-functional wherever possible in their land use.
- f) Any flat roof, is a green or brown roof providing that it is acceptable in terms of its context in the historic environment of Cambridge (see Policy 49: Protection and Enhancement of Cambridge's Historic Environment) and the structural capacity of the roof if a refurbishment. Green or brown roofs should be widely utilised in large scale new communities.
- g) There is no discharge from the developed site for rainfall depths up to 5 mm;
- h) The run-off from all hard surfaces shall receive an appropriate level of treatment in accordance with The SuDS Manual (CIRIA C697) to minimise the risk of pollution;

⁶ Nature services are defined by the National Planning Policy Framework as 'The benefits people obtain from ecosystems such as, food, water, flood and disease control and recreation'. These are also known as ecosystem services.

- i) Development adjacent to a water body actively seeks to enhance the water body in terms of its hydromorphology, biodiversity potential and setting; and
- j) Watercourses are not culverted and any opportunity to remove culverts is taken.

Supporting Text:

The [Surface Water Management Plan](#)⁷ and [Strategic Flood Risk Assessment for Cambridge](#)⁸ have found there is little or no capacity in our rivers and watercourses that eventually receive surface water runoff from Cambridge and that it needs to be adequately managed so that flood risk is not increased elsewhere. The appropriate application of sustainable drainage systems to manage surface water within a development is the approach recommended within the Technical Guidance to the National Planning Policy Framework⁹ as a way of managing this risk.

Current best practice guidance such as [The SuDS Manual and Planning for SuDS](#) (CIRIA C697 and C687) should be followed in the design of developments of all sizes, with design principles that are important to Cambridge set out in this policy. The use of smaller more resilient features distributed throughout a development instead of one large management feature should be utilised. Figure 10 provides examples of how to successfully integrate SuDS into a range of developments.

Figure 10: Examples of Integrating SUDs into developments (included in Appendix D)

Managing water close to where it falls and on the surface is often the most cost effective way to manage surface water. Early consideration in the design process helps achieve this. Managing water on the surface is an opportunity to celebrate water and create Cambridge distinctive developments.

Climate change will see times of too much water and times of too little water more frequently than we get now. The design of new developments should reflect this change and value water as a resource than can be stored in times of plenty for re-use in times of deficit.

Green/brown roofs are a key measure in terms of Cambridge's climate change adaptation policy. They offer multiple benefits for a comparatively small additional construction cost, including forming part of an effective sustainable drainage solution, reducing the amounts of storm water run-off and attenuating peak flow rates. In the summer, a green roof can typically retain between 70-80% of rainfall run-off. Predicted climate change means that Cambridge will experience increasing risks of flooding, overheating and drought, manifested through hotter drier summers and warmer wetter winters. Living roofs can for reduce the negative effects of climate change, for example by improving a buildings energy balance and reducing carbon emissions. The use of vegetation on a roof surface ameliorates the negative

⁷ <https://www.cambridge.gov.uk/background-documents>

⁸ <https://www.cambridge.gov.uk/strategic-flood-risk-assessment>

⁹ <https://www.gov.uk/government/publications/national-planning-policy-framework-technical-guidance>

thermal effects of conventional roof surfaces through the cooling effect of evapotranspiration, which can also help ameliorate the Urban Heat Island Effect. It can also provide benefit in the form of insulation, helping to reduce the internal cooling load of buildings thereby reducing energy use and associated carbon emissions. The biodiversity benefits of green roofs are manifold, supporting rare and interesting types of plant, which in turn can host a variety of rare and interesting fauna. Accessible roof space can also provide outdoor living space, particularly in high density development. As such, accessible roof space should be viewed as an integral element of a well-designed, high quality, high density, more efficient, attractive and liveable city.

Green/brown roofs can be more cost effective than a traditional roof over the lifetime of a development. A flat roof is defined as a roof with a slope of between 0° and 10° in pitch.

The Water Framework Directive and the associated [River Basin Management Plan](#) for the Anglian region requires public bodies to have a positive impact on the quality of lakes, rivers and groundwater collectively called water bodies. The water bodies in Cambridge are currently failing to achieve the required status of 'good'. Quality refers to the quality of the water body in terms of the quality of the water itself, the quality of the shape and form of the water body and the quality of the biodiversity of the water body.

This policy seeks to ensure all surface water that is discharged to ground or into rivers, watercourses and sewers has an appropriate level of treatment to reduce the risk of diffuse pollution.

The policy also recognises that development adjacent to a water body provides an opportunity for both the development and the water body and that they should complement and enhance each other.

How the Policy Came About:

45. Water sensitive design is an approach that considers water as a valuable resource in terms of re-use, visual amenity, biodiversity enhancement and its wider benefits such as providing opportunities for recreation and its role in food production. This approach manages surface water runoff in the most sustainable way, integrating it within the landscape, cleaning the water as it passes through the system and reducing the risk of flooding to the development, adjacent land and land downstream. Water is re-used wherever possible, reducing the burden on drinking water supplies. This is considered the most efficient and cost effective way of managing surface water as evidenced by the Water sensitive urban design scoping study produced by CIRIA¹⁰).

¹⁰<http://www.ciria.org/service/knowledgebase/AM/ContentManagerNet/ContentDisplay.aspx?Section=knowledgebase&ContentID=23581>

46. In accordance with the findings of the Green Infrastructure Study¹¹ and the National Planning Policy Framework, surface water management should be integrated into our natural spaces (green infrastructure), existing water bodies (blue infrastructure) and our built environment (grey infrastructure). This increases the efficiency of water management and maximises their multiple benefits.
47. One of the core planning principles of the National Planning Policy Framework (paragraph 17) is that planning should take full account of flood risk, encourage the use of existing resources and encourage the use of land for multiple benefits. The Flood and Water Management Act¹² and National and Local Flood and Coastal Erosion Risk Management Strategies¹³ espouses consideration of flood risk being central to planning and highlights the positive benefit to existing issues that good design within new developments can bring. The National Planning Policy Framework also requires that when determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere.
48. This policy is about the promotion of the continued delivery of what is considered current best practice in terms of the design of sustainable drainage systems in Cambridge and how to realise the range of benefits they offer through high quality design. This draws on the recommendations of the National Planning Policy Framework and the principles of good design contained with the draft National SuDS Standards¹⁴ published by Defra.
49. Sustainable drainage systems are often seen as additions to a development to deal with the problem of surface water and they do not always fully realise the multifunctional benefits they offer. The key to successful management of surface water within a development is to have it integrated within the development and to think about this at the earliest possible opportunity in the design process. (Planning for SuDS CIRIA C687).
50. This policy is a manifestation of the recommendation with the Water Cycle Strategy Phase 2 (July 2011) REC SWM 115: Planning policy recommendations: Surface water management:
- Development should achieve 100% above ground surface water drainage except where this is not feasible due to housing densities, land take, ground conditions, topography, or other circumstances outlined within the development proposals.
 - Where 100% above ground drainage is not feasible due to the size of development (i.e. windfall and non-strategic developments) or proposed high densities, the development proposals should maximise opportunities to use

¹¹ http://www.cambridgeshirehorizons.co.uk/our_challenge/GIS.aspx

¹² <http://www.legislation.gov.uk/ukpga/2010/29/contents>

¹³ <http://www.environment-agency.gov.uk/research/policy/130073.aspx>

¹⁴ <http://www.defra.gov.uk/consult/files/suds-consult-annexa-national-standards-111221.pdf>

¹⁵ http://www.cambridgeshirehorizons.co.uk/documents/environment/cambridge_area_wcs_phase2.pdf

SUDS measures which require no additional land take, i.e. green roofs, permeable surfaces and water butts.

- Development proposals should ensure that surface water drainage is integrated within the built environment. In addition, surface water drainage proposals should maximise opportunities to create amenity, enhance biodiversity, and contribute to a network of green (and blue) open space, in tandem with the Cambridgeshire Green Infrastructure Strategy to 2031¹⁶.
- Surface water drainage should be considered at an early stage of the master planning process, to allow maximum integration of drainage and open space, and to minimise the additional land take required by above ground drainage.

51. The Interim Sustainability Appraisal of the Issues and Options Report indicated that this option would be beneficial to Cambridge and the new communities created with integrated water management techniques. This policy approach would ensure that water management proposals form an integrated element of the overall design of developments, which will in turn lead to water management solutions that offer multiple benefits beyond just reduction of flood risk, including the enhancement of biodiversity and mitigation of the urban heat island effect.

52. In the consultation responses, there were concerns about having a prescriptive approach to assigning land use to multi-functional water management features and the effect on the viability of a development. This has been noted and a less prescriptive approach to encouraging best practice has been incorporated into the development of the policy as development sites within the City Centre may require a larger open space to built form ratio to be viable. This policy encourages best practice without restricting percentages of open space through the use of rainwater harvesting and/or green roofs.

53. The policy also includes requirements related to the provision of green/brown roofs. All extensive green roofs provide better returns on investment than shingle or paving based inverted roofs. Extensive substrate base roofs that are hydro-seeded or bio-diverse provide better returns on investment than a basic bare roof. Semi-extensive roofs also provide better returns on investment than inverted roofs.¹⁷

54. Green/brown roofs offer multiple benefits in terms of surface water management, amenity, biodiversity, water quality improvements, carbon reduction, noise attenuation, and reduction of the urban heat island effect, and they can be more cost effective than conventional roofs, as noted in the [Living Roofs and Wall Technical Report](#).

55. Some respondents raised concerns about the impact of such a policy on the viability of development. However, as evidenced by the Living Roofs and Walls

¹⁶ http://www.cambridgeshirehorizons.co.uk/our_challenge/GIS.aspx

¹⁷ Greater London Authority, 2008, Living Roofs and Walls Technical Report.
www.london.gov.uk/sites/default/files/uploads/living-roofs.pdf

Technical Report (2008)¹², if the right type of green/brown roof is used in the right location they can be more cost effective than traditional roofs and can increase the time between major maintenance on flat roofs.

56. In dense urban environments, green/brown roofs can often be the only effective measure in combating the cumulative detrimental impact of urban creep associated with minor developments in terms of flood risk. Because of the nature of the high levels of surface water flood risk in Cambridge, this policy enables minor development without adding to that risk.
57. As the sustainability appraisal states, the use of green/brown roofs can also reduce the urban heat island effect and contribute to an overall climate change adaptation position which is required under the Planning Act and a core planning principle of the National Planning Policy Framework.
58. It is recognised that they are not appropriate in all situations and this has been reflected in the creation of the policy, for example in certain instances where they may not relate well to the historic environment.
59. Current water body quality status in Cambridge is:
 - The Cam (upstream) – ‘poor’;
 - The Cam (downstream) – ‘moderate’;
 - Bin Brook – ‘moderate’;
 - Hobson’s Brook – ‘moderate’;
 - Cherry Hinton Brook – ‘moderate’¹⁸.
60. The Water Framework Directive requires that all water bodies are at ‘good’ status by 2015.
61. The Council has a duty to ensure that there is improvement to water body quality through its policies and actions, including planning. When considered in the context of the [Anglian River Basin Management Plan](#) (2009) and the Water Framework Directive (2000), the status of the water body quality in Cambridge currently varies from ‘poor’ to ‘moderate’ across a number of water bodies and groundwater supplies including the Cam and Ely Ouse Chalk. Cambridge’s water bodies have not achieved ‘good’ status as a result of canalisation, with a loss of their natural characteristics, and the flow of untreated surface water runoff into the watercourses and the River Cam.
62. Only one option was put forward for policy development because the Council has a statutory duty to have regard to the Water Framework Directive and the associated Anglian River Basin Management Plan. The National Planning Policy Framework is clear that the planning system should contribute to and enhance the natural and local environment, including preventing new development from

¹⁸ Environment Agency (2009), Anglian River Basin Management Plan

contributing to water pollution. This option attracted strong support at the Issues and Options consultation, with the Interim Sustainability Appraisal noting that it would have many positive benefits across a number of sustainability themes.

ISSUE: FLOOD RISK

Strategic Vision/Objective:

Vision:

Cambridge will be a pioneer in its approach to sustainable development and climate change, transitioning to a low and eventually zero carbon economy. Development will contribute to making Cambridge a water sensitive city, capable of adapting to our changing climate, making best use of energy, water and other natural resources, securing radical reductions in carbon emissions and minimising environmental impact.

Objectives:

- To ensure that a water sensitive urban design approach is taken in all development proposals so that they are appropriate in terms of flood risk and water body quality, see water as a valuable resource and have a positive impact on the River Cam and other water features.

POLICY:

Policy 14: Flood Risk

Potential flood risk from the development:

Development will be permitted providing it is demonstrated that:

- a) The peak rate of run-off over the development lifetime, allowing for climate change, is no greater for the developed site than it was for the undeveloped site;
- b) The post development volume of run-off, allowing for climate change over the development lifetime, is no greater than it would have been for the undeveloped site. If this cannot be achieved then the limiting discharge is 2 l/s/ha for all events up to the 100 year return period event¹⁹;
- c) The development is designed so that the flooding of property in and adjacent to the development would not occur for a 1 in 100 year event plus an allowance for climate change and in the event of local drainage system failure;

¹⁹ Where the pre-development peak rate of run-off for the site would result in a requirement for the post-development flow rate to be less than 5 l/s at a discharge point, a flow rate of up to 5 l/s may be used where required to reduce the risk of blockage. If discharge is to be pumped then this allowance does not apply;

- d) The discharge locations have the capacity to receive all foul and surface water flows from the development. Including discharge by infiltration, into water bodies and into sewers;
- e) There is a management and maintenance plan for the lifetime of the development. which shall include the arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime; and
- f) The destination of the discharge obeys the following priority order:
 - 1. Firstly, to ground via infiltration
 - 2. Then, to a water body
 - 3. Then, to a surface water sewerDischarge to a foul water or combined sewer is unacceptable.

Potential flood risk to the development:

Development will be permitted if an assessment of the flood risk is undertaken following the principles of the National Planning Policy Framework and additionally:

For an undeveloped site:

- a) If it is not located within flood zone 3b, unless it is a water compatible development and does not increase flood risk elsewhere by either displacement of flood water or interruption of flood flow routes and employs flood resilient and resistant construction including appropriate boundary treatment and has a safe means of evacuation.
and
- b) If it is not located within flood zone 3a, unless it is a water compatible development or minor development when the principles in a) above apply.
and
- c) If it is located within flood zone 2 or a surface water wetspot (see Figure 11 included in Appendix D) and employs flood resilient and resistant construction as appropriate.
and
- d) Floor levels are 300mm above the 1 in 100 year flood level plus an allowance for climate change where appropriate and/or 300mm above adjacent highway levels where appropriate.

For a previously developed site:

Opportunities should be taken to reduce the existing flood risk by the positioning of any development such that it does not increase flood risk elsewhere by either displacement of flood water or interruption of flood flow routes and employs flood resilient and resistant construction including appropriate boundary treatment and has a safe means of evacuation.

Supporting Text:

Both the [Strategic Flood Risk Assessment](#)²⁰ and [Surface Water Management Plan for Cambridge](#)²¹ have found that without the mitigation measures outlined in this policy, developments could increase flood risk elsewhere. Flood risk assessments should make reference to the latest version of these studies. There is also an opportunity to reduce the overall flood risk in Cambridge through re-development. This policy seeks to address this with the same design standards applied to new developments on previously developed sites as undeveloped sites as this refers to the site in its natural state prior to any development taking place.

The rivers, watercourses, sewers and ground conditions throughout Cambridge have varying amounts of capacity for flow from new developments and an adequate assessment of this capacity must be undertaken to support any development proposals. This policy builds upon the standards currently being achieved in the major growth sites on the fringes of Cambridge.

The appropriate responsible bodies including the Environment Agency, Anglian Water and Cambridgeshire County Council should be consulted, as appropriate, during the initial design process for any new development or re-development.

The [Great Ouse Catchment Flood Management Plan](#)²² has assessed how an increase in the flow of water in rivers and watercourses due to climate change will affect Cambridge. It has concluded that flood zones will be inundated more frequently and for longer. This seeks to clarify what development would be acceptable in which flood zones. The findings of the Surface Water Management Plan for Cambridge highlights the importance of a careful consideration of the levels within a development such that if extreme events occur or there is a maintenance issue that causes the drainage system to stop working, properties will not flood as a result of surface water flooding (pluvial).

In flood zone 3, water maybe flowing in the general direction of the river and interruption of these flows can increase flood risk to adjacent developments. As such, careful consideration must be given to the positioning of development on site so there is no interruption of these flows is necessary in the design of a development. This should also include the consideration of boundary treatments to enable floodwater to flow with a minimum of hindrance to the flow.

Discharge of surface water to a foul or combined sewer is unacceptable.

How the Policy Came About:

63. Within Cambridge:

- 11,061 properties are currently at risk of pluvial (surface water) flooding²³.

²⁰ <https://www.cambridge.gov.uk/strategic-flood-risk-assessment>

²¹ <https://www.cambridge.gov.uk/background-documents>

²² <http://www.environment-agency.gov.uk/research/planning/114303.aspx>

²³ Cambridge and Milton Surface Water Management Plan 2011

- Estimated economic damages associated with pluvial (surface water) flood risk is up to £1,866,839 (annualised average damages)⁸.
- Current fluvial (river) flood risk - 986 people would be affected by a 1 in 100 year (1%) flood event and 1,745 people for a 1 in 1000 year (0.1%) event.²⁴
- Future fluvial flood risk (in 2110) - 1,483 people would be affected by a 1 in 100 year event and 2,544 people for a 1 in 1000 year event²⁵.
- Based on these figures of potential flood risk, the current estimated economic damage from fluvial flood risk is £157,667 (annualised average damages), and in the future (2110) this would rise to £1.7 million (annualised average damages)²⁶.

64. Cambridge has issues with both surface water (pluvial) and river (fluvial) flood risk throughout Cambridge. The [Surface Water Management Plan for Cambridge \(2011\)](#) shows that the majority of Cambridge is at high risk of surface water flooding. Development, if not undertaken with due consideration of the risk to the development and the existing built environment, will further increase this flood risk.

65. The [Cambridge and South Cambridgeshire Level 1 Strategic Flood Risk Assessment \(2010\)](#) shows that there are areas adjacent to the River Cam and smaller watercourses that are at varying degrees of flood risk. As all surface water drains into the watercourses and the River Cam, due consideration must be given to the impact of any new development in Cambridge upon the consequential increase in flood risk downstream.

66. The technical guidance that accompanies the National Planning Policy Framework requires local authorities to seek opportunities for an overall reduction in flood risk in the area and this policy is a way achieving that aim and the Cambridge policy of 'do more to reduce flood risk' from the Great Ouse Catchment Flood Management Plan.

67. Paragraph 100 of the National Planning Policy Framework states that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flooding elsewhere. Local Plans should be supported by Strategic Flood Risk Assessment and develop policies to manage flood risk from all sources. Local plans should apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account of the impacts of climate change. This approach has also been taken as part of the

²⁴ There are two commonly used ways of expressing how frequently a particular depth or intensity of rainfall occurs. Return period such as 1 in 100 or 1 in 1000 is the average time interval between rainfall events of a given size. 1% or 0.1% is the annual probability of that event happening each year. Numbers from Environment Agency - Great Ouse Catchment Flood Management Plan 2010

²⁵ Environment Agency (2010), Great Ouse Catchment Flood Management Plan

²⁶ Annualised annual damages (AAD) is the average damage per year in monetary terms that would occur at each specific address point, within the modelled domain, from flooding over 100 years.

identification of sites for allocation in the Local Plan as part of the work on the Strategic Housing Land Availability Assessment, with the exception test applied where appropriate.

68. Although only one option was put forward for policy development, this has been refined into two parts, one dealing with the potential risk posed by the development and how that risk can be managed in Cambridge and another dealing with the potential risk posed to the development by the existing fluvial and pluvial sources and how that can be managed.
69. There was a strong level of support for this option during the Issues and Options consultation and it is one of the core planning principles in the National Planning Policy Framework (paragraph 17). Cambridge City Council, under the Flood and Water Management Act 2010, are a flood risk authority and must have due regard to flood risk management (which includes the reduction of flood risk) in everything we undertake as that authority, including planning. There is a [National Flood and Coastal Erosion risk Management Strategy for England](#) that also encourages local authorities to manage flood and coastal erosion risks in an appropriate way, taking account of the needs of communities and the environment. The policy contains specific local requirements based on local evidence from the Surface Water Management Plan for Cambridge and Milton (2011) and the Strategic Flood Risk Assessment (2010) and therefore does repeat national policy. It focuses on location, resilience, resistance and appropriate design.
70. The scale and size of developments has been considered when writing the policy to ensure clarity is provided on how it will be applied to extensions and refurbishments as measures that would be appropriate for large developments would not necessarily be appropriate for domestic extensions. The policy also seeks to clarify acceptable development in the Environment Agency's flood zone 3 (risk of fluvial flooding up to a 1 in 100 year event).

ISSUE: CONTAMINATED LAND

STRATEGIC VISION/OBJECTIVE:

Vision:

Cambridge will be a pioneer in its approach to sustainable development and climate change, transitioning to a low and eventually zero carbon economy. Development will contribute to making Cambridge a water sensitive city, capable of adapting to our changing climate, making best use of energy, water and other natural resources, securing radical reductions in carbon emissions and minimising environmental impact.

Objective:

- To ensure that development is managed to minimise its impact on the local environment, health and amenity in terms of all sources of pollution and

contamination and to ensure that it is not located close to existing pollution sources, unless sufficient mitigation measures are proposed as part of the development package.

Policy: Contaminated Land

Policy 15: Contaminated Land

Development will be permitted where the applicant can demonstrate that:

- a. There will be no adverse health impacts to future occupiers from ground contamination resulting from exiting/previous uses of the area, and
- b. There will be no adverse impacts, from ground contamination, to the surrounding occupiers and environment, caused by the development.

Where contamination is suspected an assessment should be undertaken which identifies existing/former uses in the area that could have resulted in ground contamination; and if necessary:

- a. Design and undertake an intrusive investigation to identify the risks of ground contamination, including ground gases; and if necessary
- b. Adopt and implement mitigation measures, to ensure a safe development and that the site is stable and suitable to the new use in accordance with the National Planning Policy Framework;
- c. Ensures that there are no adverse health impacts to future/surrounding occupiers and which minimises impact to the environment.

Proposals for sensitive developments in an existing/former industrial area will be permitted where the uses that could result in ground contamination are identified as part of the development package.

SUPPORTING TEXT

The growth of rail infrastructure and an expanding population in the 1800s in Cambridge led to chalk quarrying, clay extraction, engineering and energy provision, through town gas production, during the industrial age. The last century has also seen considerable land filling of voids left by clay and chalk marl extraction, electronics manufacturing and engineering.

Pollution can arise from any of the activities presented above and many other sources. Land and groundwater can present a potential source of pollution if they have been contaminated by previous land uses.

Land contamination is a material consideration for the purposes of planning. It is important to ensure that proposed developments are situated on land that will be safe and suitable for the proposed use. There will be situations where remediation works will be required to make land safe prior to being developed; for example if a site's previous use was a petrol station, there will be a need to ensure that no

residual fuel in storage tanks or in the soil itself is left on-site as it may cause a health hazard for future users. In some instances, the level and type of contamination of land may make it unsuitable for certain types of development, for example recently closed landfill sites are considered to be unsuitable for residential development.

On a precautionary basis, the possibility of contamination should be assumed when considering both development plans and individual planning applications in relation to all land subject to or adjacent to previous industrial use and also where uses are being considered that are particularly sensitive to contamination. Conditions shall be applied to planning permissions to secure appropriate pollution prevention or mitigation measures where required. In major developments it will also be required to demonstrate sustainable forms of managing contaminated land (mitigation measures), which reduces the need to landfill and minimises the impacts on climate change.

In the context of this policy, examples of sensitive developments include housing, schools, hospitals and children's playing areas. The DOE Profiles, available for download from the [Environment Agency Website](#), provides details on the processes and substances associated with common industrial uses.

HOW THE POLICY CAME ABOUT:

71. Policy 14 is the outcome of the consultation on two policy options that were presented during the Issues and Options stage:
 - Option 84 – development of an overarching policy, dealing with all forms of pollution
 - Option 87- development of a detailed contaminated land policy
72. Land contamination is a material consideration for the purposes of planning. It is important to ensure that proposed developments are situated on land that will be safe and suitable for the proposed use.
73. As part of the [Environmental Protection Act 1990](#) (as amended), the Part II A regime focuses 'on land which has been contaminated in the past'. The regime was not introduced in order to address contamination issues arising during the redevelopment of land. This approach is reinforced in the Environmental Protection Act 1990: Part II legislation which states that 'Part IIA is one of the main policy measures used to deal with the historic legacy of contaminated land' and that 'the role of the town and country planning and building control regimes is ensuring that land is made suitable for any new use, as planning permission is given for that new use.'
74. The [Taylor Review](#) (2012) by Lord Taylor identified that there are 'A number of policy areas, mainly from the introduction of the Localism Act and the National Planning Policy Framework, where there are gaps in the present guidance' and concludes that 'Guidance is needed on noise, air, land, water and light pollution, important issues on which Government could set standards in order to ensure

appropriate development'. Despite the Taylor Review clearly identifying a gap in the existing guidance for contaminated land, there is currently no clear commitment/indication for the timescale for this gap to be addressed at the national level. It is therefore of great importance that this gap is addressed at a local level through the Local Plan.

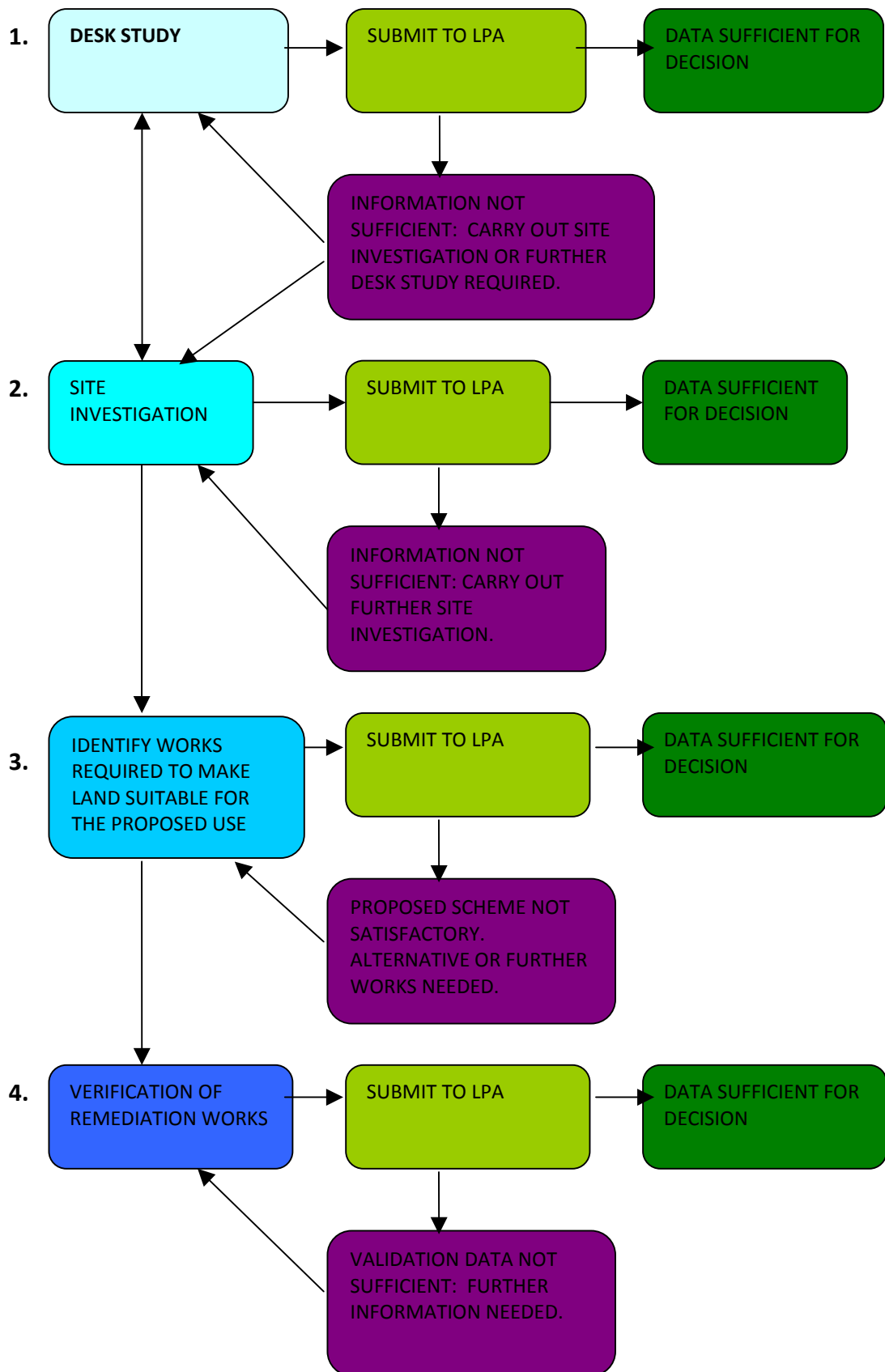
75. The adoption of a contaminated land policy at a local level is supported by paragraph 121 of the National Planning Policy Framework, which states that 'Planning policies and decisions should also ensure that:
 - 1) the site is suitable for its new use taking account of ground conditions and land instability and;
 - 2) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990'.
76. This approach is also reinforced by the Environmental Protection Act 1990 which states that 'Land contamination, or the possibility of it, is a material consideration for the purposes of town and county planning. This means that a planning authority has to consider the potential impacts of contamination both when it is developing plans and when it is considering individual applications for planning permission'.
77. The Interim Sustainability Appraisal has also recognised that the adoption of this policy can ensure that new developments are appropriate; given potential sensitivities to adverse effects from pollution, and also that the site is suitable for its new use. Strong support was also expressed in the representations for a policy that would 'prevent new developments from contributing to pollution', which is an integral part of the National Planning Policy Framework.
78. As such one option for the new local plan would be to develop a detailed policy dealing with contamination, incorporating key elements of guidance previously contained in Planning Policy Statement 23. The policy could be, if need be, supported by a Supplementary Planning Document, which could set out some of the finer detail to help provide certainty for developers.
79. During the consultation, one respondent felt that a general policy on pollution matters would be sufficient with further specific guidance contained in a Supplementary Planning Document. While a single policy would be a simpler approach, the National Planning Policy Framework is clear the Supplementary Planning Documents should only be used where they can help applicants make successful applications or aid infrastructure delivery. They should not be used to add unnecessarily to the financial burdens on development, and given that measures to remediate and mitigate pollution matters will have a financial implication for developments, these matters should be dealt with through policy.
80. The principles set out in the National Planning Policy Framework, paragraphs 109-111, 120 and 121, demonstrate why contaminated land is important and

what criteria the new developments should meet with respect to land pollution. The implementation of the policy presented above will build further on the principles of the National Planning Policy Framework by providing guidance on how these principles will be met, reference to technical material and acceptable practises will be included. This approach is supported by the National Planning Policy Framework in paragraph 8, which states that ‘the planning system should play an active role in guiding development to sustainable solutions’. Ultimately, this policy will enable owners, land developers and any other interested parties to demonstrate how a development is ‘suitable for its new use’ and have ‘minimised impact to the local environment’, which lie at the heart of the National Planning Policy Framework.

Procedure for dealing with Contaminated Land

81. The criteria for requiring a Contaminated Land Assessment are set out in the Developers’ Guide. All applications should be in line with the latest nationally accepted guidance available at the time of application. This and further detailed information is available in the Cambridge City Council [Developers’ Guide to Contaminated Land](#).
82. Figure B summarises the four main phases that may be necessary to ensure that a site is suitable for use. Depending on the results of each phase it may not be necessary for all phases to be completed.

Figure B: Summary of the procedure for considering land contamination



ISSUE: LIGHT POLLUTION

STRATEGIC VISION/OBJECTIVE:

Vision:

Cambridge will be a pioneer in its approach to sustainable development and climate change, transitioning to a low and eventually zero carbon economy. Development will contribute to making Cambridge a water sensitive city, capable of adapting to our changing climate, making best use of energy, water and other natural resources, securing radical reductions in carbon emissions and minimising environmental impact.

Objective:

To ensure that development is managed to minimise its impact on the local environment, health and amenity in terms of all sources of pollution and contamination and to ensure that it is not located close to existing pollution sources, unless sufficient mitigation measures are proposed as part of the development package.

POLICY

Policy 15: Light Pollution Control

Development proposals which include new external lighting, or changes to existing external lighting, will be permitted where it can be demonstrated that:-

- a. It is the minimum required to undertake the task, taking into account public safety and crime prevention;
- b. Upwards or intrusive light spillage is minimised;
- c. It minimises impact to local residential amenity; and
- d. It minimises impact to wildlife and the landscape character, particularly at sites on the edge of Cambridge.

Developments of major sites will be required to submit an assessment of the impact on any sensitive residential premises both on and off site.

SUPPORTING TEXT:

The lighting of new developments must be carefully designed to ensure that areas are appropriately lit, whilst avoiding or minimising light pollution. Excessive lighting reduces the visibility of the night sky, is a waste of energy and can harm residential amenity by disturbing people's sleep. It can also disturb wildlife and be visually intrusive in the landscape. Details of the proposed lighting scheme should be in line with the latest nationally accepted guidance available at the time of the application and submitted with the planning application. Lights should be carefully selected and

sited for their purpose, directed only onto the area where they are needed, and where necessary shielded by way of appropriate landscaping. Particular care will need to be taken with floodlighting of sports pitches. Where appropriate, conditions will be used to control lighting, including limiting the hours of illumination.

The City council supports the lighting of landmark buildings and public spaces in line, where it is carried out in a sensitive way avoiding light spillage.

HOW THE POLICY CAME ABOUT:

83. Paragraph 125 of the National Planning Policy Framework specifically mentions that planning policies and decisions should aim to “limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.” Although light has now been brought into the Statutory Nuisance provisions of the Environmental Protection Act 1990, this does not protect to the same standard as detriment to the amenity and neither does it extend to protecting intrinsically dark areas or wildlife. As the aim of the planning system is protection of the amenity, intrinsically dark area and wild life the nuisance powers given to Local Authorities cannot therefore be accepted as a suitable alternative and hence a planning policy on light is required.

84. A needs assessment, site survey and modelled levels of light spill will be required for major development, development with floodlighting or in countryside/edge of city locations as these forms of development could contribute significantly to light pollution. Ecological assessment of the development site may be needed in some instances, where there are species, which are particularly sensitive to light. For developments that include cycle routes over private land, the standard of lighting will be expected to be commensurate with lighting on the public highway, where appropriate. Lighting to cycle routes on the highway is regulated by the Highways Authority, Cambridgeshire County Council.

85. Whilst respondents to the Issues and Options consultation suggested that a single general policy represented a simpler approach to dealing with all forms of pollution including light, it would not have sufficient detail to address the full range of issues pertaining to light pollution. The use of a range of different policies which clearly set out the requirements expected of developers would allow greater certainty through the development process. This could impact positively on the cost of development and the likelihood of development coming forward.

ISSUE: NOISE AND VIBRATION

STRATEGIC VISION/OBJECTIVE:

Vision:

Cambridge will be a pioneer in its approach to sustainable development and climate change, transitioning to a low and eventually zero carbon economy. Development will contribute to making Cambridge a water sensitive city, capable of adapting to our changing climate, making best use of energy, water and other natural resources, securing radical reductions in carbon emissions and minimising environmental impact.

Objective:

To ensure that development is managed to minimise its impact on the local environment, health and amenity in terms of all sources of pollution and contamination and to ensure that it is not located close to existing pollution sources, unless sufficient mitigation measures are proposed as part of the development package.

POLICY

Policy 17: Protection of Human Health From Noise and Vibration

Development will be permitted where it is demonstrated that it will not lead to significant adverse effects, including cumulative effects, on health and amenity from noise and vibration: or that significant adverse effects can be minimised through appropriate reduction and/or mitigation measures (prevention through design is preferable to mitigation).

Developers of major sites and sites which include noise sensitive development located close to existing noise sources shall provide a noise assessment, with the information presented in Table 5 below also taking into account along side the latest nationally and internationally accepted guidance at the time of the application. Proposals that are sensitive to noise and located close to existing noise sources, will be permitted where adequate noise mitigation measures are provided as part of the development package.

Development of sites that include noisy activities or plant or activities that operate at unsocial hours shall provide a noise assessment based on current national available at the time of the application.

SUPPORTING TEXT:

Noise not only causes annoyance, but can also cause serious disturbance such as the loss of sleep. Research by the World Health Organisation (WHO) has also shown noise to cause measurable health affects. Some aspects of noise is covered other legal controls such as nuisance law. These controls cannot meet the aim of the planning system, which is the protection of amenity and the test of 'statutory nuisance' sets a much higher standard than that of 'unacceptable harm'. Neither do they include the impact from transport related noise on development. Therefore noise is a material planning consideration. However, it is not the role of the Local Plan to prevent all forms of development that may result in some measure of noise,

but rather to control development that may have significant adverse effects. The Plan does not seek to duplicate the statutory nuisance and noise controls provided by other legislation.

This policy relates to noise from all potential sources and protects amenity, particularly to noise sensitive receptors including receptors living and working in Cambridge. It will also aim to protect any 'Quiet Areas' that may be identified in the future under the Environmental Noise (England) Regulations 2006. Vibration is also considered under this policy.

For the purposes of the above, noise includes vibration.

Table 5: Noise Exposure Categories (adapted from Planning Policy Guidance Note 24: Planning and Noise)

NOISE EXPOSURE CATEGORY	DESCRIPTION
A	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as a desirable level.
B	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise.
C	Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	Planning permission should normally be refused.

A recommended range of noise levels is given below for each of the NECs for dwellings exposed to noise from road, rail, air, and "mixed sources".

The NEC noise levels should not be used for assessing the impact of industrial noise on proposed residential development because the nature of this type of noise, and local circumstances, may necessitate individual assessment and because there is insufficient information on people's response to industrial noise to allow detailed guidance to be given.

However, at a mixed noise site where industrial noise is present but not dominant, its contribution should be included in the noise level used to establish the appropriate NEC.

The NEC procedure is only applicable where consideration is being given to introducing residential development into an area with an existing noise source, rather than the reverse.

Noise levels ⁰ corresponding to the Noise Exposure Categories (NEC) for new dwellings L _{AeqT} dB				
Existing Noise Source	A	B	C	D
Road traffic				
07.00 – 23.00	<55	55 – 63	63 – 72	>72
23.00 – 07.00¹	<45	45 – 57	57 - 66	>66
Rail Traffic				
07.00 – 23.00	<55	55 – 66	66 – 74	>74
23.00 – 07.00¹	<45	45 – 59	59 - 66	>66
Air Traffic ²				
07.00 – 23.00	<57	57 – 66	66 – 72	>72
23.00 – 07.00¹	<48	48 – 57	57 - 66	>66
Mixed sources ³				
07.00 – 23.00	<55	55 – 63	63 – 72	>72
23.00 – 07.00 ¹	<45	45 – 57	57 - 66	>66

Notes

- 0 Noise levels: the noise level(s) (L_{Aeq,T}) used when deciding the NEC of a site should be representative of typical conditions.
- 1 Night-time noise levels (23.00 - 07.00): sites where individual noise events regularly exceed 82 dB L_{Amax} (S time weighting) several times in any hour should be treated as being in NEC C, regardless of the L_{Aeq,8h} (except where the L_{Aeq,8h} already puts the site in NEC D).
- 2 Aircraft noise: daytime values accord with the contour values adopted by the Department for Transport which relate to levels measured 1.2m above open ground. For the same amount of noise energy, contour values can be up to 2 dB(A) higher than those of other sources because of ground reflection effects.
- 3 Mixed sources: this refers to any combination of road, rail, air and industrial noise sources. The "mixed source" values are based on the lowest numerical

values of the single source limits in the table. The "mixed source" NECs should only be used where no individual noise source is dominant.

HOW THE POLICY CAME ABOUT:

86. The National Planning Policy Framework states at paragraph 6 that the purpose of the planning system is to “contribute to the achievement of sustainable development.” It goes on to describe an environmental role as one of the three dimensions to sustainable development and highlights that minimising pollution is an important part of this role. Paragraph 17 lists the core planning principles. These include that planning should “always seek to secure high quality design and a good standard of amenity for all existing and future occupiers of land and buildings.” Thus leading to better places for people to live. Paragraph 109, in relation to conserving and enhancing the natural environment, explains that the planning system should prevent “both new and existing development from contributing to, or being put at, unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution.” Paragraph 123, then goes on to describe four main aims for planning policies concerning noise. There is a strong message throughout the National Planning Policy Framework that noise is an important factor in the quality of life, health and well-being and so is a key aspect of sustainable development supporting the need for a planning policy.
87. The [Taylor Review](#) of Government Planning Practice Guidance which was undertaken in 2012, following the introduction of the National Planning Policy Framework, recommends that new planning guidance be provided for several pollution topics including noise as “important issues on which Government could set standards in order to ensure appropriate development.” It is therefore important that a noise planning policy is produced to enable the planning authority and developers to achieve the aims of the National Planning Policy Framework both in the interim and when this guidance is available.
88. With regard to alternative legislative controls, ‘detriment to the amenity’ is a much lower level of effect than that required to establish a statutory noise nuisance under the Environmental Protection Act 1990. As such the ‘statutory nuisance’ powers provide a lower level of protection. In addition, the nuisance powers are limited to noise from premises and cannot therefore be used to protect residents from traffic or aviation noise for example. As the aim of the planning system is protection of the amenity the nuisance powers given to Local Authorities cannot therefore be accepted as a suitable alternative and hence a planning policy on noise is required.
89. There were several respondents to the Issues and Options Report consultation who were concerned over aircraft and traffic noise as well as noise from existing development. The impact of aircraft and traffic noise cannot be dealt with by other legislative controls such as the Environmental Protection Act. It is therefore necessary for future development to be controlled and protected via

the planning process. The planning process cannot deal with noise from existing developments retrospectively, this is controlled under the nuisance powers of the Environmental Protection Act 1990 which does not afford the same level of protection of amenity, thus supporting the need for a planning policy on noise to ensure future developments accord with the requirement of the National Planning Policy Framework. Whilst specific reference can be made to aircraft noise in the policy on noise pollution, the policy option on Cambridge Airport - Aviation Development contained within the Issues and Options Report (Option 198) also made reference to the need to maintain the amenity of residents.

90. In relation to road traffic noise, this is primarily the responsibility of the Highways Agency. Although the A14 is not within the city boundary, the Highways Agency will consult with the Council and any increase in noise and proposed mitigation measures affecting residents will be taken into consideration during the planning process.
91. The Local Plan and policies can only deal with proposed future development and licensing issues have to be dealt with under the relevant licensing regime. Noise issues from existing sites are controlled by the statutory nuisance procedures under the Environmental Protection Act 1990. The Local Plan and policies cannot deal with this retrospectively. In relation to music festivals, this type of event is regulated via the Licensing Regime and the statutory nuisance provisions of the Environmental Protection Act.

ISSUE: AIR QUALITY, ODOUR AND DUST

STRATEGIC VISION/OBJECTIVE:

Vision:

Cambridge will be a pioneer in its approach to sustainable development and climate change, transitioning to a low and eventually zero carbon economy. Development will contribute to making Cambridge a water sensitive city, capable of adapting to our changing climate, making best use of energy, water and other natural resources, securing radical reductions in carbon emissions and minimising environmental impact.

Objective:

To ensure that development is managed to minimise its impact on the local environment, health and amenity in terms of all sources of pollution and contamination and to ensure that it is not located close to existing pollution sources, unless sufficient mitigation measures are proposed as part of the development package.

POLICY

Policy 18: Air Quality, Odour and Dust

- a. Development will be permitted where it can be demonstrated that it does not lead to significant adverse effects on health, the environment or amenity from polluting or malodorous odour emissions, or dust or smoke emissions to air; or
- b. Where a development is a sensitive end use, that there will not be any significant adverse effects on health, the environment or amenity arising from existing poor air quality, sources of odour or other emissions to air.

Specifically applicants, where reasonable and proportionate, according to the end use and nature of the area and application, must demonstrate that:

1. There is no adverse affect on air quality in an Air Quality Management Area;
2. Pollution levels within the Air Quality Management Area will not have a significant adverse effect on the proposed use/users;
3. The development will not lead to the declaration of a new Air Quality Management Area;
4. The development will not interfere with the implementation of the current Air Quality Action plan;
5. Any sources of emissions to air, odours and dusts and smoke generated by the development are adequately mitigated so as not to lead to loss of amenity for existing and future occupants and land uses.
6. Any impacts on the proposed use from existing poor air quality, odour and emissions are appropriately mitigated.

SUPPORTING TEXT:

Pollution to air can arise from many sources and activities including traffic and transport, industrial processes, commercial premises, energy generation, agriculture, waste storage/treatment and construction sites. This policy relates to air pollution from all potential sources, in any potential form and includes dust, fumes and odour.

The primary local impacts on air quality on Cambridge are from road transports and domestic, commercial and industrial heating sources such that an Air Quality Management Area was designated in the central part of Cambridge in August 2004. Pollution to air can also arise from industrial processes, commercial premises, energy generation, agriculture, waste storage/treatment and construction sites. Despite increasing economic activity and consequent population increases, the application of air quality management and transport policy has not led to an increase in air pollution in Cambridge. It is important to ensure that development proposals continue to contribute to and enhance the natural and local environment throughout their lifetime.

Applicants shall, where reasonable and proportionate, prepare and submit with their application, a relevant assessment, taking into account guidance current at the time of the application. The criteria for requiring a Dust Risk Assessment/Management and/or an Air Quality Assessment are set out in the Air Quality in Cambridge Developers' Guide. Some applications may require appropriate pollution prevention

or mitigation measures to be acceptable. Some development may also require a permit under the Pollution Prevention and Control Act 1999.

HOW THE POLICY CAME ABOUT:

92. The Local Plan will seek to ensure that Cambridge develops in the most sustainable way possible. This means delivering our social and economic aspirations with compromising the environmental limits of Cambridge for current and future generations, as well as protecting the amenity for residents, workers and visitors in Cambridge. It will be important to ensure that new development proposals do not lead to an adverse effect on human health and amenity or a worsening of air quality, both in the Air Quality Management Area and the city as a whole. The primary local impacts on air quality in Cambridge are from road transport, with a contribution from domestic, commercial and industrial heating sources. Given the current Air Quality Management Area and the forecast growth of Cambridge, the development management process – specifically using local planning policy – is a key tool in protecting and enhancing Air Quality. Indeed, it is a specified statutory process for achieving and maintaining air quality objectives where needed.
93. Air pollution in parts of Cambridge currently breaches EU limit values for Nitrogen Dioxide (NO₂). The City Council has a statutory duty to reduce relevant pollutant levels and plan to meet the EU Limit values through the Air Quality Action Plan. The Joint Air Quality Action Plan (with Huntingdonshire and South Cambridgeshire District Councils and Cambridgeshire County Council) in 2009 incorporates measures for improvement of and protection from poor air quality using the development management system.
94. There is a strong message throughout the National Planning Policy Framework that air quality is an important factor in the quality of life, health and well-being and so is a key aspect of sustainable development supporting the need for a planning policy. Planning Policies are specifically mentioned. The Taylor review of Government Planning Practice Guidance which was undertaken in 2012, following the introduction of the National Planning Policy Framework, recommends that new planning guidance is needed for several pollution topics including air quality as “important issues on which Government could set standards in order to ensure appropriate development.” It is therefore important that an air quality planning policy is produced to provide sufficient detail to enable the planning authority and developers to achieve the quality of life and protection of human health aims enshrined in the National Planning Policy Framework both in the interim and when this guidance is available. It is clear from the responses that air quality issues are of concern; specific issues raised will be made more explicit in the forthcoming Submission Draft Local Plan.
95. Policy 18 (Air Quality, Odour and Dust) will require that the health and amenity impacts of new developments on current and future residents can be addressed. A detailed and specific Air Quality Policy will explicitly provide future protection

from poor air quality. This approach is strongly supported by the consultation responses. The policy will provide the key local approaches to reduce ambient levels of atmospheric pollutants, to minimise long-term health risk to new and existing residents from poor air quality, to minimise adverse effects of transport, domestic and industrial emissions on people and the environment and to promote a safe and healthy environment, minimising the impacts of development upon the environment. Without local policy, there will be no clear direction for developers, leading to uncertainty and inconsistency in the development management process and an increase in planning appeals. It will be difficult to carry on with the measures in the Air Quality Action Plan. With a local policy, there will be continuity of air quality regulation and ongoing compliance with the measures in the statutory Air Quality Action Plan (local authorities are required to demonstrate that they are working towards improvements in air quality to avoid the threat of judicial review; further, there will be local legitimacy and certainty within the local policy and most importantly, there will be no deterioration in air quality and an improvement in air quality in the long term.

Delivery And Monitoring For Responding To Climate Change And Managing Resources

Policy 8: Carbon Reduction, Community Energy Networks, Sustainable Design and Construction and Water Use:

- Submission of a Sustainability Statement as part of the Design and Access Statement;
- Submission of Code for Sustainable Homes and BREEAM Pre-Assessments;
- Interim and Final Code for Sustainable Homes and BREEAM certification to be submitted to the local planning authority in order to discharge conditions;
- Submission of an energy strategy demonstrating energy and carbon savings and how these have been achieved using the hierarchical approach.

Possible Monitoring:

- Number of housing completions delivered at Code Level 4 (or higher);
- Number of non-residential completions delivered at BREEAM 'very good'/'excellent';

The following information would need to be submitted alongside any applications that fall within the Strategic District Heating Area:

- Plans showing the pipe route and connection point to the wider network;
- High level technical specification to enable compatibility to be checked;
- Date of implementation and connection;
- Details of financial contribution;
- Feasibility and viability assessments; and
- Energy Statement demonstrating carbon and energy savings.

Policy 9: Allowable Solutions for Zero Carbon development

Links to the Verification and Certification Scheme proposed under the Zero Carbon Hubs work.

Policy 10: Renewable and low carbon energy generation

The following information would need to be submitted for any planning applications involving renewable or low carbon energy generation:

- Information within the Design and Access Statement as to how the proposal responds to local context, including impacts on the historic environment;
- Drawings showing the location of energy generation equipment, including height of flues where required;
- Noise impact assessments where required;
- Air Quality Impact Assessment for any development that has the potential to make air quality worse, by nature of its size, type or location.

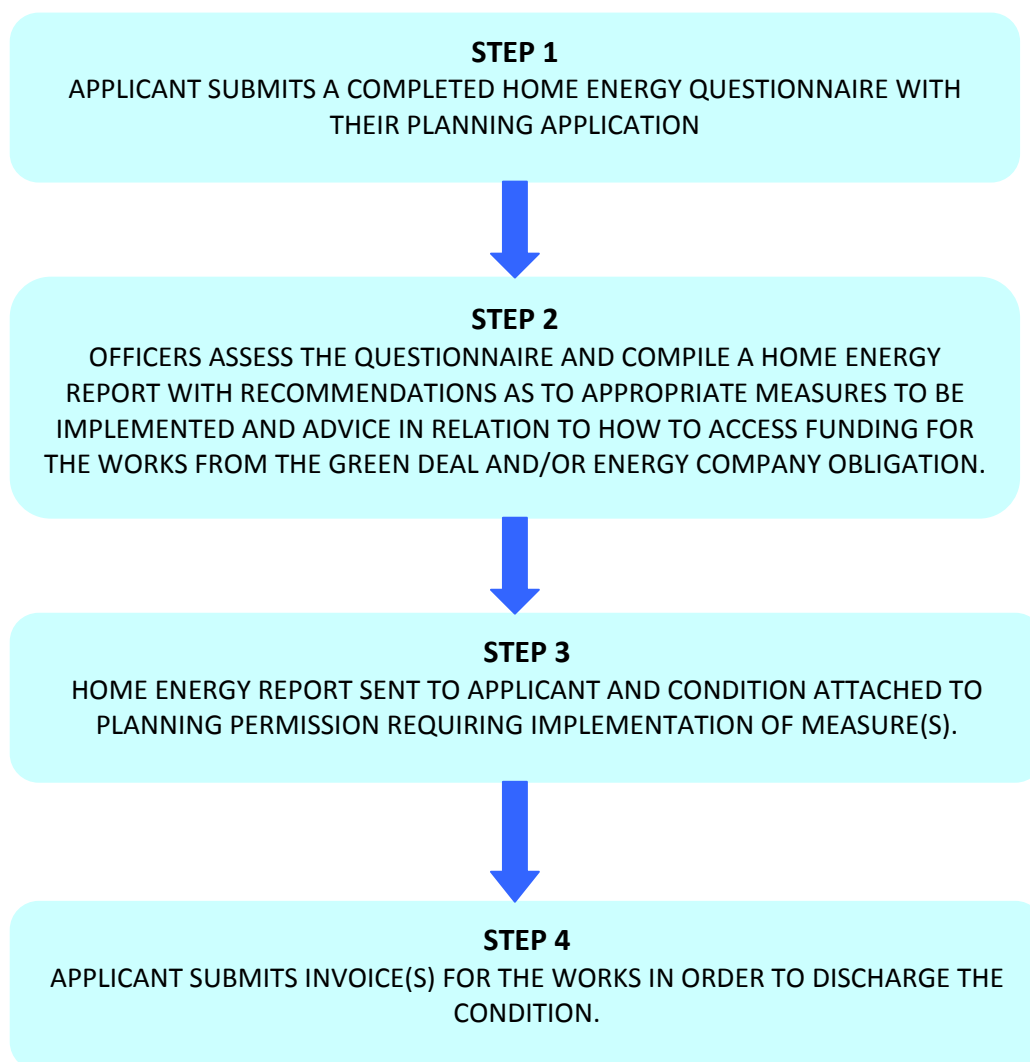
Possible monitoring:

- Number of low carbon and renewable energy installations by type;
- Total installed capacity of low carbon and renewable energy technologies by type.

Policy 11: Energy efficiency improvements in existing dwellings

The figure below outlines the process by which this policy will be implemented.

Figure C: Process for implementing Policy 4



This process could change, for example if the Council were to purchase software that allows residents to generate their own energy report – they would then submit this energy report with their application and the Council would place a condition the improvements. Software is currently being investigated by officers and could be linked to our role in the Green Deal.

Policy 12: Integrated water management and the water cycle

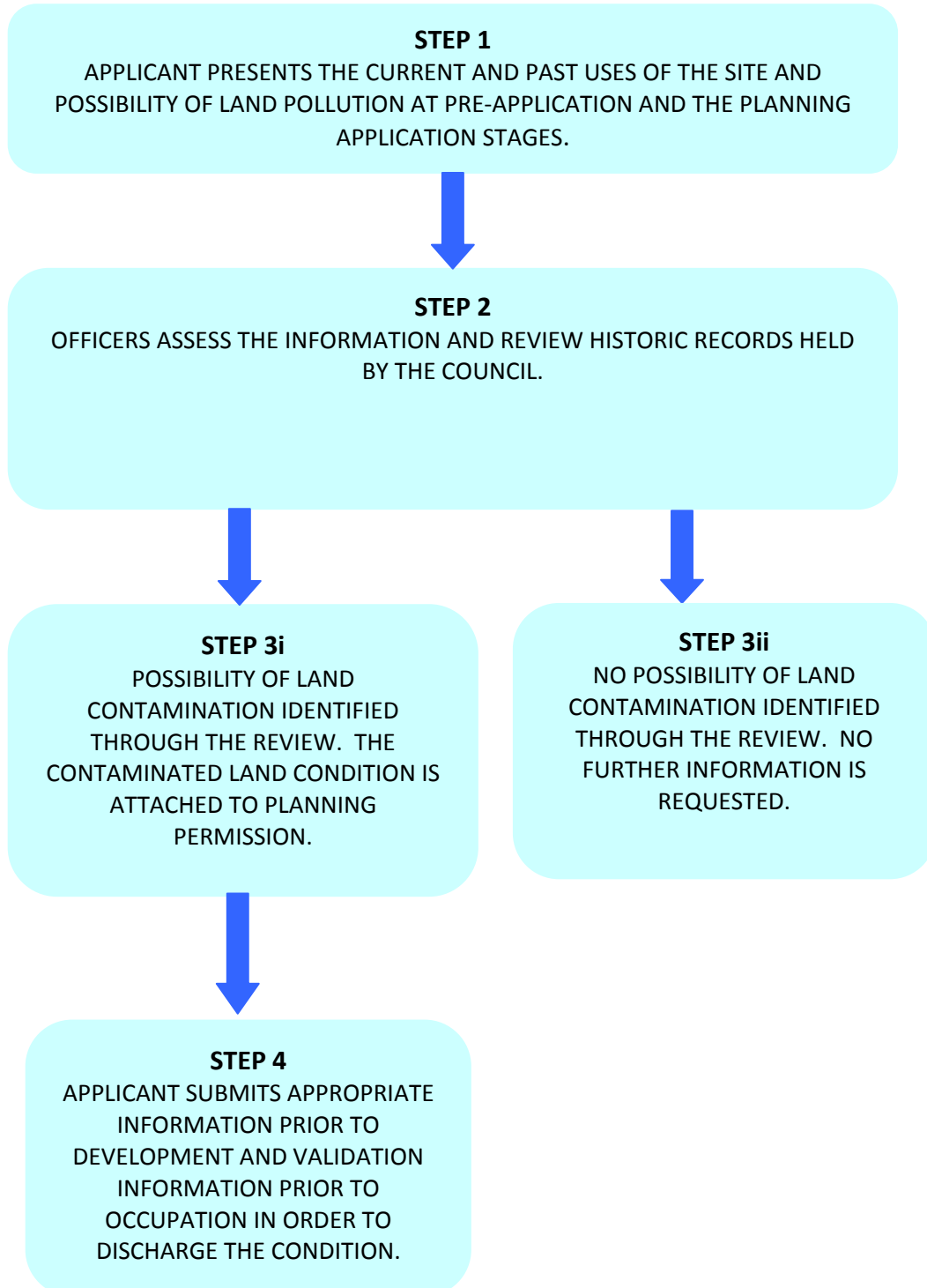
Applicants will be required to submit a drainage strategy as part of their planning application, outlining their approach.

Policy 13: Flood Risk

Applicants will be required to submit an appropriate flood risk assessment as part of their planning application, outlining their approach.

Policy 14: Contaminated Land

The process for implementing the contaminated land policy would be as follows:



Policy 16: Light Pollution Control

Applicants will be required to submit the following information as part of their planning application:

- An assessment of the need for lighting – A statement setting out why a lighting scheme is required, the proposed users and the frequency and length of use in terms of hours of illumination;
- A site survey – this should show the area to be lit relative to the surrounding area, the existing landscape features together with proposed landscape features to mitigate the impacts of the proposed lighting. This should be designed in accordance with the Institution of Lighting Engineers' (ILE) [guidance on environmental zones](#), depending on which one(s) are relevant; and the ILE Guidance notes for the reduction of obtrusive light; and
- The design of the lighting proposed – A technical report prepared by a qualified Lighting Engineer or lighting company setting out the type of lights, performance, height and spacing of lighting columns is required. The light levels to be achieved over the intended area, at the site boundaries and, for large schemes, 50m outside of the boundary of the site should be superimposed on the plan.

Policy 17: Protection of Human Health from Noise and Vibration

Noise assessments will need to be submitted for the following types of application:

- Major developments;
- Sites which include noise sensitive development located close to existing noise sources; and
- Sites that include noisy activities or plant or activities that operate at unsocial hours

Policy 18: Air Quality, Odour and Dust

Developers of sites that are sensitive to pollution, and located close to existing air polluting or fume/odour generating sources will be required to submit a relevant assessment which shows the impact upon their development

Developers of sites that include sources of air pollution, including dust, fume and odour will be required to submit a relevant assessment which shows the impact of their development

Developers of major sites, or sites within or adjacent to an Air Quality Management Area would be required to submit a Dust Risk Assessment/Management and/or an Air Quality Assessment.

The process for determining the significance of air quality is outlined in Figure D below.

Figure D: Process for determining significance of air quality, based on NSCA guidance

