

Crawley

Local Plan

Crawley Borough Local Plan Topic Paper 6: Climate Change



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1. INTRODUCTION

1.1 This Topic Paper is part of the evidence base for the Crawley Borough Local Plan 2021 – 2037¹. It clarifies the position of the Local Plan in relation to supporting, over the Plan period, the council's Climate Emergency Declaration and commitment to reducing carbon emissions to zero by 2050, and provides a summary of the technical information relating to Climate Change mitigation and adaptation which is detailed in the submission Local Plan policies:

- SD1: Presumption in Favour of Sustainable Development
- CL4: Effective Use of Land: Sustainability, Movement and Layout
- DD4: Tree Replacement Standards
- GI1: Green Infrastructure
- GI2: Biodiversity and Net Gain
- GI3: Biodiversity Sites
- SDC1: Sustainable Design and Construction
- SDC2: District Energy Networks
- SDC3: Tackling Water Stress
- EP1: Development and Flood Risk
- EP2: Flood Risk for Householder Development and Minor Non-Residential Extensions
- EP5: Air Quality
- ST1: Development and Requirements for Sustainable Transport
- ST2: Car and Cycle Parking Standards
- ST3: Improving Rail Stations

1.2 It is supported by the Sustainability Appraisal².

2. BACKGROUND

2.1 Crawley Borough Local Plan 2015

2.1.1 The Crawley Borough Local Plan adopted was adopted in December 2015. It includes the following policies related to climate change:

- SD1: Presumption in Favour of Sustainable Development (predecessor to SD1 of the submission draft 2021 Local Plan)
- CH4: Comprehensive Development and Efficient Use of Land (predecessor to CL4)
- CH6: Tree Planting and Replacement Standards (predecessor to DD4 & DD5)
- ENV1: Green Infrastructure (predecessor to GI1)
- ENV2: Biodiversity (predecessor to GI2 and GI3)
- ENV6: Sustainable Design and Construction (predecessor to SDC1)
- ENV7: District Energy Networks (predecessor to SDC2)
- ENV8: Development and Flood Risk (predecessor to EP1 & EP2)
- ENV9: Tackling Water Stress (predecessor to SDC3)

¹ Submission Draft Crawley Borough Local Plan (October 2020) CBC

² Crawley Sustainability Appraisal/Strategic Environmental Assessment (2020) CBC

- ENV12: Air Quality (predecessor to EP5)
- IN3: Development and Requirements for Sustainable Transport (predecessor to ST1)
- IN4: Car and Cycle Parking Standards (predecessor to ST2)
- IN6: Improving Rail Stations (predecessor to ST3)

2.1.2 The council's Planning & Climate Change SPD was adopted in October 2016. It provides further guidance on following Local Plan policies:

- ENV6: Sustainable Design and Construction
- ENV7: District Energy Networks
- ENV8: Development and Flood Risk
- ENV9: Tackling Water Stress
- IN3: Development and Requirements for Sustainable Transport

2.1.3 The council's Green Infrastructure SPD was adopted in October 2016. Green infrastructure is the network of multi-functional green spaces and waterways both new and existing, and both rural and urban which supports the natural and ecological processes and is integral to the health and quality of life of the population. The SPD supports the Local Plan by providing greater detail on The Green Infrastructure Network, Trees, Open Spaces, Biodiversity and Countryside and Area of Outstanding Natural Beauty. Several Local Plan policies that enable mitigation and adaption to climate change are expanded upon within the Green Infrastructure SPD. These include policies for Design, Trees, Landscaping, and Biodiversity:

- Policy CH6: Tree planting and replacement standards
- Policy ENV1: Green infrastructure
- Policy ENV2: Biodiversity

2.1.4 The Local Plan Sustainability Appraisal identifies climate change mitigation and adaptation to the impacts of climate change as key sustainability objectives. It identifies appropriate indicators for assessment of performance against these, and the following SA indicators have been subject to monitoring as part of the council's Authority Monitoring Reports:

- CO₂ emissions from Local Council Activities;
- Crawley per capita CO₂ emissions;
- Crawley per capita residual household waste;
- Proportion of household waste recycled or composted;
- Applications granted contrary to Environment Agency advice on flooding or water quality grounds.

2.1.5 The overall approach taken to climate change mitigation and adaptation in the Local Plan is largely reflective of the opportunities and constraints offered by the borough as a location. Given the borough's excellent transport links and density of housing, jobs, and shopping and leisure facilities, much of the borough's area may be considered a sustainable location for additional development, and this potential is recognised in the overall framework set in Policy SD1, as well as the inclusion of Policy CH4. In this context, the Plan's transport related policies (IN3, IN4, IN6) seek to exploit Crawley's potential

while managing associated pressures on transport networks. At the same time the approach taken to safeguarding and improving open space, biodiversity and green infrastructure in Policies CH6, ENV1 and ENV2 reflects the extent to which additional population places additional demands and pressure on these assets, as well as the positive role they play in respect of climate change. This role can be defined in terms both of carbon sequestration and, importantly, mitigation of the risks linked to the impacts of climate change, including increased flood risk (the focus of Policy ENV8) as well as overheating risks associated with the 'urban heat island' effect in an urban area such as Crawley.

- 2.1.6 Air quality is in some ways distinct from climate change, to the extent that not all air pollutants are not counted as greenhouse gases. At the same time these issues are closely linked, both in the role which some pollutants play in contributing to the greenhouse effect, and in the effects of climate change in terms of poorer outdoor and indoor air quality. Air quality is the focus of Local Plan Policy ENV12, which sets the framework for considering development impacts, including particular reference to the Air Quality and Emissions Mitigation Guidance for Sussex, and the Air Quality Management Area in the north eastern part of the borough.
- 2.1.7 The Local Plan approach to setting energy, carbon and water standards for new development, set out in Policies ENV6, ENV7 and ENV9 can be understood as involving a combination of set standards – e.g. BREEAM 'excellent' energy and water minimum standards for non-residential buildings, and the 'optional' tighter water efficiency standard for dwellings – prescribed sequential approaches to climate mitigation and adaptation – e.g. the use of the 'energy hierarchy' – and support for specific opportunities in particular locations – as in the identification of 'District Energy Network Priority Areas'. In terms of their technical content these approaches respond to the policy options available at the time of the preparation of the plan, as considered in light of issues of viability and technical feasibility.

2.2 International Agreements

- 2.2.1 The response of the UK Government to climate change, including those dimensions which operate through the planning system, operates within a framework of legally binding international agreements. Most recently, the 2015 Paris Agreement sets legally binding national targets for the reduction of greenhouse gas emissions, with the overall aim of keeping global temperature rise by 2100 well below 2 degrees Celsius above pre-industrial levels, and seeking a limit of 1.5 degrees Celsius.

2.3 Legislation

- 2.3.1 UK domestic legislation vests public authorities, including local planning authorities, with various powers and responsibilities to contribute to climate change mitigation and adaptation. These include the following.

- 2.3.2 The Planning and Compulsory Purchase Act 2004 (as amended):
- Section 19(1A) of the Act requires that a local authority's development plan documents must '(taken as a whole) include policies designed to secure that the development and use of land in the local planning authority's area contribute to the mitigation of, and adaptation to, climate change.'
 - Section 33A of the Act places local planning authorities under a duty to cooperate with other local planning authorities in preparing Local Plans, where strategic matters have impacts across administrative boundaries.
- 2.3.3 The Climate Change Act 2008 sets a framework for climate change mitigation and adaptation, including a binding carbon target, carbon budgets, and the establishment of the Committee on Climate Change (now renamed the Climate Change Committee) as an independent advisory body. The Act was amended in 2019 to include target of net zero greenhouse gas emissions by 2050.
- 2.3.4 The Planning & Energy Act 2008 made provision to allow local plans to impose reasonable requirements for:
- A proportion of energy used in development in their area to be energy from renewable sources in the locality of the development;
 - A proportion of energy used in development in their area to be low carbon energy from sources in the locality of the development;
 - Development in their area to comply with energy efficiency standards that exceed the energy requirements of building regulations.
- The Deregulation Act 2015 included a provision removing the third of these capabilities, subject to a further statutory instrument. No such statutory instrument has as yet been made and all of these powers remain in force.
- 2.3.5 The Environmental Assessment of Plans and Programmes Regulations 2004 transposed into UK law the Strategic Environmental Assessment Directive of the European Union, setting out requirements for how plans and programmes falling within the scope of the Regulations should assess their impact on the environment, including climate change mitigation and adaptation.
- 2.3.6 The Building Regulations and associated Approved Documents set technical standards for building work, including aspects of environmental performance. These are largely separate from the planning system although there are some areas of overlap, for example in relation to optional technical standards. Approved documents with particular relevance to climate change include:
- Ventilation: Approved Document F
 - Sanitation, hot water safety and water efficiency: Approved Document G
 - Drainage and waste disposal: Approved Document H
 - Combustion appliances and fuel storage systems: Approved Document J
 - Conservation of fuel and power: approved document L

2.4 National Policy, Strategies, Guidance

2.4.1 National Planning Policy for England is set out in the National Planning Policy Framework (NPPF) (2019). The NPPF details the purposes of the planning system in terms of 'Sustainable Development', which is comprised in three 'overarching objectives, which are interdependent and need to be pursued in mutually supporting ways':

- an economic objective
- a social objective
- an environmental objective

National Policies relevant to climate change mitigation and adaptation are set out throughout the NPPF, including notably in chapters 9: Promoting sustainable transport; 11: Making effective use of land; 14: Meeting the challenge of climate change, flooding and coastal change; and 15: Conserving and enhancing the natural environment.

2.4.2 Planning Practice Guidance is a web-based resource containing Government guidance regarding compliance with national planning policy and legislation. It is periodically updated. Sections of particular relevance to climate change include:

- Climate Change
- Effective Use of Land
- Environmental Impact Assessment
- Flood Risk and Coastal Change
- Housing: optional and technical standards
- Renewable and low carbon energy
- Strategic environmental assessment and sustainability appraisal
- Transport evidence bases in plan making and decision taking
- Travel Plans, Transport Assessments and Statements
- Water supply, wastewater and water quality

2.4.3 Various current or recent government strategies, statements and consultations are also relevant to this topic, including (in date order):

- [The UK's Industrial Strategy](#), Department for Business, Energy and Industrial Strategy (2017)
- [Industrial Strategy: The Grand Challenges, Department for Business, Energy and Industrial Strategy](#) (2017, as updated)
- [The Clean Growth Strategy: Leading the way to a low carbon future](#), Department for Business, Energy and Industrial Strategy (2017)
- [The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy](#), Department for Transport (2018)
- [A Green Future: Our 25 Year Plan to Improve the Environment](#), Department for the Environment, Food, and Rural Affairs (2018)
- [Spring Statement 2019: Written Ministerial Statement](#), HM Treasury (2019)
- [Consultation on Electric vehicle chargepoints in residential and non-residential buildings](#), Department for Transport (2019)

- [The Future Homes Standard: 2019 Consultation on changes to Part L \(conservation of fuel and power\) and Part F \(ventilation\) of the Building Regulations for new dwellings](#), Ministry of Housing, Communities & Local Government (2019)
- [Gear Change: A bold vision for cycling and walking](#), DfT (2020)
- [Planning for the Future: White Paper](#), Ministry of Housing, Communities & Local Government (2020)
- [The ten point plan for a green industrial revolution](#), Department for Business, Energy and Industrial Strategy (2020)

2.5 Crawley Borough Council Corporate Strategies

- 2.5.1 In addition to the role of the Local Plan described in section 2.1, there are a number of corporate strategies and initiatives which seek to respond to the issue of climate change.
- 2.5.2 The council adopted a [Corporate Climate Change Strategy](#) in 2008. This set emissions reduction targets for both the council and the borough as a whole. It was superseded by the 2012 [Carbon and Waste Reduction Strategy](#).
- 2.5.3 Measures undertaken pursuant to these strategies have included:
- Deployment of solar photovoltaic panels on council buildings and council homes;
 - Delivery of new CBC housing schemes with advanced energy/carbon performance standards, including 2 Passivhaus schemes and several schemes meeting Code for Sustainable Homes Level 4 equivalent;
 - Energy efficiency improvements to council buildings and council homes;
 - Delivery of new CBC housing schemes with advanced energy/carbon performance standards, including 2 Passivhaus schemes and several schemes meeting Code for Sustainable Homes Level 4 equivalent;
 - Progression of work to establish District Energy Networks in Crawley Town Centre and in other locations within the borough, including commencement of construction of a new Energy Centre at the Town Hall in 2020.
- 2.5.4 In July 2019, the council approved a [Climate Emergency Declaration](#), which included the following commitments:
- to aim to reduce carbon emissions generated by council activities by at least 45% by 2030 and to zero by 2050;
 - to work with other councils and partners to determine and implement best practice methods to reduce carbon emissions;
 - to progress the establishment of a Scrutiny Panel to look into and make recommendations focusing on the workings and activities of the council and to report back to the council;
 - to progress a review of the ethical investment policy in the Treasury Management Strategy with a view to incorporating the council's Climate Emergency Declaration.
- 2.5.5 Following on from this, work is under way to formalise measures to support these commitments. Draft recommendations have been approved by the

council's new Climate Change Scrutiny Panel and work is under way to prepare a corporate Climate Emergency Action Plan.

2.5.6 In the area of sustainable transport and the enabling of active travel the council consulted on and adopted [New Directions for Crawley: Transport and Access for the 21st Century](#), a Transport Strategy Issues and Options Document. Crawley's [Local Cycling and Walking Infrastructure Plan](#) was also published in draft form for consultation.

2.6. Other Initiatives

2.6.1 [Re-Energise Manor Royal](#) is a separate initiative which is being coordinated by West Sussex County Council and the Manor Royal Business Improvement District in Crawley, with CBC's involvement, and with the support of funding from the EU BISEPS (Business clusters Integrated Sustainable Energy Packages) initiative. The project is seeking to develop more secure, more sustainable and more locally generated forms of energy supply to serve local businesses, while reducing the District's carbon footprint. At the time of writing the project is exploring the feasibility of detailed schemes for low-carbon district energy.

2.6.2 The [Crawley Growth Programme](#) is a collaboration between a range of organisations and funders, including the Coast to Capital LEP, West Sussex County, Council, Gatwick Airport, Manor Royal Business District, and Metrobus alongside Crawley Borough Council to coordinate the investment of over £30 million in sustainable economic growth in Crawley. This includes investments in sustainable transport infrastructure and the delivery of new homes in Crawley Town Centre.

2.6.3 In its Master Plan (2019), Gatwick Airport commits to updating its 2010 Decade of Change Sustainability strategy in order to continue reducing the airport's environmental footprint. It also highlights its support to national and international initiatives to reduce greenhouse gas emissions from aviation in order to meet the Committee on Climate Change's planning assumptions for total UK aviation emissions to be met. The Airport, the Borough Council and West Sussex County Council have signed a S106 Agreement which includes obligations on the Airport to:

- reduce its climate impact and help to reduce the impacts of the aviation industry as a whole;
- Manage its assets and activities to mitigate the Airport's impact on the water environment;
- Update and publish its report by June 2021 on the Airport and Climate Change, and thereafter continue an ongoing dialogue on climate change initiatives with local authorities and other key stakeholders.

2.6.4 Various commitments, including in relation to climate change, air quality, surface access, and water, waste and energy management are also set out in Gatwick Airport's Action Plans and monitored annually by the councils as part of their Obligations under the S106 Agreement.

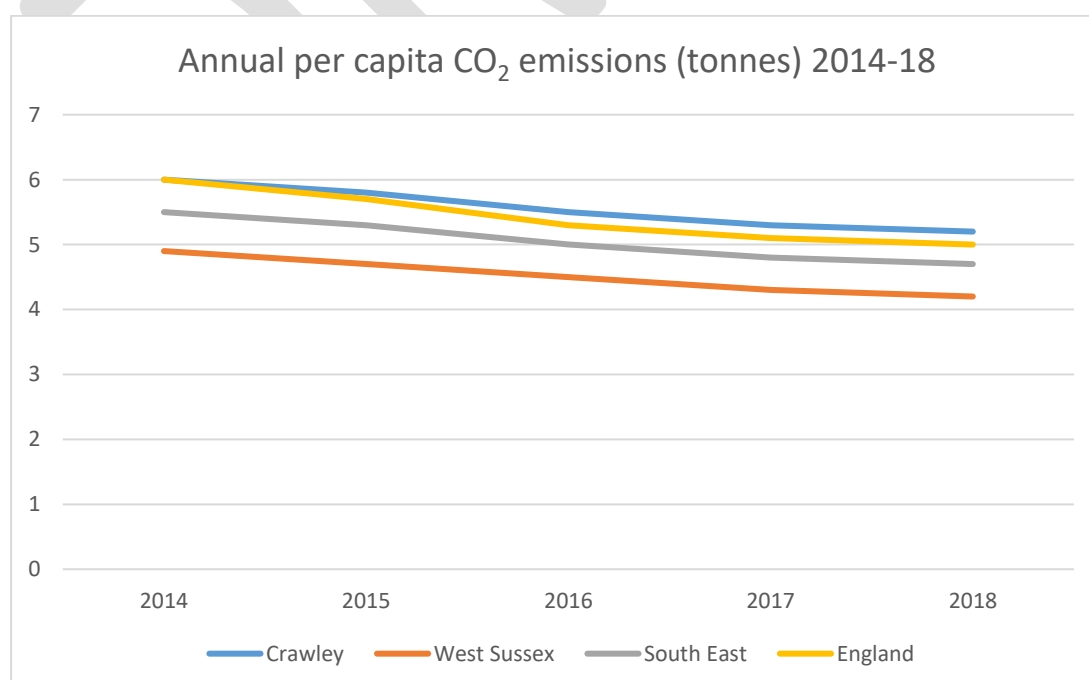
2.7 Evidence

2.7.1 **National Greenhouse Gas emissions** are assessed against a series of legally set 5-year 'Carbon Budgets'. As of December 2020 five carbon budgets, covering the period 2008 to 2032, and all related to the UK's earlier 80% emission reduction target, have been incorporated into UK legislation. The sixth carbon budget, for the period 2033-37, will be the first set in relation to the Government's 'net zero' 2050 target (introduced into law in 2019), and is due to be set in law by June 2021. The Climate Change Committee's recommendation for the budget, setting an emissions level at approximately 40% of that allowed for the current 2018-22 period, was published in December 2020.

2.7.2 The 2020 Progress Report of the Climate Change Committee identified that 'progress towards future carbon budgets remains off track', and highlighted that this was specifically so in relation to various indicators for transport, buildings and agriculture.

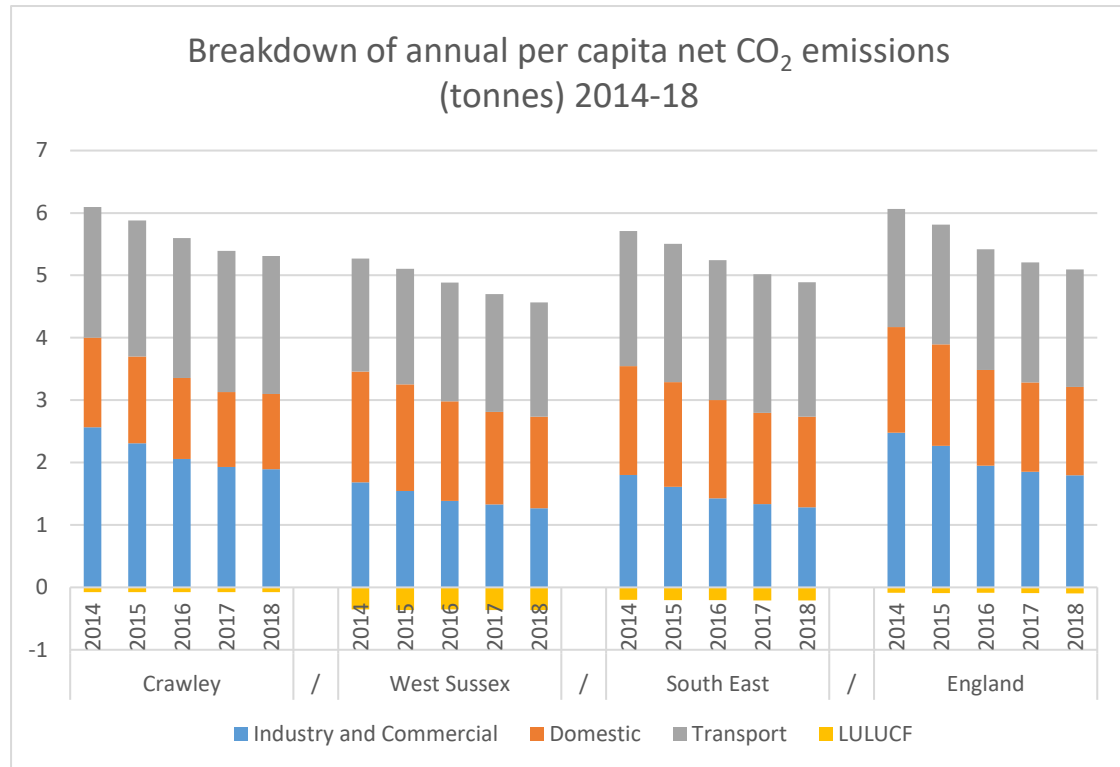
2.7.3 **Local carbon dioxide emissions** estimates are produced by the Department of Business, Energy and Industrial Strategy. Figure 2.1 below is derived from the most recent release of this data (which excludes emissions not capable of being ascribed to individual authorities, such as aviation and shipping), and compares per capita emissions in Crawley to West Sussex, the wider South East, and England as a whole. It points to higher per capita emissions in Crawley than across the wider county, region, and nation. It also shows a downward trajectory similar to that at county and regional level, though slower than that across England as a whole. This suggests that Crawley is on a broadly similar path to the wider county and region, but with a higher absolute level of CO₂ emissions per capita.

Figure 2.1: Annual per capita CO₂ emissions trend in Crawley, West Sussex, the South East, and England (UK local authority carbon dioxide emissions estimates 2018, BEIS, 2020)



2.7.4 The specific profile of Crawley’s net emissions can be highlighted by breaking them down into the four main categories used in this dataset (Industrial and Commercial; Domestic; Transport; and Land Use, Land Use Change and Forestry), and comparing these with other spatial scales over the period 2014-18. Figure 2.2 below set out this comparison.

Figure 2.2: Breakdown of annual per capita CO₂ emissions in Crawley, West Sussex, the South East, and England over 2014-18 (UK local authority carbon dioxide emissions estimates 2018, BEIS, 2020)



- 2.7.5 Figure 2.2 highlights some specific features of Crawley’s emissions profile, when compared with other areas, for example:
- Industrial and commercial emissions are higher than the averages across West Sussex and the South East, but are comparable with that of England as a whole. This can be considered as a reflection of Crawley’s significance as a focus of industrial and commercial activity for the wider area.
 - Domestic emissions are lower than the averages across West Sussex, the South East, and England as a whole. This is likely to be a product of Crawley’s urban form, with a higher proportion of people living in flats and terraced or semi-detached houses sharing party walls/ceilings/floors with other properties, and potentially also with a smaller amount of heated living space per person.
 - The contribution of Land Use, Land Use Change and Forestry – usually a net negative through carbon sequestration – is significantly less marked in Crawley than across West Sussex (and to a lesser extent the South East) as a whole, though more in line with the national average. This again

would seem to reflect the limited physical extent of the borough and its predominantly urban character.

In other respects – particularly in terms of the trajectory of per capita emissions – Crawley would seem to be much like other areas. Thus at each scale the decline in per capita emissions during these years was largely driven by the industrial and commercial sector, and to a lesser extent the domestic sector. Transport emissions meanwhile were stagnant or slightly increasing, and as such came to account for an increasing proportion of total emissions.

- 2.7.6 As part of the council’s corporate efforts to mitigate its own contribution to climate change and that of the borough as a whole (described in section 2.5 above) the **Climate Emergency Support** report was commissioned from Anthesis in June 2020. This is partly a tool to assist the council in preparing a detailed action plan for the reduction of its own emissions, and as such covers some material which is not directly related to planning. The report does however include an assessment of the emissions of the borough as a whole and the most appropriate measures to be taken to reduce these in line with local and national commitments. Different methodologies for quantifying local emissions are compared, and different potential pathways to the achievement of net zero emissions by 2050 are identified. The ‘SCATTER Level 4’ pathway is then further expressed in terms of energy systems interventions required by 2025, 2030 and 2050. Interventions for 2025 which are particularly relevant to the planning system include:
- New build domestic housing to PassivHaus or equivalent standard;
 - 13% of all homes to be fitted with heat pumps, and nearly 1% with district heating;
 - 16% reduction in commercial heating and cooling demand;
 - 25% reduction in passenger miles travelled by car;
 - 6% reduction in car transport share against 2015 levels (with associated increases in public transport, walking and cycling);
 - 64% of cars and 88% of buses to be ultra-low emission or hybrid;
 - 51% reduction in industrial emissions;
 - Rapid scaling up of renewable generation capacity.
- 2.7.7 **Monitoring of policy implementation** has been undertaken as part of the council’s Authority Monitoring Reports, both in relation to the policies in the 2015 Local Plan which relate to climate change, and in relation to the related indicators set out in the supporting Sustainability Appraisal.
- 2.7.8 Overall the Local Planning Policies are considered to have been effectively implemented, with achievements having included:
- the consistent achievement of emissions standards in major new residential developments which make significant advances beyond minimum Building Regulations requirements;
 - widespread implementation of the BREEAM ‘excellent’ minimum standards for energy and water in new non-domestic buildings;
 - widespread implementation of the ‘optional’ 110 litres/person/day water efficiency target.

2.7.9 Some areas of partial or inconsistent implementation were identified through the annual monitoring in the years immediately following the adoption of the Local Plan but are now considered to have been addressed, as follows:

- Inconsistency in ensuring that smaller-scale developments which were required to submit a Sustainability Statement in accordance with Policy ENV6 in fact did so was addressed through the adoption of an updated Local List of Validation Requirements, putting this document requirement on a surer basis.
- Partial or inconsistent implementation of the requirement for additional and replacement tree planting in accordance with Policy CH6 has been overcome through greater familiarity with and understanding of the policy, partly as a result of the adoption of the Green Infrastructure SPD in 2016.

2.7.10 Monitoring indicators for SA Sustainability Objectives concerned with climate change have developed as follows:

- Emissions from Crawley Borough Council's own activities appear to have fallen, although the evidence is complicated by changes to the approach to monitoring;
- Per capita CO₂ emissions have fallen, albeit at a slow rate (as detailed in figure 2.1 above);
- Residual household waste (i.e. not recycled or composted) collected per capita has shown a very slight fall, and the proportion of household waste recycled or composted has slightly increased;
- Environment Agency objections to developments on flood risk/water quality grounds have been resolved/satisfied before granting planning permission.

2.7.11 The **Crawley Densification Study** has been prepared to identify and highlight the potential for development within Crawley to achieve a more compact form while responding to existing character, maintaining high standards of design and delivering a high quality of accommodation, in accordance with draft Local Plan Policies CL3 and CL4. This approach is consistent with the emphasis placed in the NPPF on making 'effective use of land', and provided that it is pursued in a careful and balanced fashion it has significant potential benefits in terms of climate change mitigation. A more compact form of development will help to reduce travel distances and improve the viability of a wider range of sustainable transport choices, including public transport, walking and cycling, thereby reducing the demand for land for parking. It will also create opportunities to use energy more efficiently, including through the development of local energy networks.

2.7.12 **The Crawley Decentralised Energy Study** (2011), which was prepared to support the 2015 Local Plan is still considered to be relevant in its highlighting of the potential for the development of District Energy Networks within Crawley and the identification of particular opportunity areas where combined heat loads are likely to be able to support such Networks. The study also considers a wider range of low/zero carbon technologies in terms of their applicability to Crawley.

- 2.7.13 The 2020 **Gatwick Sub-Region Water Cycle Study** assesses the implications of the Local Plan strategy on water resources and infrastructure in the context of a changing climate. It identifies key environmental and infrastructure constraints and means by which the environmental impact of new development can appropriately be mitigated. In common with most of the South East, the Gatwick sub region is an area of serious water stress, whereby anticipated demand for water is greater than the available supply. This has implications for the Sussex North Water Resource Zone, from which Southern Water supplies Crawley and neighbouring areas, particularly in relation to groundwater abstraction at Hardham. Natural England has raised significant concern regarding current abstraction (or any increase), advising that it cannot conclude with certainty that this is not having an adverse impact on site integrity, through reduction in water levels and deterioration of habitat, at important designated sites. These include Amberley Wild Brooks SSSI, Pulborough Brooks SSSI and Arun Valley SPA/SAC and Ramsar site. This increases the need to ensure that development is resilient in the face of current challenges and anticipated climate change impacts, and the study highlights the importance of water efficiency measures pursued through planning policy to address the significant water stress in the sub-region.
- 2.7.14 The **EcoServ** report commissioned by Sussex Wildlife Trust maps the open spaces within Crawley on the basis of their abilities to support the following functions: Accessible Nature, Air Purification, Carbon Storage, Education, Green Travel, Local Climate, Noise Regulation, Pollination and Water Purification. The aforementioned functions are illustrated in a graphical, mapping format for the borough's needs for each of these in terms of: Capacity, Demand, Benefiting Areas and Gaps Prioritisations, Management Zones, Green Infrastructure Assets. These maps are helpful in understanding areas that positively contribute towards climate change mitigation and where there are issues relating to the ability, expectation and longevity of green assets in areas within the borough.
- 2.7.15 For example, the highest capacity scores for Accessing Nature is around the edge of borough. This means in areas where capacity is lower accessing nature may be by car or public transport such as when moving from close to the town centre however, through improving sustainable transport and green infrastructure between, around and on buildings people can be encouraged to go for longer walks, cycle or jog to their destination. Contributions over time towards biodiversity net gain can be visualised by Air Purification and Carbon Storage maps. Were the amount of trees and soft landscaping to increase and fertile vegetation and soil of good quality to be used the capacity scores are likely to increase. This would suggest a better estimation on how adaptive environments are to mitigating climate change as this EcoServ report focuses more on the ability for the environment to manage air pollutants rather than reducing carbon emissions through other mechanisms. It will most probably become clearer over the next five years once the

emerging Local Plan is adopted as a repeat of an Ecoserv report in the future provides the ability to compare and contrast past trends.

- 2.7.16 By graphically explaining green infrastructure within the borough and its physical and mental health benefits, the Ecoserv report exemplifies where green infrastructure is critical to mitigation of, and adaptation to, the effects of climate change. Trees contributing to the green infrastructure network which connects green assets together across the borough, green assets made up of biodiversity e.g. soil, flora, fauna, shrubs, bushes and trees together form green infrastructure. This encourages and enables wildlife to flourish and move within and outside the borough. When planning biodiversity habitats to combat species decline it is important to take into account water, habitat types and impacts of human activity, including climate change. In relation to biodiversity there are designated sites of biodiversity importance such as Local Wildlife Sites and large parks and gardens however, the small connections within the borough such as gardens, structural landscaping and amenity green space help connect these sites together and serve a purpose in protection of local biodiversity areas. Areas of Structural Landscaping are designated areas of green assets and, as well as their visual amenity, complement mitigating climate change by providing non-hard surfaces to reduce surface runoff.

2 STRATEGIC ISSUES

3.1 Land Use, Densification and Movement/Transport Strategy

- 3.1.1 The draft Local Plan approach to land use, densification and movement/transport starts from the recognition of Crawley's status as a sustainable location for additional development, benefiting from excellent transport connections and high quality, high frequency public transport. As such there is potential – identified in the Densification Study – to achieve a more compact pattern of development, with an associated reduction in demand to travel and an opening up of a wider range of transport options. This potential is particularly marked in certain locations with high frequency public transport links by bus or train, and good access to facilities.
- 3.1.2 This perspective is reflected in Policies CL3, CL4, ST1, ST2 and ST3 of the draft Local Plan:
- Policy CL3 sets out a general expectation that new developments should seek to exploit and support sustainable transport options and connections, using these to enable a more compact form of development. It sets out more specific requirements of this nature in respect of larger schemes, including the requirement that these should be situated in relation to stations, stops and interchanges along high capacity public transport corridors, as identified in the Reasoned Justification to the Policy.
 - Policy CL4 sets out density-range expectations for residential developments in different areas, subject to character constraints, ranging

from a baseline level of 45 dwelling per hectare up to more than 200 dwellings per hectare in highly accessible locations.

- Policy ST1 sets out general requirements in respect of the approach to the transport impacts of development, including requirements in respect of Transport Statements/Assessments and Travel Plans/Mobility Strategies, and the consideration of residual highways impacts. Developments generating a significant demand for travel or with other transport implications (i.e. major developments with operational transport needs, as identified in the Reasoned Justification) are expected to make a financial contribution towards off-site sustainable transport infrastructure, including schemes identified in the Local Cycling and Walking Infrastructure Plan, in accordance with the formula set out in the Planning Obligations Annex. The formula factors in distance from transport nodes, so that the financial burden is smaller for better connected developments.
- Policy ST2 applies the Car and Cycle Parking Standards which are set out in the Parking Standards Annex. These are based on West Sussex County Council guidance on parking in new developments, and include requirements in respect of the provision of electric vehicle charging points with new parking spaces. With regard to EV charging infrastructure, it should be noted that the requirements are in practice likely to be less onerous than the proposed national standards, to be set through Building Regulations and other legislation, which were set out in the Government's 2019 consultation on Electric vehicle chargepoints in residential and non-residential buildings.
- Policy ST3 requires that developments or improvements in the vicinity of railway stations within the borough will be expected to enhance the specific roles of those stations, as identified in the policy.

3.2 Energy Standards

- 3.2.1 Policies SDC1, SDC2 and SDC3 set out the approach for considering the environmental performance of development in terms of climate change mitigation and adaptation. They take account of the framework set by legislation, national policy, guidance, and good practice, while responding to the challenge of climate change, the specific and relatively large profile of the borough's emissions, the opportunities of the Crawley context, the council's Climate Emergency Declaration and the constraints of development viability. They have been prepared in the knowledge that national standards are likely to change early in the Local Plan period, and in some respects supersede the proposed local requirements. The policy approach seeks to provide clarity in respect of this transition.
- 3.2.2 Policy SDC1 is the overarching Strategic Policy in respect of the approach of development to climate change mitigation and adaptation. Like Policy ENV6 of the current Plan, it approaches the issue of climate change mitigation in terms of the energy hierarchy: 'be lean' (reduce energy demand), 'be clean' (maximise efficiency of energy supply), and 'be green' (provide energy from

low or zero carbon sources). This hierarchy is a familiar part of recognised good practice and a standard device for describing the carbon implications of development in Sustainability and Energy Statements. The underlying logic to this approach is that reducing energy demand and reducing losses involved in the supply of energy are very often simpler and cheaper than the provision of additional low/zero carbon energy capacity. Since they relate to issues of building fabric, design and construction they are also significantly harder and more expensive to achieve through retrofitting than the provision of additional 'green' energy supply. For these reasons national standards in respect of building performance include an energy efficiency requirement along with an emissions limit, as in the case of Part L of the Building Regulations, the unimplemented 'Zero Carbon' standard, and the proposals set out in the government's 2019 consultation on the 'Future Homes Standard.'

- 3.2.3 The policy sets specific 'be Lean' requirements in respect of new dwellings, other new buildings, and major developments. New buildings are thus required to achieve compliance with the carbon emissions limits set in the 2013 Building Regulations before any allowance has been made for the inclusion of low/zero carbon energy sources. This would represent a limited tightening of energy efficiency requirements compared with current Building Regulations standards. Given that the 2013 version of Part L of the Building Regulations is likely to be superseded in the near future, however, the requirement is disapplied where a development would no longer be subject to that standard. At the same time the proposed wording ensures that where there is any doubt about what standard would be applied for Building Regulations purposes – owing to the nature of any transitional arrangements set out in the updated Building Regulations – the policy requirement will apply as a minimum. The policy also requires that major residential developments implement a recognised quality regime to ensure that 'as built' environmental performance matches the modelled design performance.
- 3.2.4 For the 'Be Clean' element in the energy hierarchy the policy cross-refers to Policy SDC2, which is further discussed below.
- 3.2.5 The 'Be Green' requirement sets an overall energy/carbon performance standard for new buildings, which can be met by any combination of energy efficiency measures, supply efficiencies, and low/zero carbon technologies. For dwellings this takes the form of a 19% reduction in CO₂ emissions compared with the 2013 Building Regulations. This is equivalent to Level 4 of the Code for Sustainable Homes, and as such is consistent with Planning Practice Guidance. This standard is also considered appropriate in light of the council's Climate Emergency Declaration and the example set by the council on its own housing schemes, which have met this level of performance for a number of years and are increasingly exceeding it. For other buildings the current Local Plan requirement to achieve the BREEAM 'excellent' minimum standards for energy and water is carried forwards.
- 3.2.6 In respect of Climate Change adaptation, the policy cross-refers to Policy SDC3 (Tackling Water Stress), and requires that new buildings and other

development comprising a material change of use (as this is defined in the Building Regulations) cope with future temperature extremes and mitigate their contribution to heatwave events in accordance with the cooling hierarchy, whereby the most environmentally sustainable solution is to be used.

- 3.2.7 Compliance with the Policy at the planning application stage is to be assessed on the basis of a Sustainability Statement forming part of the submission. The policy sets out thresholds for this requirement, which are intended to capture circumstances where significant changes to energy demand and building services would occur, or where requirements for 'consequential improvements' to a building's energy performance are required under the Building Regulations. Some types of development which meet these thresholds are not subject to specific standards in terms of energy performance under the Policy, but are subject to more general requirements to consider appropriate energy and carbon efficiency measures, and describe those which are proposed.
- 3.2.8 Policy SDC2 promotes the development of District Energy Networks and decentralised energy (involving local generation and distribution at scale of energy in the form of heat, cooling and electricity), with particular requirements applying in respect of major developments, and in respect of other specific forms of development within identified District Energy Network priority areas. Developments meeting the specific thresholds of the policy are required to develop their energy strategy in accordance with a hierarchy of options, depending on the presence of an existing District Energy Network, and the feasibility of other options including site-wide communal energy systems and 'future proofing' by designing with the capability to connect to a future network. Where none of these options are able to be pursued the policy sets a requirement for a minimum proportion of the energy needs of the development (10% or 20%) to be derived from low- or zero-carbon sources located on or near the site. This reserve requirement makes use of powers available under the Planning and Climate Change Act 2008 and referred to in Planning Practice Guidance to impose 'reasonable requirements for a proportion of energy used in development in their area to be energy from renewable sources and/or to be low carbon energy from sources in the locality of the development.' This need not be additional to any use of low- and zero-carbon technology to meet the standards detailed in Policy SDC1.
- 3.2.9 The District Energy Network areas identified in the Policy are:
- The Town Centre, where a district heat network is currently being constructed as part of the Town Hall redevelopment scheme;
 - The Manor Royal business district, which is the focus of significant demand for process heating and cooling, and where options for decentralised energy are being developed as part of the Re-Energise Manor Royal project;

- The Forge Wood neighbourhood, representing the last location of strategic residential development within the borough's administrative boundary;
- The K2 Leisure Centre and the neighbouring housing allocation at Land Adjacent to Desmond Anderson, where there is scope to base a district energy network on the leisure centre's Combined Heat and Power (CHP) energy supply;
- The Strategic Employment Location allocated at 'Gatwick Green'.

With the exception of the new allocation at Gatwick Green these areas are identified as potential areas for District Energy Networks in the 2011 Decentralised Energy Study.

3.3 Water Efficiency

- 3.3.1 Policy SDC3 sets out the approach which development is expected to take in addressing the issue of water stress, as established in the Water Cycle Study referred to above.
- 3.3.2 For residential dwellings the Policy sets a water efficiency requirement of 100 litres/person/day. This represents a tightening of the standard beyond the 110 litres/person/day standard, established as part of the Government's Optional Technical Standards, which is currently being implemented through Policy ENV9 of the 2015 Local Plan. However, the tighter requirement is recommended in the Water Cycle Study for adoption by the client Local Authorities (Crawley, Horsham, Mid Sussex, and Reigate & Banstead), with the support of the Environment Agency, Natural England, South East Water, Southern Water, and SES Water, owing to the severity of water stress in the sub-region and resulting risks to water supply, water quality and biodiversity. The Water Cycle Study also recommended a tighter requirement of 80 l/p/d for strategic developments. At an advisory meeting with PINs, the planning inspector advised that the pursuit of any water efficiency standard tighter than the Building Regulations optional requirement of 110l/p/d would need to be broad and consensual, include the housebuilding industry, and would require a strong evidence base.
- 3.3.3 Since the advisory meeting, Natural England has advised the council of its position in relation to water supply. Its representations to the HRA and subsequent advice has reiterated that it cannot be concluded with certainty that groundwater abstraction at Hardham, from which Sussex North Water Resource Zone is supplied, is not having an adverse impact on site integrity at important designated sites. Whilst the adverse effect remains or is uncertain, Natural England has stated the importance of ensuring that development in Crawley does not add to the adverse effect. It has therefore advised water quantity should be screened in for appropriate assessment, and that working with other authorities, water neutrality should be sought for the Sussex North Water Resource Zone.
- 3.3.4 In the calculation of water efficiency the reduction from 110 to 100 litres/person/day could be achieved relatively easily, e.g. by adding a flow

restrictor to new showers to reduce their consumption from 8 litres per minute (consistent within the 'fittings approach' to compliance with the 110l/p/d standards set out in approved document G) to 6 litres per minute. This additional developer cost of this in comparison with the current policy is as such considered to be *de minimis*. Following feedback from Natural England, further water neutrality work is being undertaken in order to scope the technical feasibility and sustainability impact of 80l/p/d. Subject to recommendations from this work, its outcomes will be subject to viability testing to test that its recommendations can be delivered.

- 3.3.5 For other buildings the current Local Plan approach of requiring achievement of the BREEAM 'excellent' minimum standards for water efficiency is taken forward, and the Policy confirms that this approach is likewise applicable to other non-residential extensions or changes of use which meet the threshold for submitting a Sustainability Statement in accordance with Policy SDC1.
- 3.3.6 In order to allow for the additional development costs arising from the introduction of more advanced environmental performance standards at local and (as anticipated) national level, and for the requirement for Biodiversity Net Gain, the Viability Assessment prepared in support of the Plan makes an addition of 5% to build costs.

3.4 Flood Risk Management

- 3.4.1 The proposed Local Plan approach in relation to Flood Risk Management is set out in Policies EP1 and EP2. Policy EP1 applies approaches to the sequential and exception tests for the location of development in accordance with national policy and guidance, and sets thresholds for the requirement for a Site Specific Flood Risk Assessment. It further states that development must:
- demonstrate that peak surface water run-off rates and annual volumes of run-off will be reduced through the effective implementation, use and maintenance of SuDS, unless it can be demonstrated that these are not technically feasible or financially viable;
 - make appropriate provision for surface water drainage to ground, water courses or surface water sewers. Surface water will not be allowed to drain to the foul sewer;
 - not be permitted to take place within 8 metres from the top of any Main River or 12 metres from any Ordinary Watercourse without prior consent from the Environment Agency, nor within 3 metres of any Thames Water sewer system without prior consent from the sewerage undertaker;
 - post construction, provide to the council certification of the drainage works from a third party professional. This should not be the consultant who designed the drainage features. This will be to ensure that the drainage details and design submitted for planning application has been constructed in line with the submitted documents.
- 3.4.2 Because the requirements of Policy EP1 would not in many cases be applicable to householder developments and small non-residential extensions, and because such developments nonetheless have a cumulative

potential to affect flood risk, Policy EP2 is included. This sets out the requirement for such developments within flood zones 2, 3a and 3b to provide a Flood Resilience Statement, demonstrating on a proportionate basis how any loss of flood storage resulting from the development would be appropriately mitigated; and showing that the development in question is resilient to the level of flood risk to which it is exposed, over its lifetime and taking climate change into account.

3.5 Air Quality

3.5.1 The issue of air quality partly arises in the context of Policy SDC1, with its requirement for ventilation measures to be designed in accordance with the 'cooling hierarchy', as identified above. The contribution and exposure of development to poor air quality more generally is meanwhile the focus of Policy EP5. This builds on the approach of current Local Plan Policy ENV12, while setting out expectations from development in clearer detail, including the requirement for a financial contribution towards emissions mitigation in certain circumstances, in accordance with the 2019 update to the Air Quality and Emissions Mitigation Guidance for Sussex. Further supporting information is provided in the Planning Obligations Annex.

3.6 Green Infrastructure

- 3.6.1 The proposed Local Plan approach in respect of Green Infrastructure reflects the benefits of Green Infrastructure assets both in helping to mitigate climate change, for example through carbon sequestration through plants, trees and soils, and in assisting adaptation, through the potential of green infrastructure assets to mitigate climate change impacts such as overheating, poor air quality, flood risk, and soil degradation. Soils are important reservoirs of active carbon and play a major role in the global carbon cycle. The predominantly clay soil type in Crawley plays a role in nurturing trees and biodiversity habitats to absorb CO₂ within their locality. Well-draining soil filled with microbial life is important for a healthy green infrastructure network.
- 3.6.2 The emerging draft Open Space, Sport and Recreation Assessment indicates that there may be a potential deficit in most open space typologies in the future, as a result of future population growth. Policies have been adapted slightly to ensure compensation or relocation is provided when Open Spaces are lost and to direct improvements and enhancements to maximise capacity of the borough's existing open spaces and increase opportunities to introduce multi-functionality benefits within them. Policy GI2: Biodiversity and Net Gain is concerned with the conservation and enhancement of trees and soft landscaping following government guidance to ensure a net gain on site.
- 3.6.3 Two relevant policies encourage tree planting and maintenance. Policy GI2 requires one tree per new dwelling and Policy DD4 enforces a high replacement standard for trees lost to development, taking into consideration their girth and time to mature. Initially, tree planting is

expected onsite. However off-site contributions can be agreed to with the council. The policy recognises that the loss of a tree is likely to increase the requirement of net gain for Policy GI2 and particularly, it is noted that a net loss of biodiversity is likely incurred due to a tree, due to the value of mature trees, being felled which can lead to a higher number of trees needed on top of the development replacement requirements.

- 3.6.4 The Green Infrastructure SPD Appendix 6 lists the individual specimens and species of trees and soft landscapes that are appropriate to be planted within Crawley, taking into consideration the proximity of Gatwick Airport and issues related to bird strike. Native species of mixed woodland plants for southern clay soils such as Field Maple, Alder, Common Ash, Wild Cheery, English Oak, Small-Leaved Lime or a Service Tree are ideal for Crawley. Appendix 6 also lists security planting mixes, native shrub species, other suitable native and non-native mixed woodland trees, non-native ground cover plants and native grass seed mixtures for clay soils and tall edge or hedgerow mixes and finally, wildflower grasslands for the Weald that are suitable to be planted in Crawley. Dependent on which tree is planted and distance to others of the same or different species it can provide a variety of biodiversity and habitats for wildlife and contribute to a rich biodiversity to offset a negative development to climate change.
- 3.6.5 The Emerging Local Plan has a stronger focus on encouraging and facilitating Biodiversity Net Gain. In relation to this current period of climate change, effort is being made to ensure policies within the emerging Local Plan have the ability to encourage healthy Sustainable lifestyles throughout the natural, built and historic environment. Through a biodiversity lens, Policy GI2 aims to ensure green infrastructure is well connected as a network within the borough. There is an increased effort to continue the prioritisation of protected biodiversity sites and an emerging focus on securing net gain on new development sites. In this Plan, focus is building on trees and types of soft landscaping that are capable of leading towards a net gain in biodiversity. Consideration is needed to be given for the appropriate species of trees or types of soft landscaping to be planted and this revolves around questions on the natural asset themselves., including whether a tree or type of soft landscape is of a native species and how it affects air quality, pollination, flood alleviation and its benefit to climate change adaptation/mitigation.
- 3.6.6 Many of the benefits of Green Infrastructure in terms of open space, biodiversity, structural landscaping can also be realised in the form of SuDS, provided in accordance with Policy EP1, to manage potential flood risks.
- 3.6.7 As highlighted in the EcoServ GIS Report summarised in the previous chapter, biodiversity net gain requirements not only benefit nature itself but where the amount of trees, soft landscaping and soil fertility are increased, their capacity for air purification and carbon storage increases, supporting adaption to climate change. This report is beneficial in connection to Policy GI2: Biodiversity and Net Gain, as it covers a wide range of issues the implementation of net gain is seeking to tackle through an in-depth visual

display of measuring tools linked to biodiversity and net gain changes. This can enable positive adaptations to climate change through enhancing knowledge of where and when adaptations need to be made in a local environment.

4 CONCLUSIONS

- 4.1 Local Planning Authorities have clear responsibilities under legislation and policy to contribute to climate change mitigation and adaptation, including through the Plan making process.
- 4.2 The UK is not currently on track to achieve the most recent carbon budget set against its previous 80% 2050 emission reduction target. Future carbon budgets set against the new 100% emissions reduction target are likely to be still more challenging.
- 4.3 Local emissions estimates confirm that Crawley has a level of per capita CO₂ emissions which exceeds the averages for West Sussex, the South East, and England as a whole. Emissions are falling at a similar rate to West Sussex and the South East, but more slowly than England as a whole. Rates of decline across different sectors are likewise comparable to averages for wider areas, although the specific breakdown of per capita emissions within Crawley reflects Crawley's specific character as an urban area and as a significant focus of industrial and commercial activity for the wider area.
- 4.4 The submission draft 2021 Local Plan sets out to support climate change mitigation and adaptation in ways which are consistent with legislation, national policy and guidance; which use recognised concepts, metrics and standards; which reflect the ways in which these challenges manifest themselves locally; and which respond to the opportunities and constraints presented by the character of the borough. In some areas this includes interventions of a type whose relevance and applicability is not confined to the local area, such as tighter energy and emissions standards for new buildings. In other areas the approach is more clearly tailored to the local area, including measures to promote effective use of land, sustainable travel, and the promotion of decentralised energy in specific circumstances, including in employment areas.
- 4.5 The submission draft 2021 Local Plan has been prepared in the knowledge that some of the approaches set out may be modified in their impact or superseded by forthcoming national changes, including the proposals set out in the Government's 2019 Future Homes Standard consultation, and new requirements for provision of electric vehicle charging infrastructure. As of the time of submission, however, the specific nature and timing of these changes remained unclear. Assuming that they are forthcoming at something like the timescale indicated, it is considered that relevant measures in the Local Plan still have the potential to provide additional benefits in terms of climate change mitigation and adaptation, while also indicating a direction of travel and providing stepping stone towards future, more advanced, national measures.