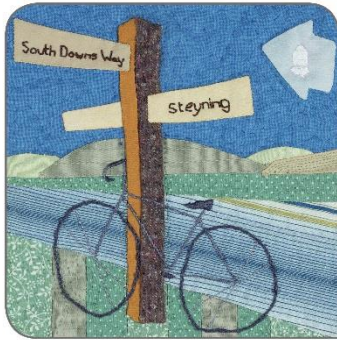




Climate Change

MAKING STEYNING CLIMATE SMART

Published on: 29 November 2019

Prepared to inform and support the Steyning Neighbourhood Plan

More information available at www.steyningcommunityplan.co.uk

Table of Contents

1. Introduction	2
2. Setting the Context.....	3
The global climate and biodiversity challenge	3
What it means for Sussex and Steyning	3
Public awareness	6
Policy context	7
Planning framework.....	8
3. Baseline – where are we starting from?	11
How energy efficient is our housing stock?	11
How much progress have we made on renewables?	12
How sustainable is our transport?	14
4. A ‘Climate Smart Steyning’	18
5. Proposed policies and measures.....	19
Existing and New Buildings	19
Renewable technologies.....	21
Transport.....	22
Climate resilience	23
Biodiversity and Green Infrastructure.....	23
6. Conclusions	25

1. Introduction

1.1. This document has been prepared by Geoff Barnard, a member of the Environment Working Group, to inform the discussions of the Steyning Community Plan Steering Group. It makes the case that climate change should be considered as a central issue in the drafting of the Plan, and that this is a key opportunity to shape Steyning's future in a way that is 'climate smart'.

1.2. It aims to:

- Set the scene in terms of the climate risks that Steyning face, and the wider scientific and policy context.
- Present an evidence base on where Steyning is starting from in terms of its readiness to face future climate challenges.
- Outline a vision for what a 'climate smart' Steyning might look like.
- Make practical recommendations on measures and policies that the Community Plan could incorporate to deliver on this vision.

2. Setting the Context

- 2.1. Steyning's neighbourhood plan (known as the Steyning Community Plan and hereafter referred to as the 'Plan') is being prepared at a crossroads moment. The threats posed by climate change are staring humanity in the face and awareness and concern among the public has never been stronger¹. It is also higher up the political agenda than ever before. The clear consensus from scientists is that we need to take urgent and decisive action now as we have only a few years to turn the situation around if we are to avoid the worst effects of climate change.
- 2.2. Steyning is part of this global challenge. It contributes to the problem and it will be affected by it. The plan's timeframe (till 2031) takes us beyond the 2030 deadline that the United Nations (UN) has set to turn emissions trajectories around. If Steyning is to be part of the solution, not just the problem, it needs to act now and use the Plan as an opportunity to galvanise action and shape a more resilient and sustainable future.

The global climate and biodiversity challenge

- 2.3. The report of the UN Intergovernmental Panel on Climate Change (IPCC) in November 2018 could not have been clearer². It highlights both the risks of runaway climate change to the planet and society, and the extent and speed of the transformation needed to keep global temperature rise below the 1.5°C target set at the 2015 Paris Climate Summit. To stay within this limit, it argues that net CO₂ emissions need to decline to 45% of 2010 levels by 2030, and reach net zero by 2050.
- 2.4. This was followed in May 2019 by a report from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) pointing to the global risks to biodiversity and ecosystems.³ According to its Chair, Sir Robert Watson, "*The health of ecosystems on which we and all other species depend is deteriorating more rapidly than ever. We are eroding the very foundations of our economies, livelihoods, food security, health and quality of life worldwide.*"
- 2.5. Other reports spotlighting different aspects of the global climate and biodiversity crisis are appearing almost every week. The term 'Climate Emergency' has been adopted to convey the urgency and scale of the challenges we face, and is being widely used to mobilise public and political action.
- 2.6. Tackling this emergency will require a radical transformation in how we generate and consume energy, how we protect and make best use the planet's resources, what we eat, how we work, and how we get around. We need to start this transformation now.

What it means for Sussex and Steyning

- 2.7. Sussex is in no way immune from these global trends and threats. A report by the Sussex Wildlife Trust⁴ summarises the likely future for Sussex as follows: '*the broad pattern of*

¹ The surge of interest and concern about the climate has been accentuated by the David Attenborough Blue Planet 2 documentary series, and the high profile global campaigns by the [Extinction Rebellion](#) and [School Strike 4 Climate](#) movements.

² See <https://www.ipcc.ch/sr15/>

³ Report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). See <https://www.ipbes.net/>

⁴ See <https://sussexwildlifetrust.org.uk/campaign/climate-change>

change for this part of the planet is for warmer and drier summers, with milder, wetter winters. Increased storminess is also more likely with more extreme rainfall events, more windstorms and continuing sea level rise.'

- 2.8. The impact of this on our wildlife is already being seen. The Sussex Wildlife Trust report cites evidence of *'shifting species ranges and breeding success, changing migration patterns, changes in the annual timing of flowering and the migration of birds and butterflies, food availability and other important ecological factors, including the spread of diseases and different patterns of water availability (flood and drought).'*
- 2.9. Here in Steyning, residents have become familiar with milder winters and ever-earlier springs. Recent summers have veered from unusually dry to unusually wet, with rain arriving in more intense storms that many of us can remember. Heatwaves have not yet approached the extremes experienced in 2019 in France, but this is a risk that Steyning will likely have to cope with in future. Climate change is happening all around us, with worse to come.
- 2.10. Looking ahead, Southern Water's 25 Year Resources and Drought Strategy describes the challenges they are planning for. The strategy states that: *'Climate change is likely to make extreme weather more common in the future, leading to more severe droughts and a change in the seasonal demand for water. The effects are likely to be a rise in the average annual temperature ... and rainfall reducing by half.'* Encouraging customers to be much more efficient in their water consumption is one of the core strategies for coping with future water shortages, alongside other measures.
- 2.11. On the flooding front, the Parish of Steyning is less vulnerable than neighbouring Bramber and Upper Beeding, but still faces risks. The Environment Agency provides their best estimate of the areas of land at risk of flooding and identifies areas at risk for land use planning purposes. Flood Zone 3 is land with a 1 in 100 (1%) or greater chance of flooding each year from Rivers; or with a 1 in 200 (0.5%) or greater chance of flooding each year from the Sea. Flood Zone 2 covers land between Zone 3 and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year. These zones are illustrated in Figure 1: Flood Risk Map of the Steyning area⁵.
- 2.12. The farmland on the banks the Adur is already managed as a flood plain and is regularly inundated in wet weather, sometimes for several weeks at a time. Of greater concern are the smaller areas of flood risk that stretch west from the main flood plain, following the track of small streams that flow into the river. These show up as blue 'fingers' on the map. The one closest to the town cuts across Kings Barn Lane near the electricity substation, and then divides into two.
- 2.13. Within the built up area, the main risk of flooding to residential properties is localised around the stream that flows down Mouse Lane in wet weather, and where it converges with other streams in the Abbey Road area in Shootingfield before flowing under the bypass. A second 'finger' loops around the north side of the bypass, following a stream that flows under the bypass near the Horsham Road turnoff. While there have been no serious flooding events in either of these areas in recent years, the risk of future disruptions is clearly identified in the map. It also demonstrates the need for great care in siting any new developments to the north of the Steyning bypass.

⁵ Data accessed on 7th June 2019 from <https://data.gov.uk/dataset>

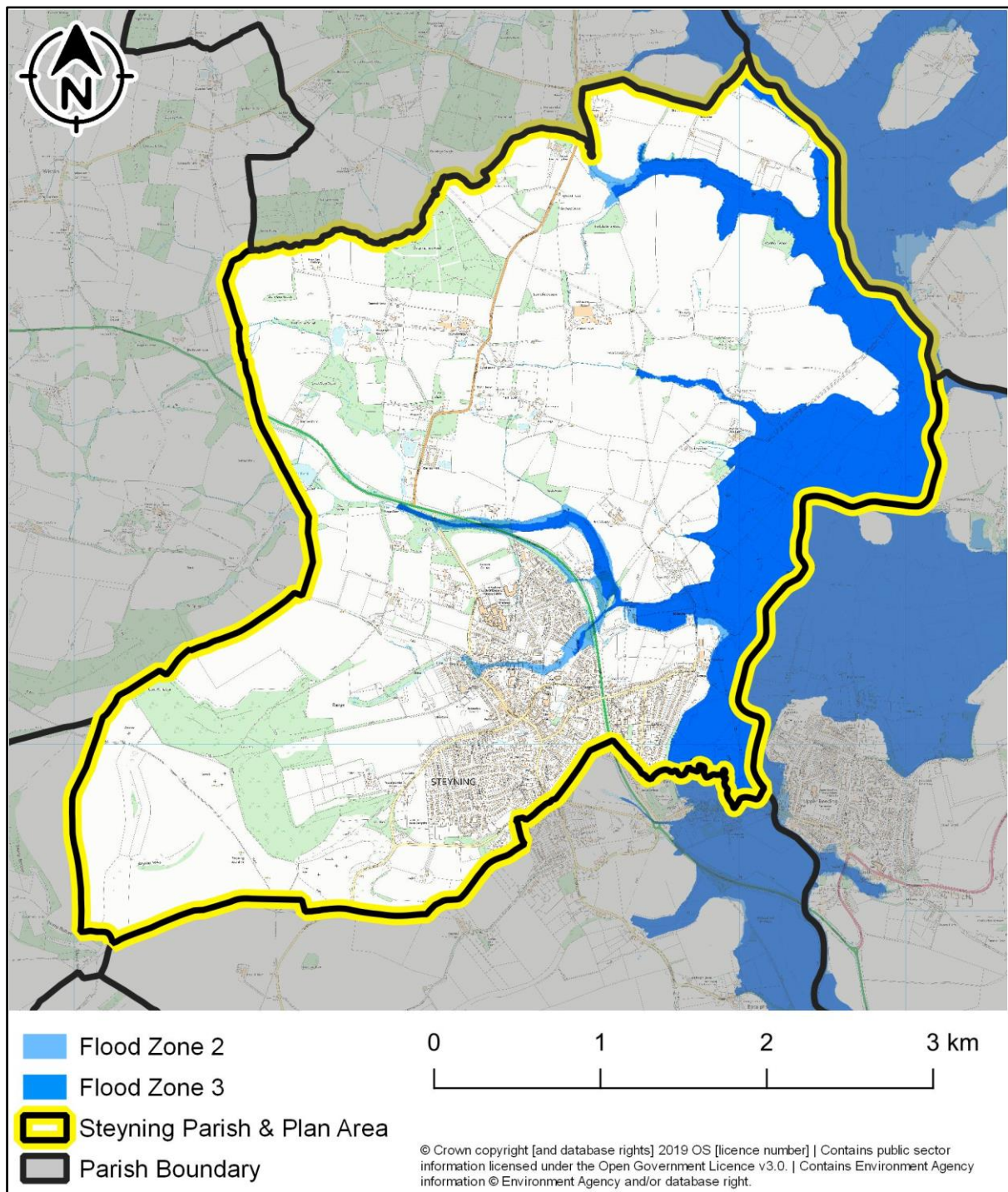


Figure 1: Flood Risk Map of the Steyning area

- 2.14. Problems with sea level rise are one step removed for Steyning, given its location and topography, but the Parish will not be immune from the indirect impacts. According to Google Earth, The Clock Tower is 12m above sea level. The lowest lying spot in the town is the Abbey Road green space, parts of which are only 4m above sea level. Storm surges on the River Adur are likely to become a significant feature to contend with in future, with sea defences and flood management measures increasingly being tested.
- 2.15. The longer term risk from sea level rise is brought into focus by the two maps in Figure 2 below which show predictions of coastal inundation for the Adur Valley and Steyning by 2200

assuming a 1.5°C rise in global temperatures.⁶ It suggests that almost all of Steyning will remain above the projected new water line, apart from low-lying spots near the Steyning bypass. The prospects for Bramber and Beeding, however, and for much of Shoreham and Lancing, are not so good. Without major investments in flood defences, large parts of these settlements are likely to be inundated, and may need to be abandoned. This would have major knock on effects for Steyning and other neighbouring communities.

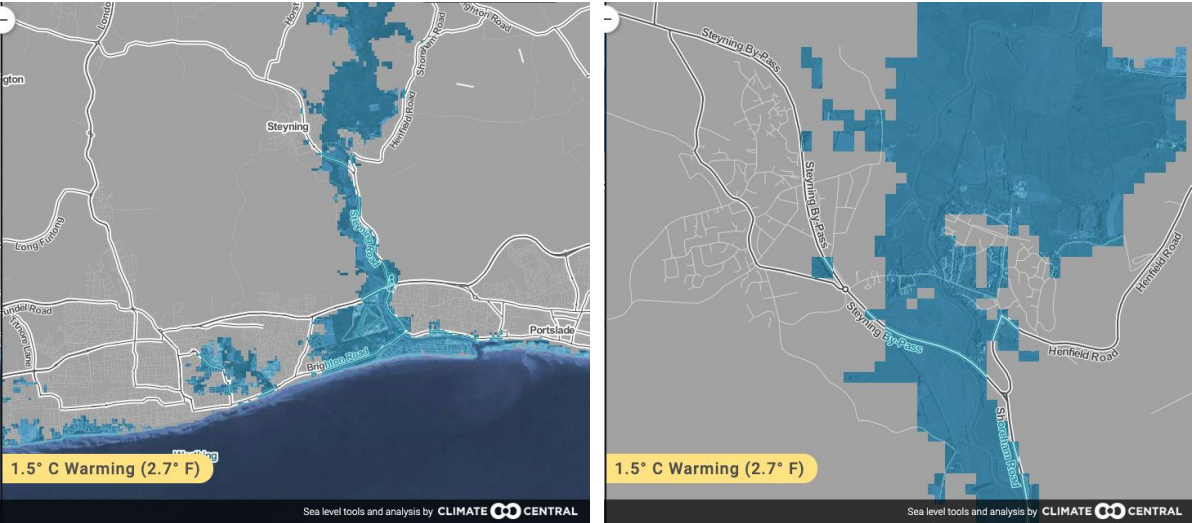


Figure 2: Predicted coastal inundation by 2200 for the Adur Valley (left) and Steyning (right) assuming a 1.5°C rise in global temperatures ⁷

Public awareness

2.16. The local environment is highly prized by Steyning residents, and is one the prime reasons people choose to live here. An indication of this came in the survey carried out in 2015 as part of the Steyning, Wiston, Ashurst and Bramber (SWAB) neighbourhood plan process. In response to a question asking **“How important do you think it is that the Neighbourhood Plan should aim to protect the following aspects of the community?”** these five environmentally-related aspects were all rated as ‘Very Important’ by more than two thirds of respondents:

Table 1: Survey results showing importance of environmental factors to local residents

Aspect	% of respondents regarding this aspect as ‘Very Important’
Views to and from the Downs	82.9%
Green and open spaces	74.4%
Network of footpaths	72.9%
Rural Aspect	68.8%
Flora and Fauna	68.1%

2.17. Concern about the environment, wildlife, and climate change is widespread among Steyning residents, as evidenced by the high level of support for local initiatives and societies with an environmental focus. Most notably:

⁶ Note that 1.5°C is the best case scenario. Sea level rise would be significantly greater if this ambitious UN target is not met. One big variable with these predictions is the speed with which these changes will happen, given the uncertainty of the science and potential ‘tipping points’.

⁷ Maps come from the Carbon Central Surging Seas Mapping Choices interactive website. [Link](#).

- The Steyning Downland Scheme has 960 on its mailing list and over 200 active volunteers.
- The Steyning 10:10 Climate Action Group, which runs the local Greening Campaign, has over 570 on its mailing list.
- There are around 270 Friends of Steyning Community Orchard.
- Steyning Horticultural Society has more than 300 members.
- Steyning has two very well used allotments with around 120 plot holders in total.

- 2.18. There are overlaps between these groups and some members and supporters come from outside the Parish. However, given an overall population of 5990 at the last census, these numbers demonstrate the breadth and depth of interest for environmental issues in Steyning, and the presence of an unusually active and enthusiastic support base for environmental initiatives – much more so than in many similar-sized communities.⁸
- 2.19. Given this level of interest and concern about the environment and climate change, many Steyning residents will be expecting a Plan that is both fully aware of these issues and proactive in suggesting measures to enhance the long-term sustainability of the Steyning and its surroundings.

Policy context

- 2.20. After several years of mixed messaging from the UK Government on climate issues,⁹ recent signs have been more positive. The UK Parliament ‘declared a climate emergency’ on May 1st 2019. The following day, the Committee on Climate Change, an independent statutory body set up under the Climate Change Act 2008, produced its latest report which recommends stepping up the UK’s climate targets with a new aim to become carbon neutral by 2050, rather than reducing emissions by 80%. This tougher target has since been confirmed in law.¹⁰
- 2.21. This upturn in policy attention has been spearheaded at the local council level, with more than 130 primary and secondary level councils in the UK declaring a Climate Emergency by July 2019.¹¹ The wording of climate motions has varied, and some councils have adopted tougher targets than others. However, the overall aim of getting councils to acknowledge the climate challenge publically and pledge to accelerate action to address it has been met, with the momentum behind the movement continuing to build.
- 2.22. In May 2019, West Sussex County Council passed a motion acknowledging the climate emergency and committing to step up action on climate. Horsham District Council took a

⁸ The fact that Steyning and Ashurst returned one of the first ever Green Party District Councillors in the recent local election is no coincidence. The other was in neighbouring Bramber, Beeding and Woodmancote.

⁹ There has been steady progress in de-carbonising the UK power sector, so the headline numbers are positive. But an earlier policy to require all new housing to be zero carbon was shelved in 2015, development of onshore wind has been effectively halted, solar subsidies have been almost eliminated, and support for fracking is still in place despite widespread local opposition.

¹⁰ See: <https://www.vox.com/2019/5/4/18528526/climate-change-uk-net-zero-law>

¹¹ Originating in Australia, the Climate Emergency movement has spread rapidly in the UK since Bristol City Council became the first council to declare an emergency in November 2018. The Climate Emergency UK website provides an up-to-date summary of which councils have declared. See: <https://climateemergency.uk/>

similar step in June 2019.¹² The direction of travel has been clearly set through these motions, with strong cross-party support. Both councils already have good records on green issues, but Steyning should look forward to an even more supportive and proactive District and County Council in the future.

2.23. The policy context for taking action on climate change has therefore improved significantly since the beginning of 2019, and looks set to improve further.

Planning framework

2.24. The Plan needs to be framed within the context of national and district planning policy. It is worth citing relevant sections from latest policies to emphasise how climate change is already recognised as a mainstream planning concern. This excerpt is taken from a recent Briefing Note by West Sussex County Council:¹³

'The National Planning Policy Framework (NPPF) is based on achieving sustainable development. It requires decisions on policies/developments to mitigate and adapt to climate change, including moving to a low carbon economy (para 8). The NPPF also requires plans/decisions to:

- Take into account the long-term implications of climate change for flooding, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures (para 149);*
- Avoid increasing vulnerability to the impacts of climate change and reduce greenhouse emissions (para 150); and*
- Help increase the use and supply of renewable and low carbon energy and heat (para 151), particularly community-led initiatives (para 151).*

The more detailed National Planning Policy Guidance (PPG): Climate Change highlights how important the issue is in planning, noting "Addressing climate change is one of the core land use planning principles which the NPPF expects to underpinning both plan-making and decision-taking." (Para 001). Local plans must reflect this principle to be found 'sound', and local authorities are expected to adopt proactive strategies to mitigate and adapt to climate change, in accordance with the Climate Change Act 2008.'

2.25. The Horsham District Council Planning Framework is currently under review. The latest version, published in 2015, sets out a number of quite explicit climate-related ambitions and statements.¹⁴ Some of the most relevant of these are summarised below:

2.26. Among it's high-level objectives it includes:

"Objective 11: To safeguard and enhance the environmental quality of the district, ensuring that development maximises opportunities for biodiversity and minimises the impact on environmental quality including air, soil, water quality and the risk of flooding."

¹² Details of the two motions can be found on the South East Climate Alliance website – see <https://seclimatealliance.uk/news/>

¹³ Planning and Climate Change, Briefing Note, June 2019, West Sussex County Council

¹⁴ Extracts cited are from the current Horsham District Planning Framework, Nov 2015. [Link](#).

“Objective 12: Ensure that new development minimises carbon emissions, adapts to the likely changes in the future climate and promotes the supply of renewable, low carbon and decentralised energy.”

2.27. The section on climate change (Chapter 10) sets down a number of strategic policies relating to climate change:

Strategic Policy 35: Climate Change

“Development will be supported where it makes a clear contribution to mitigating and adapting to the impacts of climate change and to meeting the district's carbon reduction targets as set out in the Council's Acting Together on Climate Change Strategy, 2009.

Measures which should be used to mitigate the effects of climate change include:

- *Reduced energy use in construction; ^[L-7]_[SEP]*
- *Improved energy efficiency in new developments, including influencing ^[L-7]_[SEP] the behaviour of occupants to reduce energy use; ^[L-7]_[SEP]*
- *The use of decentralised, renewable and low carbon energy supply systems;*
- *The use of patterns of development which reduce the need to travel, encourage walking and cycling and include good accessibility to public transport and other forms of sustainable transport; and ^[L-7]_[SEP]*
- *Measures which reduce the amount of biodegradable waste sent to landfill. ^[L-7]_[SEP]*
- *Development must be designed so that it can adapt to the impacts of climate change, reducing vulnerability, particularly in terms of flood risk, water supply and changes to the district's landscape. Developments should adapt to climate change using the following measures:*
 - *Provision of appropriate flood storage capacity in new building development;*
 - *Use of green infrastructure and dual use sustainable drainage systems (SuDS) to help absorb heat, reduce surface water runoff, provide flood storage capacity and assist habitat migration; ^[L-7]_[SEP]*
 - *Use of measures which promote the conservation of water and/or grey water recycling; and ^[L-7]_[SEP]*
 - *Use of site layout, design measures and construction techniques that provide resilience to climate change (opportunities for natural ventilation and solar gain). ^[L-7]_[SEP] If it is not possible to incorporate the adaption and mitigation measures proposed, an explanation should be provided as to why this is the case.” ^[L-7]_[SEP]*

Strategic Policy 36: Appropriate energy use includes statements that:

“All development will be required to contribute to clean, efficient energy in Horsham based on the following hierarchy:

- *Lean – use less energy – e.g. through demand reduction ^[L-7]_[SEP]*
- *Clean – supply energy efficiently – e.g. through heat networks ^[L-7]_[SEP]*
- *Green – use renewable energy sources”*

“The Council will permit schemes for renewable energy (e.g. solar) where they do not have a significant adverse effect on landscape and townscape character, biodiversity, heritage or cultural assets or amenity value. Community initiatives which seek to deliver renewable and low carbon energy will be encouraged.”

- 2.28. Having passed a climate emergency motion on June 2019, Horsham District Council has pledged to tighten up its guidance on climate change and biodiversity. A recent press release states: *'The Council is now producing its updated Local Plan which will look at future housing throughout the District. In doing so we need to see what additional measures we can expect developers to undertake to help the environment and include in our new homes and see how we can increase biodiversity on new housing developments.'*¹⁵
- 2.29. Climate change also features prominently in the recently adopted South Downs National Park (SDNP) Local Plan.¹⁶ This puts particular emphasis on the 'ecosystem services' that the National Park provides in preserving the natural environment and supporting the local economy, and the importance of 'green infrastructure'¹⁷ in delivering those services and mitigating against the impact of climate change. The plan includes specific policies on sustainable building design (SD48), flood risk management (SD49), sustainable drainage (SD50) and support for renewable energy (SD51).
- 2.30. The message on climate change contained in these planning documents is therefore a supportive one. Although there is always room for disputes on emphasis and interpretation, a framework is already in place to require new developments to be climate-friendly. The challenge for the Plan is to use this framework intelligently so Steyning can take advantage of the groundwork that's been done.

¹⁵ "Horsham District agrees major action on the environment", HDC Press Release, 1 July 2019

¹⁶ South Downs National Park Local Plan, Adopted 2 July 2019. ([Download Here](#)).

¹⁷ Green Infrastructure is defined in the SDNP Local Plan as "the multifunctional network of natural and semi natural features, urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities."

3. Baseline – where are we starting from?

- 3.1. Despite being an environmentally aware community, Steyning cannot claim to be ahead of the game in terms of its green credentials. In some respects it starts in a worse position than many communities.
- 3.2. It is hard to measure the carbon footprint of a community with any accuracy. If Steyning's greenhouse gas emissions match the national average of 8.1 tonnes per household, that would put our total domestic emission at 48,500 tonnes CO₂ equivalent per year for Steyning as a whole, across its 2530 household.¹⁸
- 3.3. The graphic in Figure 3 from the Committee on Climate Change shows how this breaks down. It is notable that the top three contributors namely: transport (34%); heating (29%); and electricity use (21%) can all be influenced by a proactive Plan.
- 3.4. In the sections below, data is presented on each of these areas to show where Steyning currently stands.

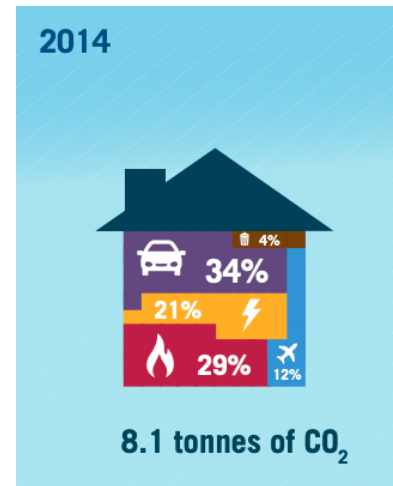


Figure 3: Average UK household emissions

How energy efficient is our housing stock?

- 3.5. A snapshot of how energy efficient Steyning's homes are can be found by looking at the government database of Energy Performance Certificates (EPC). This can be searched by postcode and with some sorting broken down into individual parishes.¹⁹ It has data for 1461 properties in Steyning, 53% of the total number of households.
- 3.6. The graph in Figure 4 below shows the breakdown between different efficiency categories, ranging from A (the best) to G (the worst). Figures for Steyning are shown alongside those for Horsham District and England & Wales. The results show that Steyning's housing stock is less efficient than the national average, and significantly worse than the average for Horsham District. Only 32% of Steyning properties have a rating of C or better, compared to 36% nationally, and 38% in Horsham District. Only 4% have a good rating of B (c.f. 12% for Horsham), and none come into the top A category.

¹⁸ The figure for number of households is from the 2011 Census. Emissions data refer to 2014 and are from the Committee on Climate Change's 5th Carbon Budget. These do not include emissions from the food we eat, the 'stuff' we buy, and other non-domestic sectors. See <https://www.theccc.org.uk/wp-content/uploads/2016/07/5CB-Infographic-FINAL-.pdf>

¹⁹ Figures cover the period to December 2018. See: <https://epc.opendatacommunities.org/login>

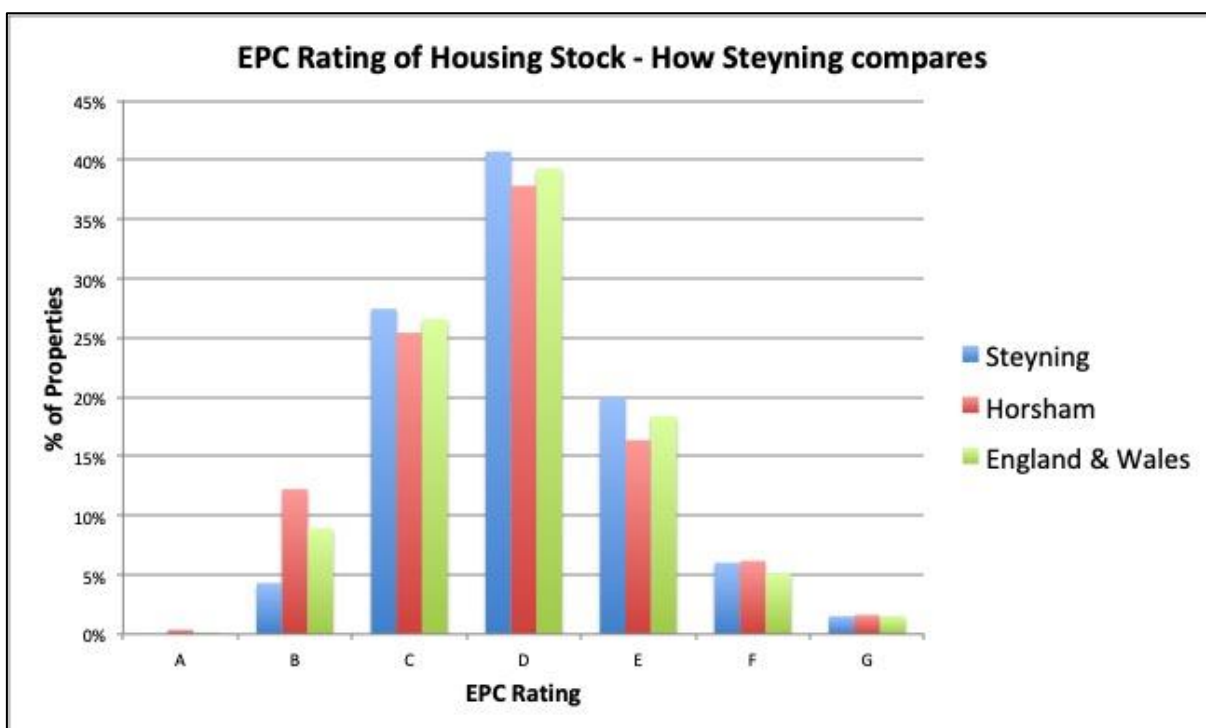


Figure 4: Breakdown of EPC rating of domestic properties

- 3.7. This can plausibly be attributed to the age of many Steyning properties, and the lack of significant house building in the Parish recently, which would have brought the average up due to the higher building standards in force. The figures confirm that while improvements have no doubt been made over the last decade, with householders installing better insulation and adopting other energy saving measures, there is still much work to be done in bringing Steyning's homes up to scratch in energy efficiency terms.
- 3.8. This has implications beyond energy savings. Our badly insulated housing stock has implications for health and fuel poverty for those who struggle to pay their fuel bills and heat their homes.²⁰

How much progress have we made on renewables?

- 3.9. Steyning has made significant progress in the adoption of renewable energy technologies over the past decade, although there is much more that could be done. A picture of where we are in 2019 is provided below:
- A significant number of houses have had solar photovoltaic (PV) panels installed following the introduction of Feed in Tariff incentives in 2010. More than 60 houses had had PV systems fitted by April 2012, with the Penlands Estate being a particular hot spot. The rate of installation has tailed off since then, as subsidies were steadily cut and now eliminated. Working back from OFGEM figures for the BN44 area as a whole, around 110 (or 4%) of properties in Steyning now have PV installed, with a total installed capacity in the order of 400kW.²¹ Using standard assumptions on the power

²⁰ For more details on the multiple dimensions of fuel poverty see the [NEA website](#).

²¹ Estimates are from the OFGEM Feed in Tariff Installation Report, March 2019, assuming 62% of the properties in the BN44 postcode are in Steyning Parish (the same proportion from the EPC database). See: <https://www.ofgem.gov.uk/publications-and-updates/feed-tariff-installation-report-31-march-2019>

generated by PV panels, this means solar is generating about 3% of the domestic electricity used in Steyning.²²

- This is only scratching the surface compared to the untapped potential for household solar PV. A study carried out in 2011 estimated that half the electricity consumption of Steyning could be supplied by rooftop solar if every house with a suitable roof orientation and design installed PV panels.²³
- There are also PV arrays on a number of public buildings and schools. The small Steyning Centre system was one of the first, followed by Steyning Primary School, and the Museum. The largest PV array in the Parish is probably the 50kW system fitted on two barns at Huddlestone farm, just north of Steyning.
- Plans for a much larger 15MW solar farm at the north side of Huddlestone Farm were turned down by the Secretary of State, in 2016 after a lengthy planning appeal.²⁴ This was despite a campaign by the Steyning 10:10 Climate Action Group, and a public survey that found that 91% of respondents were in favour of the scheme.²⁵ This was a missed opportunity and would have provided enough electricity over a year for at least 3400 homes, more than there are in Steyning, using less than 2% of the land area. Plans for two other solar farms in nearby Ashurst and West Grinstead Parishes did go ahead, however. So these parishes are now significant net power exporters.
- There are no community energy schemes in place in Steyning at present, though options have been considered by Steyning 10:10.
- Several dozen houses in Steyning have solar hot water systems, and there are likely to be a small number of ground and air source heat pumps fitted.²⁶
- An anaerobic digester system has been installed at Wappingthorn Farm, fed by locally-grown maize silage. This creates biogas which is used to generate electricity to feed back into the grid, with waste heat being recycled for use on site. The peak output (for electricity and heat together) is 500kW, and the total power generated over a full year is around 4.2 GWh. This is a substantial amount, equivalent to about 40% of the domestic electricity consumption of Steyning.²⁷
- In the past year, an 'energy barn' has been built at Kings Barn Farm, on Kings Barn Lane. Filled with lithium ion batteries, this takes electricity from the grid during the night when there is excess power available (and prices are cheap), and feeds it back when power is scarce (and prices higher), typically in the early evening. The maximum power output from the batteries is 10MW over a 2-hour period, a substantial amount but over a short period.²⁸ This is a forerunner of many similar systems that will be needed as we decarbonise the grid and rely more heavily on intermittent renewable sources.

²² Calculations assume an average household electricity consumption of 3800 kWh/yr [Link](#). A conservative figure is used for the power generated from PV panels of 800kWh/year per kW of installed capacity. To obtain estimates for Steyning, it is assumed that 62% of homes in the BN44 postcode are in Steyning, the same proportion as found in the EPC database.

²³ Figures from an unpublished University of East Anglia dissertation by Sam Barnard, 2011.

²⁴ See Planning Application DC/13/2420 [Link](#)

²⁵ The case made by Steyning 10:10 supporting the Huddlestone Farm scheme is set out in [this presentation](#).

²⁶ Estimates are from personal observation; there are no disaggregated statistics available on applications to the Government's Renewable Heat Incentive (RHI) scheme, which subsidises such systems.

²⁷ Output data from Mr Frans de Boer, owner of Wappingthorn farm. The comparison with Steyning's domestic energy consumption assumes an average household consumption of 3800 kWh/yr.

²⁸ Details of the Kings Barn Farm battery storage system can be found in their planning application. [Link](#).

- Though outside Steyning Parish, Wiston House is heated with a modern wood chip biomass boiler, fed by wood from the Wiston Estate. According to the Estate's Forester, there is potential for increasing the amount of wood that could be harvested sustainably from the Estate.
- There are no operating wind turbines of any significance in Steyning, though a relic of an old style wind pump still exists, hidden in woodland near the bypass. Being in the lee of the Downs, and relatively built up, Steyning is not a natural spot for any large-scale wind farm. An initial scoping survey did suggest, however, there was potential for small-scale turbines. It identified the area around the Kings Barn Lane sewage farm, and the ridge by Huddleston Farm, as being the most obvious spots to site them.²⁹ It is notable that the South Downs National Park Local Plan does permit development of individual turbines up to 100kW output, provided they are appropriately sited.³⁰

3.10. Adding the output from existing solar PV systems to that of the Wappingthorn biodigester, current renewable energy generation in Steyning is equivalent to around 43% of the domestic electricity consumed. This represents an important start in de-carbonising Steyning's power supply. However, there is a lot more that could be done. Given Steyning's untapped solar potential, in particular, generating most or all of our electricity needs from renewable sources is an entirely realistic medium-term target, certainly from a technical perspective.³¹

How sustainable is our transport?

3.11. On the transport front, Steyning is better provided than some rural communities. However, the services and facilities available are far from ideal:

- Public transport links are mediocre at best, and have got worse in recent years as county council subsidies for local bus services have been cut back. The current No 2 bus operated by Brighton and Hove Buses is our main link with Shoreham and Brighton, but outside peak times only runs once an hour, and is out of synch with London train services from Shoreham. The 100 bus run by Compass Ltd provides an hourly service connecting Steyning with Horsham, Burgess Hill, Pulborough and Billingshurst, but buses don't run on Sundays or past 7pm in the evening. The 106 Compass bus to Henfield and Worthing has been cut back to a single service running three days a week.
- The bus services that do exist are not heavily used outside the school rush hours. It is rare to see more than a handful of people on most buses, making it hard for operators to make the economics work without County Council subsidies. The modest use is no doubt partly down to the infrequency of the services, and the cost of tickets, but it is also a sign of the car driving habit that Steyning has fallen into.
- There are several volunteer run services providing transport help for the elderly and those needing special assistance. The Community Minibus Service provides a weekday schedule of transport to shops in Steyning, Storrington, Pulborough and Worthing. It averages 75 passengers a week, and has advantages over buses in that it stops at your

²⁹ This survey was conducted by Southern Renewables in 2012. Small-scale wind turbines produce up to 100kW output and are typically around 35m in height (far smaller than the 140m Rampion offshore turbines).

³⁰ See SNDP Local Plan Development Policy SD21.

³¹ Steyning would still need to be connected to the national grid for the purposes of balancing peaks and troughs in demand, but Steyning could aim to be self-sufficient on average over the course of a year. Progress in meeting this target will be mainly dictated by economic factors and the policies adopted by central government for setting prices for exporting power back to the grid.

door, has a volunteer on hand to help passengers get seated, and is geared up for carrying shopping bags. Steyning Good Neighbours also offers lifts on request, for example to attend hospital appointments. These services provide a social as well as transport function, and help tackle loneliness and isolation among older residents.

- Cycling links are quite patchy. While the Downlink provides a popular North-South route along the Adur Valley, it is a leisure track rather than an ideal commuting route. Some cyclists use the A283, but are quite exposed on this high-speed road. Cycling East-West and in other directions is harder and relies on bridleways that don't link up well, or narrow and winding roads often with considerable traffic sharing them.
- There are no active lift sharing schemes in the Steyning area at present, although the West Sussex Car Share website does provide a potential platform for this.³²
- A number of Steyning residents have made the switch to fully electric vehicles (EVs) or plug in hybrids (PHEVs), but the take-up is still quite modest. There is considerable interest in the concept, however, judging by the number of people who attended an electric car event organised by Steyning 10:10 in 2017.³³
- There are no public EV charging points in Steyning at present, although Horsham District Council has been talking of developing plans. The nearest rapid charge (43kW) facility is at the BP station in Upper Beeding. A slower 7kW charger is located at the Best Western Old Tollgate Hotel in Bramber.³⁴ For EV owners with a driveway or garage where a charging socket can be installed, the lack of public charging points in Steyning is not a deterrent, as most charging will be done at home. But for residents living in flats or relying on street parking this is a significant barrier to EV ownership.

3.12. Data on vehicle ownership from the 2011 Census is presented in the Figure 5. It shows that 87% of Steyning households have one or more car or van, which is higher than the equivalent figure for England as a whole (80%). 43% of Steyning households have two or more vehicles.

³² This is run as part of the national Liftshare scheme. It has nearly 5000 members across Sussex but there are no active lift sharing groups listed for Steyning at present. [Link](#).

³³ Details of this event can be found on the Steyning 10:10 website. [Link](#).

³⁴ With the predicted expansion of EVs, installing charging points could be a good way of attracting visitors to Steyning and boosting tourism and the local economy. Facilities will need to be top notch, however, as EV users will be using phone apps to make smart choices on where to get the fastest charge.

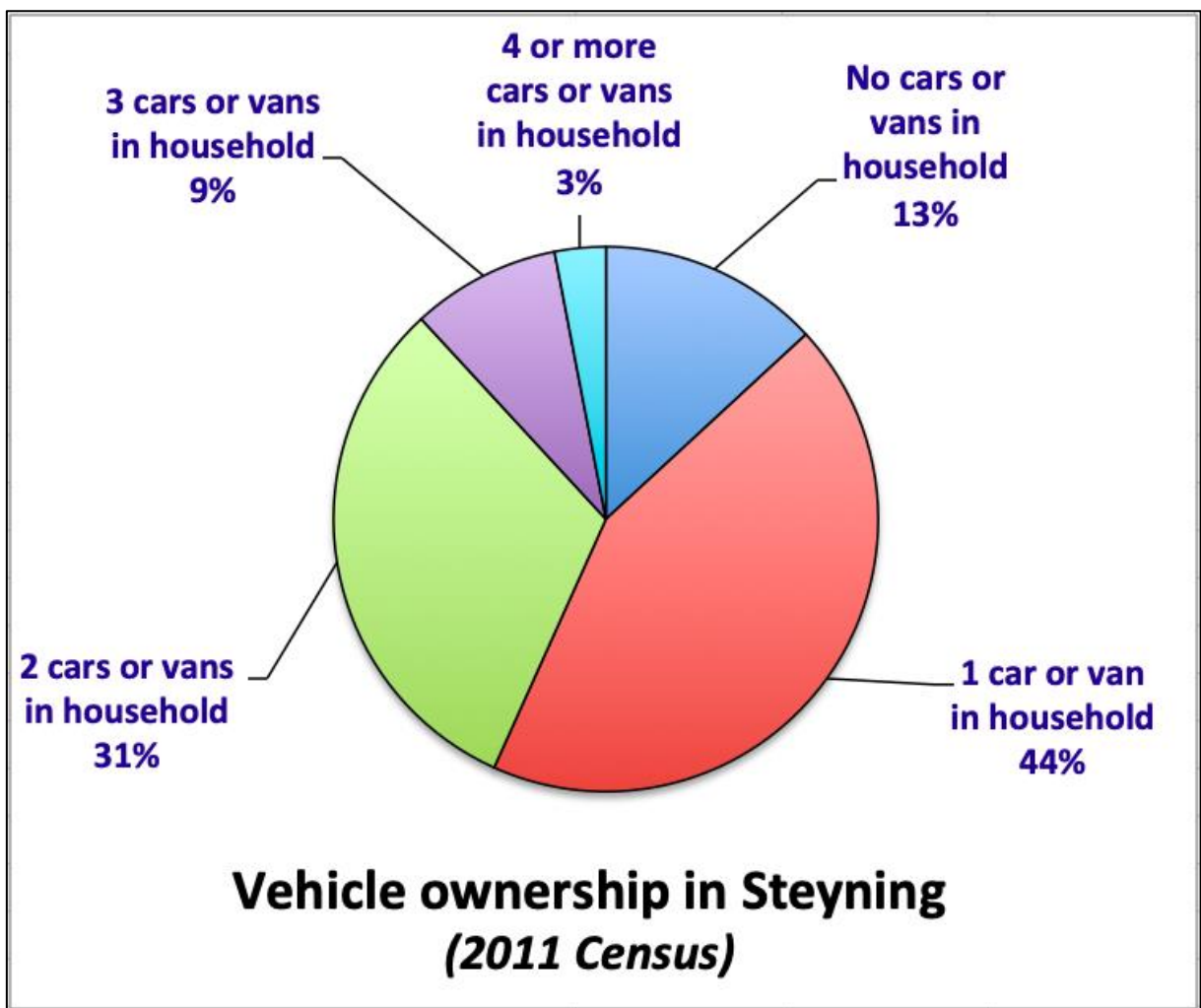


Figure 5: Vehicle ownership in Steyning³⁵

- 3.13. There are no specific data available on commuting patterns in Steyning, but Figure 6 below presents 2011 Census data for Horsham District (in blue), comparing it to England as a whole (in red). Unsurprisingly for a semi-rural district, it shows that residents are more reliant on cars to get to work than the national average and use public transport, bicycles and walking less. Just over two thirds (68%) of these commuting journeys are relatively short, being 20km or less, with only 10% of households having longer distance commutes of 40km or more.

³⁵ Data on vehicle ownership and commuting patterns in Figures 5 and 6 come from interrogating the NOMIS database of the Office of National Statistics. See: <https://www.nomisweb.co.uk/>

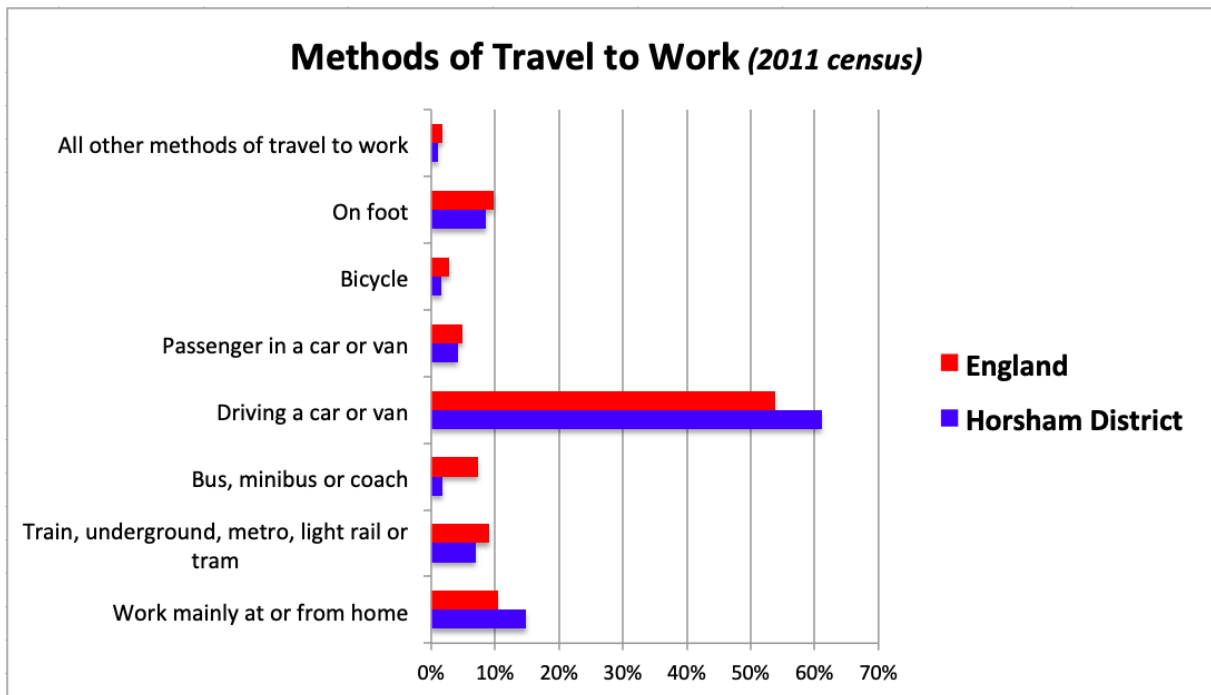


Figure 6: How people get to work

3.14. Taking this information together, it confirms that Steyning is currently a heavily car-based community, more so than the national average. This is partly down to geography and the lack of alternatives. But it is also no doubt a matter of habit and convenience.

4. A 'Climate Smart Steyning'

4.1. The Community Plan aims to create a vision for the future of Steyning. As such, it provides a unique opportunity to embed climate change at the heart of this vision, and to define local planning policy in a way that ensures that climate change is properly considered.

4.2. A way of framing this would be to set a goal of making Steyning a 'Climate Smart' community. It is recommended that a paragraph be added to the vision statement with text such as:

"Steyning will take active steps to become a 'climate smart' community, so that it is resilient to the changes and risks caused by climate change, and is taking measures as far as reasonably practicable to reduce it's own environmental footprint."

4.3. What does 'Climate Smart' mean in a Steyning context? Some initial recommendations on how it could be defined are set out below:³⁶

- All new buildings are constructed to the highest possible environmental standards and improvements to existing buildings are encouraged that minimise their environmental footprint, while preserving our historic built heritage.
- Steyning is moving fast to becoming self-sufficient in electricity through the encouragement of renewable energy generation and storage, both at the domestic level and by installing systems on public and commercial buildings, and farms.
- Patterns of new housing development, coupled with investment in footpaths, cycling infrastructure and traffic management measures, promote walking and cycling and reduce the need for private cars.
- Public transport is substantially improved and Steyning is at the forefront of the move to electric vehicles and other forms of low carbon transport.
- Steyning is more climate resilient because climate risks from droughts, floods and extreme weather are factored into the design of all new buildings, highways and public spaces, and taken into account in decisions affecting local farmland.
- Steyning is active in monitoring and managing biodiversity, and is alert to the possibilities for increasing carbon sequestration through tree planting and land use management, so as to lock up carbon.
- Climate change is factored into the decision making of the Parish Council, local schools, businesses and community groups, so it becomes part of 'business as usual' rather than an afterthought.
- Residents in Steyning are alert to the need to take action on the climate, and are taking steps to reduce their own carbon footprints.

4.4. Some of these aspirations go beyond the boundaries of what is normally covered in neighbourhood plans, or current planning rules, so may not be enforceable in any meaningful way. But a statement of intent along these lines would help frame the Plan and send a signal that Steyning gets the message on climate change and wants to be in the forefront of action to address it.

³⁶ There are no agreed international definitions for what 'climate smart' means at present. These recommendations are presented to open up a discussion.

5. Proposed policies and measures

- 5.1. This section proposes a series of actions that it is suggested could be included in the plan if the Steering Group and Parish Council were so minded. They are framed as a mix of specific policies and wider recommendations.
- 5.2. How far the Plan can go in making suggestions mandatory is a critical point, and is one where expert input may be required. It is appreciated that the Inspector could reject a draft Plan if it is seen as overstressing its mandate and authority. Policies that have additional cost implications for developers will be under particular scrutiny, and if included in the Plan may require an expert report to be commissioned to justify them and demonstrate they will not make the development unviable.³⁷
- 5.3. This judgement is made harder by the fact that 'goalposts will be moving' as the Plan is being written. As mentioned earlier, for example, Horsham District Council, is already talking about toughening up its rules on new developments having to demonstrate they are enhancing biodiversity, not just preserving it. And at a national level, the government has set up a public consultation on changes in regulations to require all new houses to include an electric vehicle charging point.³⁸
- 5.4. The signs are encouraging that statutory and planning requirements are likely to get more specific over the coming months and years in requiring climate-friendly development. If Steyning is to grasp this opportunity fully, the Plan needs to be alert to these changes and bold in pushing the boundaries as far as it can.

Existing and New Buildings

- 5.5. Making sure that all new buildings built in Steyning are as energy efficient as possible is a key starting point. Government policy has changed in recent years, which has led to some ambiguity over the extent to which local authorities can require higher standards than set out in current building regulations. A clarification of the current situation is provided in a 2019 statement by the UK Green Building Council (UKGBC).³⁹ Citing a range of recent evidence, including parliamentary questions and correspondence with government officials, they believe that:

"local authorities are able to set higher energy standards than Part L of the Building Regulations through planning policy, up to the equivalent of 'Code for Sustainable Homes' level 4. This equates to a 19% improvement in carbon emissions over Part L 2013. The recent adoption of Local Plans containing this requirement (in places like Ipswich and Cambridge) provides further confirmation."

- 5.6. The method of defining household energy standards is quite technical⁴⁰, but 'Level 4' is two steps below a 'Level 6' rating, which is the standard for a 'zero carbon building'. The UKGBC advice is that this is the maximum that can be required under current regulations, so would be a logical target for Steyning to adopt.

³⁷ This approach was taken recently for the Southwater Neighbourhood Plan.

³⁸ This consultation was launched on 15 July 2019, with a deadline of 7 October 2019. [Link](#)

³⁹ "The Policy Playbook: Driving sustainability in new homes - a Resource for Local Authorities," UK Green Building Council - [link](#)

⁴⁰ The Code for Sustainable Homes is an environmental assessment rating method for new homes which assesses environmental performance in a two-stage process (design stage and post construction stage) using objective criteria and verification. The results of the Code assessment are recorded on a certificate assigned to the dwelling. [Link](#)

- 5.7. A 2018 report on Low Carbon Neighbourhood Planning from the Centre for Sustainable Energy (CSE) also provides useful advice on setting expectations for new building.⁴¹ It cites the Neighbourhood Plan from Long Ashton, in North Somerset, as a good practice model. It is suggested that Steyning adopt this wording, adding the UKGBC target:⁴²

SUGGESTED POLICY

The design and standard of any new development should meet a high level of sustainable design and construction and be optimised for energy efficiency. Wherever possible this should be equivalent to 'Code for Sustainable Homes' level 4, and targeting zero carbon emissions. This includes:

- Siting and orientation to optimise passive solar gain.
- The use of high quality, thermally efficient building materials.
- Installation of energy efficiency measures such as loft and wall insulation and double glazing.

Non-residential developments should aim to meet the Buildings Research Establishment BREEAM building standard 'excellent'.

- 5.8. The CSE has some additional suggestions on wording to encourage innovative design of low carbon homes:

"Subject to the development being found to be acceptable when judged against other policies in the Development Plan, innovative approaches to the construction of low carbon homes which demonstrate sustainable use of resources and high energy efficiency levels will be supported. Examples would include, but would not be limited to earth sheltered, rammed earth, or straw bale construction, construction to Passivhaus standards, conversion to EnerPHit standards."

- 5.9. Adur District Council is discussing proposals to require developers to prepare an 'Energy Statement' demonstrating carbon reductions beyond current building regulations compliance. Their draft planning policy reads:⁴³

"For all major housing developments, developers should prepare an 'Energy Statement' demonstrating carbon reductions beyond current building regulations compliance. As a minimum, the Energy Statement should include:

- *A calculation of the regulated energy demand and associated carbon dioxide emissions at each stage of the energy hierarchy*
- *Proposals to reduce carbon dioxide emissions through the energy efficient design of the site, buildings and services (Stage 1: Be lean)*
- *Proposals to further reduce carbon dioxide emissions through the use of decentralised energy, heating and cooling (Stage 2: Be clean)*
- *Proposals to further reduce carbon dioxide emissions through the use of on-site renewable energy technologies (Stage 3: Be green)."*

⁴¹ Low Carbon Neighbourhood Planning: A guide to creating healthier, happier, greener communities. Centre for Sustainable Energy, January 2018. [Link](#)

⁴² This would be in line with requirements included in the SDNP Local Plan (Strategic policy: SD48).

⁴³ "Draft Supplementary Planning Document on Sustainability", Adur District Council, April 2019 [Link](#)

- 5.10. This policy, which is currently out for consultation, could be repurposed for Steyning but it is noted that the Plan is unable to require documents alongside a planning application. Only the relevant Local Planning Authority can require this through the local validation list. That said, a policy along the lean/clean/green principles could be introduced to the Plan and developers could be required to demonstrate how they have adopted this approach in their proposals.
- 5.11. New housing will represent only a small proportion of Steyning's overall housing stock for many years to come so it is important for the Plan to also encourage intelligent modifications to current buildings to improve their energy performance. Borrowing text again from the Long Ashton policy, it is recommended that the Plan state that:

SUGGESTED POLICY

Alterations to existing buildings must be designed with energy reduction in mind and comply with sustainable design and construction standards.

The retrofit of heritage properties/assets is encouraged to reduce energy demand and to generate renewable energy where appropriate, providing it safeguards historic characteristics and development is done with engagement and permissions of relevant organisations.

- 5.12. The Plan could also set out ambitions to make public and community buildings as energy efficient as possible. A programme of improvements is already underway in the Steyning Centre, with plans afoot to install LED lighting, following earlier measures to upgrade the heating system and replace leaky windows and skylights. The Plan could state, for example that the Parish Council will take steps to maximise the energy efficiency of all public buildings under its control, and will use its influence to encourage similar improvements in buildings, such as the Leisure Centre and local schools, which are owned by the District or County Council.

Renewable technologies

- 5.13. There is scope for making Steyning much more energy self-sufficient by adopting policies which encourage greater use of small-scale renewable technologies. The Plan could include a policy to support this such as:

SUGGESTED POLICY

Development proposing or incorporating energy generation from renewable sources such as solar panels, heat pumps and biomass boilers will be supported, particularly where it would result in the development or planning unit achieving energy self-sufficiency.

- 5.14. As the earlier Huddlestone Farm solar farm proposal demonstrated, the Parish of Steyning could become a net electricity exporter if larger renewable energy schemes were to come forward. There is also scope for further use of biomass energy via wood-fired boilers or biodigesters, and some potential for small-scale wind turbines, provided they are not too visually intrusive. It is likely that the northern part of the Parish would be more suited to this form of development, away from the main built up areas and sufficiently far from the South Downs and sticking to low-grade agricultural land.

- 5.15. There are many practical and economic factors to be born in mind in developing these kinds of schemes, but the Plan could include a statement encouraging such applications, with wording such as:

SUGGESTED POLICY

Proposals for larger scale renewable energy generation schemes, such as solar farms, biodigesters, wood fired boilers and small-scale wind power will be supported so long as they do not result in unacceptable landscape, visual or environmental impacts.

Where the acceptability of such a scheme is finely balanced, the following will be material considerations in favour of granting the development:

- a) The proposed development is for a community owned renewable energy scheme.
- b) The proposed development will provide educational opportunities and other benefits to the Parish.

Transport⁴⁴

- 5.16. To meet our ambitious national emissions targets, a transition to low carbon forms of transport is essential. It is going to take some significant inducements and changes in attitude to shift current patterns, and it will take time. The Plan provides an important opportunity to begin that process.
- 5.17. A combination of measures will undoubtedly be needed. Some are planning related, so fall within of the natural mandate of the Plan. Others are broader, and are included here as options for the Parish Council to consider.
- 5.18. As an immediate step, the Parish Council should work with Horsham District Council and West Sussex County Council to press ahead with installing a good network of rapid EV charging points around the Parish. Alongside this they should investigate options for supporting EV charging by residents without easy access to off-street parking. This could include lamppost based chargers, or special residents' charging bays. This work could be supported by the Plan through the introduction of policies such as:

SUGGESTED POLICY

Proposals for on-street or off-street electric vehicle charging infrastructure will be supported unless they would result in unacceptable impacts on the highway.

All development which includes the provision of one or more parking spaces (including spaces contained within garages or on street) must provide electric vehicle charging infrastructure so that cars can charge in 50% of spaces (rounded up).⁴⁵

- 5.19. The Parish Council should engage with public transport providers, bus and train users, and other stakeholders, to seek improvements in public transport provision in Steyning, and better connectivity between different modes of transport. This could be supported in the Plan by:

⁴⁴ This analysis will no doubt overlap with ideas coming from the Infrastructure Working Group, so discussions will be welcomed on how they can be merged constructively.

⁴⁵ This target for EV charging points should be reviewed depending on the outcome of the Government consultation currently underway which is proposing that all new build homes are fitted with an electric charging point. [Link](#).

- Ensuring development is located so that the need to travel is minimised.
- Ensuring new developments are specifically designed with cyclists and pedestrians in mind and provide enhanced connectivity to public transport options.

5.20. It is also suggested that the Parish Council works with local landowners, the public, and other stakeholders, to explore options for improving the quality and connectivity of local cycle paths and footpaths. A more effective bicycle commuter route to Shoreham, and better East-West links, should be a priority and would go a long way towards reducing our community's reliance on private motor vehicles. A policy could be included to support this such as:

SUGGESTED POLICY

Proposals to improve the quality and connectivity of local cycle paths and footpaths, particularly proposals for an effective bicycle commuter route to Shoreham or better East-West bicycle links, will be supported.

Climate resilience

- 5.21. Climate resilience will become increasingly important to Steyning as the frequency and severity of droughts, heat waves, floods and extreme weather events increases.
- 5.22. Considering flood risk carefully in any new housing developments is an obvious starting point.
- 5.23. The Plan could also set out measures to improve the climate resilience of our community through practical measures, such as:⁴⁶

SUGGESTED POLICY

Development proposals will be supported provide they demonstrate that they are promoting the use of Sustainable Drainage Systems (SuDS) that aim to reduce the need for hard, engineered drainage systems, manage water at or near the surface, maximise infiltration into the ground, and deliver ecological benefits. SuDS features include swales, streams, storage ponds and reed beds.

All new housing should incorporate sustainable drainage design features such as permeable driveways and parking areas, water harvesting and storage features, green roofs, tree planting, and soakaways.

All new housing should incorporate design features that keep houses cool in summer and minimise the need for air conditioning.

Biodiversity and Green Infrastructure

- 5.24. The Plan provides an important opportunity to protect and enhance biodiversity and green infrastructure within the Parish. These are covered in more depth in companion reports being prepared on biodiversity, green spaces, and tree planting.

⁴⁶ These suggestions are taken from the CSE Low Carbon Sustainable Planning Guide.

- 5.25. One aspect that is worth mentioning here in a climate change context is the potential for enhancing carbon sequestration through intelligent land management that ‘locks up’ carbon in the soil and plants. Increasing the density of tree cover is the most obvious way of doing this, but appropriately-managed wetlands can also be very effective carbon stores.
- 5.26. In a semi-rural parish like Steyning, how farmland is used will be the main factor determining overall levels of carbon sequestration in a given year. According to a toolkit on the topic, *“plants and soils on farms have the potential to sequester vast amounts of carbon, giving farming the potential to be at the forefront of the fight against climate change.”*⁴⁷ There are numerous factors involved; the choice of crops, ploughing and manuring regimes, the balance between woodland, hedges, pasture and crop land will all have an impact on how much carbon is absorbed or released.
- 5.27. Influencing farming practices is outside the scope of a neighbourhood plan. However it is suggested that the Parish Council considers the potential for increased carbon sequestration in the way it manages land under its own ownership or control, including designated green spaces. This could include steps such as increased tree planting, allowing hedges to grow taller and wider, managing playing fields and parks in a way that reduces soil compaction and enhances soil organic matter content, and creating new wetland areas.
- 5.28. The potential for enhanced carbon sequestration can also be factored into housing developments through a policy such as:

SUGGESTED POLICY

Development proposals will be supported provide they demonstrate that they take steps to enhance the long-term potential for carbon sequestration through tree planting and other land use management approaches.

⁴⁷ Farm Carbon Cutting Toolkit. [Link](#).

6. Conclusions

- 6.1. This report makes the case that the risks, challenges, and opportunities posed by climate change are of vital importance to Steyning and therefore need to be placed centre stage in the drafting of the Plan.
- 6.2. The Environment Working Group recommends that climate change is specifically included in the Plan's vision statement and propose the following wording as in initial draft:

“Steyning will take active steps to become a ‘climate smart’ community, so that it is resilient to the changes and risks caused by climate change, and is taking measures as far as reasonably practicable to reduce it’s own environmental footprint.”
- 6.3. There is a great deal that the Plan could be doing to realise this vision, and a range of practical suggestions are made to this effect. Some are phrased as specific policy recommendations and others as wider ambitions for the Parish Council to consider. Advice will be needed to find the optimal wording of the policy recommendations, so they will be approved by the Inspector, embraced as sensible by local stakeholders, and enforceable once they come into operation.
- 6.4. The Environment Working Group urges the Steering Group to be bold in framing the ambitions of the Plan in relation to climate change. Given the overwhelming evidence of the urgency of the climate challenges facing us, this is an opportunity Steyning cannot afford to miss.