

# WAVERLEY GREENHOUSE GAS EMISSIONS ANNUAL REPORT – 2014/15



Cranleigh Leisure Centre 18kW  
solar PV array

## **Introduction**

This report presents the latest greenhouse gas (GHG) emissions resulting from Waverley Borough Councils operations for the year 2014-2015 and includes our approach to reducing emissions as requested by the Department for Energy and Climate Change (DECC).

The Government requires all Local Authorities to report on their carbon dioxide (CO<sub>2</sub>) emissions associated with their operations since 2008. In 2011 this requirement was extended to include other GHG's including: methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). These GHG emissions are reported as carbon dioxide equivalents (CO<sub>2</sub>e).

## **Council Information**

In 2014 -15 Waverley Borough Council served a population of 122,426 up from 118,500<sup>1</sup> in 2008/09. The council provides a number of services to residents including waste and recycling collections, social housing provision with over 5,000 properties available to residents in need of housing, leisure services in the form of five leisure centres with 4 swimming pools all owned by Waverley. The council also serves as the local planning authority.

In 2014/15 these services were provided by 375 Full Time Equivalent (FTE) employees compared to 444 FTE's in 2008/09. Council Officers and contractors employed by the council work from a number of sites across the borough.

## **Baseline year and reporting period**

The baseline year used for the mandatory GHG report is the financial year 2008-2009. These data were originally collected for reporting under the Governments National Indicator N185. The baseline year will remain unchanged unless deemed necessary under the Baseline Recalculation Policy<sup>2</sup>.

The reporting period coincides with the financial year which runs from 1<sup>st</sup> April to 31<sup>st</sup> March each year. This report includes the period 1<sup>st</sup> April 2008 to 31<sup>st</sup> March 2014. GHG emissions will be monitored against the baseline year on an annual basis and published.

## **Approach and operational scopes**

Government has published guidance on how to measure and report greenhouse gases and the format follows the internationally recognised Greenhouse Gas protocol for adoption by all local authorities and the private sector.

An operational control approach has been adopted to determine the organisational boundaries and reportable sources of GHG emissions. This includes emissions due to energy use from non-domestic properties and transport.

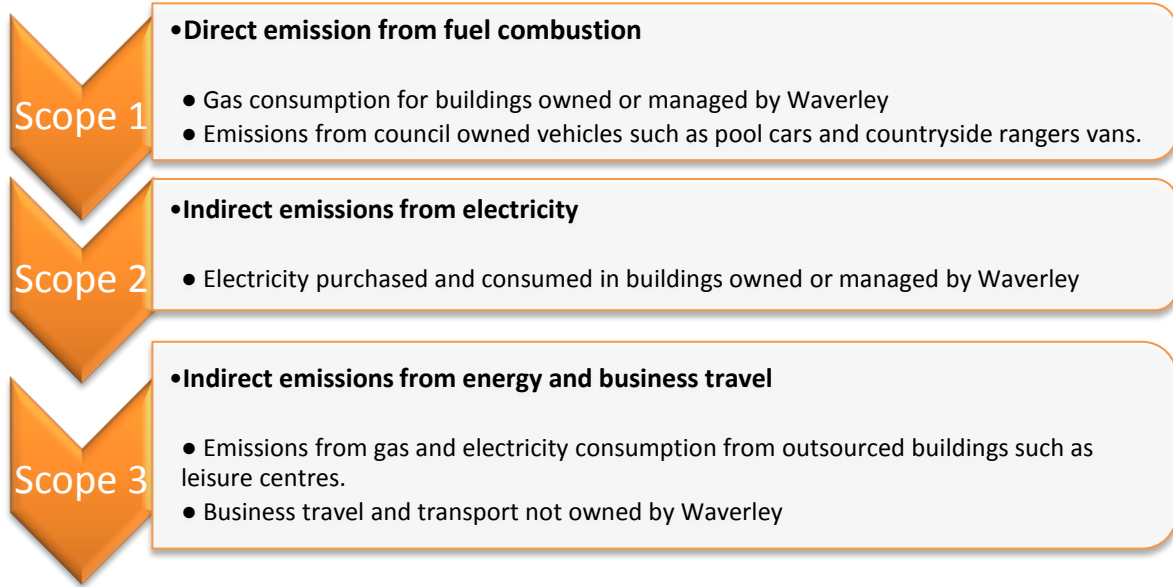
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<sup>1</sup> Office for National Statistics, Population Estimates for UK, 2008

<sup>2</sup> To request a copy of the Baseline Recalculation Policy please email [sustainability@waverley.gov.uk](mailto:sustainability@waverley.gov.uk)

Figure 1 outlines the included scopes and reported activities. Waverley has measured its direct and indirect emissions under Scope 1 and 2. Significant emissions arising from Scope 3 sources have also been included.

Figure 1: Outline of scopes and included activities



An ‘Outside of scopes’ section has been included as advised by the Department for Environment, Food and Rural Affairs (DEFRA). which is used to account for direct emissions resulting from the burning of biomass and biofuels whilst maintaining a net emissions figure of ‘0’ for emissions from these sources within the organisations ‘Total net GHG emissions’.

### Baseline GHG emissions

Figure 2 provides an indication of Waverley’s most significant emission sources. The largest contributions come from outsourced services such as leisure centres (50%) and transport emissions arising from contractors (23%). All are classified under Scope 3 emissions. Table 1 below shows a summary of the GHG emissions under each of the Scopes in terms of GHG emissions presented in tonnes of carbon dioxide equivalents (tCO<sub>2</sub>e).

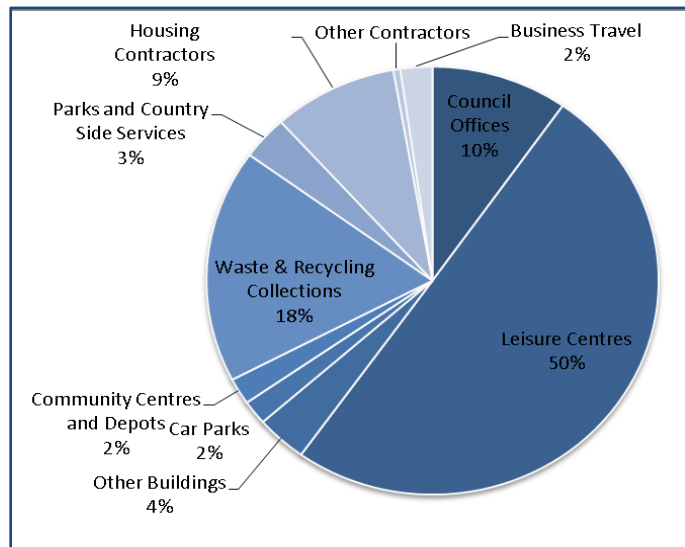


Figure 2: Baseline emissions by source

## Annual GHG emissions

### Outcome for 2014/15

On the final year of Waverley's Carbon Management Plan, 2014/15, an absolute reduction of 8.5% in GHG emissions was achieved compared to the baseline year 2008/09. Several factors have contributed to this reduction including significant efficiency improvements such as LED lighting, new boilers and renewable installations. We rationalised the use of our buildings and maximised the occupancy of offices. We also worked closely with our contractors to ensure vehicles are used in the most efficient and economic way.

*During 2014/15 Waverley reduced its annual GHG emissions by 8.5% from 2008-09 levels.*

Electricity demand has reduced from council owned and managed property. This has been caused, in part, by changes in operational control of properties resulting in a small number of properties no longer being reportable due to change of use.

### Growth and uncontrollable circumstances

There are a number of factors that have restricted the further reductions of absolute GHG emissions and they very much relate to natural growth of the organisation and improvement of our services. For example the new garden waste scheme. There are also factors outside Waverley's control including the weather and changes of the carbon intensity of fuels that result in fluctuations of the conversion factors used.

Heating demand is generally considered proportional to weather conditions over the same time period. The UK weather was mild during 2014/15; consequently the heating demand across assets has reduced approximately 11%. Degree Days is a unit for estimating the energy demand for heating or cooling in relation to the outside temperature. The number of degree days during 2014/15 was 16% lower than the degree days during 2008/09, which confirms that the reduced heat demand trend is accurate.

The conversion factors for the year reported revealed that the carbon intensity for electricity has increased by 11% since the previous year. As a consequence, any reduction in electricity use will be compromised. Even when there is a significant drop, the stated greenhouse gas emissions go up by 11% regardless. The increase in the electricity factor reflects a spike of coal in the grid mix during the time period that provides the basis for the 2014/15 electricity conversion factors.

Natural growth in population and social housing means that Waverley services new reach approximately 3,400 more people than in 2008/09. This will have an impact on the fuel consumption for services such as waste and recycling, housing maintenance, etc.

Given that 70% of Waverley's emissions derive from outsourced services, it is restrictive in terms of the influence we might have over efficiency.

Table 1: Annual GHG emissions

	2008/09 Base year	2009-10 (tCO <sub>2</sub> e)	2010-11 (tCO <sub>2</sub> e)	2011-12 (tCO <sub>2</sub> e)	2012-13 (tCO <sub>2</sub> e)	2013-14 (tCO <sub>2</sub> e)	2014-15 (tCO <sub>2</sub> e)
<b>Scope 1 (direct emissions):</b> Emissions from fuel usage in Council's owned, managed buildings and emissions from Council's owned vehicles	239	235	272	206	252	215	225
<b>Scope 2 (energy indirect):</b> Emissions resulting from electricity usage in Council's owned and managed buildings	588	538	533	462	464	429	439
<b>Scope 3 (other indirect):</b> Emissions resulting from energy consumption ( <i>both electricity and fuel use</i> ) in Council's outsourced properties and emissions resulting from business travel	4,460	3,976	4,355	3,960	4,517	4,002	4,173
<b>Total annual gross emissions</b>	5,287	4,750	5,160	4,628	5,233	4,646	4,837
<b>Total annual net emissions</b>	5,287	4,750	5,160	4,628	5,233	4,646	4,837
<b>Total outside scopes:</b> Emissions from use of biogenic materials e.g. Biofuels	-	-	-	-	85,312	146,699	141,399

### Council owned and managed sites – Scope 1 & 2 emissions

Across council owned and operated sites 375 FTE employees deliver the Council's core functions and services. The majority of staff are based at The Burys, Godalming, which is the main council office. This site has seen consistent improvements in its energy performance, reaching an average GHG emissions reduction of 28% compared to the baseline year. The introduction of energy efficiency technologies such as voltage optimisation and LED office lighting have contributed to the reductions achieved. At the same time, through the optimisation the office space and changes in staff working practices have resulted in the office space being maximised and more services being accommodated in less space.

Small scale projects such as an LED lighting retrofit has achieved a reduction in car parking electricity bills of 45%. This has been a successful project, however its impact in the context of the total Council's energy reduction is minimal as it only accounts for a mere 2% of Waverley's total baseline.

### Council Service Provision – indirect emissions Scope 3 emissions

The majority of Waverley's indirect emissions are generated by services provided to local residents, particularly waste collection and leisure services.

**Waste & Recycling Collections:** Emissions from the provision of waste and recycling collection services contribute significantly to the total GHG emissions, and in 2014/15 represented 27%. The service has expanded significantly in recent years with the introduction of co-mingled recycling in 2012 and more recently the introduction of additional kerb-side collections for green waste adding more vehicles to the fleet. This year 3,783 tonnes of green waste was collected from approximately 10,000 households currently registered to the scheme.

*6% reduction in the  
Council's indirect GHG  
emissions under Scope 3*

These services are now provided to more people than ever before as the population of Waverley has increased since 2008/09 by about 3,400.

As a result of the service growth the GHG emissions

### CASE STUDY: Car park LED lighting project

One of our most successful efficiency projects has been the LED lighting retrofit project in 12 car parks.

By replacing conventional lighting with LED fittings and renegotiating electricity tariffs Waverley has achieved a total 45% reduction on electricity bills.

An £8,500 annual cost reduction from reduced bills and an approximate maintenance cost avoidance of £6,000 a year.

intensity for the waste collection service has seen an increase. In 2014/15 the per capita kgCO<sub>2</sub>e rose to 10.7 from 8.0 kgCO<sub>2</sub>e in 2008/09.

Efforts are being made to reduce the GHG emissions arising from this service. Operational routes have been optimised to ensure the maximum quantity of waste is collected by each vehicle per trip. Drivers have also received a 'Driving efficiently and safely' programme to encourage safe, efficient driving practices. Two collection vehicles are operating on biodiesel. Biodiesel combustion emits 50% less carbon than the equivalent amount of diesel fuel. During 2014/15 the use of biodiesel was doubled in comparison to the year before.

**Leisure Centres:** These accounted for approximately half of Waverley's total GHG emissions in the baseline year. In 2014/15 the absolute GHG emissions associated with the energy demand of all five of Waverley's leisure centres reduced by 17% over 2008/09 levels.

*The GHG emissions per visitor from all leisure centres reduced by an average 32% during 2014/15 when compared to 2008/09.*

The Council made a significant investment in improving leisure facilities, with one brand new leisure centre incorporating a biomass boiler, and major refurbishment of another three sites. This investment resulted in bigger, more efficient facilities that are used by more people than ever before.

The overall footfall from all five sites increased by 33% since 2008/09 yet the GHG emissions per visitor (kgCO<sub>2</sub>e/visitor) has reduced by an average of 32%. As indicated in Figure 3 below, the greatest reductions in emissions per visitor have been achieved at the Cranleigh Leisure Centre with a 55% reduction. The per visitor GHG emissions for the newly built Godalming Leisure Centre is currently less than half of the old site.

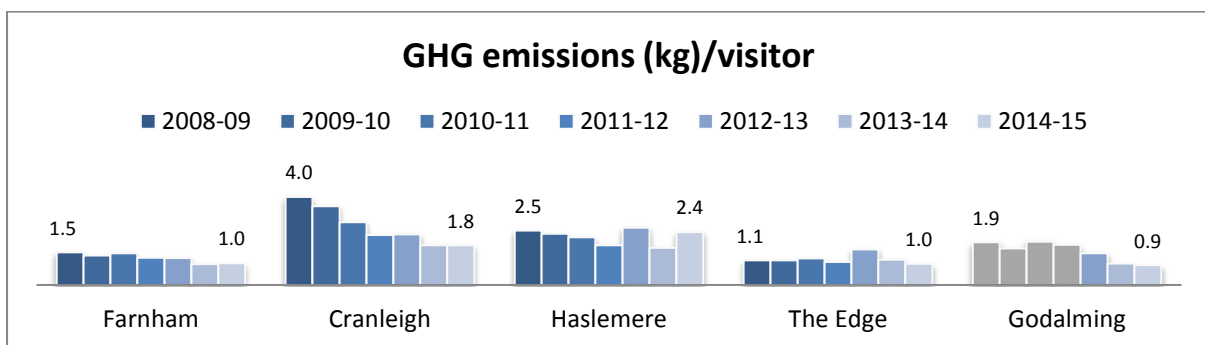


Figure 3: GHG emissions per visitor at Waverley leisure centres<sup>3</sup>

<sup>3</sup> The Godalming leisure centre moved to new premises in 2012-13. The historical GHG emissions for the old premises are shown in grey, with the GHG emissions from the new site shown in blue in Figure 3.

Data for the old and new Godalming leisure centre buildings are shown in Figure 3 above. The new building came online half way through the 2012-13 financial year and shows improved performance for GHG emissions per visitor.

## Energy generation from renewable and low carbon sources

Energy generated from renewable sources has been recorded. Four photovoltaic solar (P.V.) arrays and a biomass boiler are in operation to date, generating 4.5% of Waverley's total electricity and heating demand.

Table 2: Total energy generation from renewables

Renewables generation	2008/09	2009-10	2010-11	2011-12	2012-13	2013-14	2014/15
Biomass ( kWh heat)	-	-	-	-	244,447	416,894	398,318
Solar P.V. (kWh electricity)	-	-	-	883	7,541	18,295	23,816

## Further opportunities for energy use and carbon reduction

This year has seen the introduction of LED lighting in parts of the main council offices and council a number of council run car parks.

We have concluded an LED lighting replacement project in 12 of the council's car parks. Each light has been equipped with a dimming device which reduces light output during early morning hours, further reducing energy demand but maintaining sufficient lighting for security purposes.

Looking forward to 2015/16, additional low carbon energy generational capacity is planned with the commissioning of a Combined Heat and Power unit at Cranleigh Leisure Centre.

Waverley's Carbon Management Plan is coming to an end and the adoption of a new Energy Efficiency Plan (2015-2020) and commits the Council to a 3% GHG reduction year on year. Given that the biggest opportunities for efficiency projects have been exhausted over the past years, the new plan will explore options on smaller buildings such as pavilions and sheltered housing as well as the refurbishment of a community centre and the rebuild of a countryside visitors centre.

**For further information about the Council's sustainability programme please visit our web pages or contact us on 01483 523448, or by email at [sustainability@waverley.gov.uk](mailto:sustainability@waverley.gov.uk)**