Woking Borough Council Greenhouse Gas Emissions Report 2017 – 2018

1.0 Introduction and Strategic Context

1.1 Woking Borough Council (WBC) was formerly required to record information on greenhouse gas (GHG) emissions from its own estate and operations and report these to the Department of Energy and Climate Change (DECC). This is no longer a statutory requirement and DECC became part of the Department for Business, Energy, and Industrial Strategy (BEIS) in July 2016.

1.2 Nonetheless, as in previous years, the Council continues to record and monitor energy use at, and resultant GHG emissions from, the following sources:

- Leisure pavilions;
- NVH-managed housing (communal heat systems and electricity for communal areas);
- Residential and community centres supplied by Thameswey Combined Heat and Power (CHP);
- Staff transport (business mileage); and
- Town centre and Woking Park assets.

1.3 The intention of collecting this information is to better understand the environmental impact of sites or vehicles integral to the public services that Woking Borough Council provides.

1.4 By recording this data, we are able to monitor the progress of Action 35 of the Woking 2050 strategy: “continue to work with partners to improve the energy efficiency and reduce the energy consumption of Council owned buildings and housing stock.”

1.5 Additionally, the reporting process provides officers with the opportunity to collect data on renewable energy, recording photovoltaic (PV) electricity generation at Council assets. The report therefore enables us to monitor the progress of Action 36 of the Woking 2050 strategy: “continue to work with partners to increase the proportion of renewable and sustainable energy consumption of Council owned buildings.”

1.6 This report covers the period 1 April 2017 to 31 March 2018.

2.0 Methodology

2.1 This report uses the following documents as its methodological basis:

- *Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance*, Department for Environment, Food and Rural Affairs (DEFRA): June 2013
- *Government emission conversion factors for greenhouse gas company reporting*, BEIS: 2017 factors

2.2 Energy use is recorded in kilowatt hours (kWh) for gas and electricity consumption and kilometres (km) for vehicle usage. The resultant GHG emissions are calculated using

conversion factors for the relevant year and, where known, using vehicle emissions ratings. The Council records GHG emissions in kilogrammes CO2 equivalent (kg CO2e) which, in line with DEFRA guidelines, "gives the global warming effect of the mass of GHG in terms of what mass of carbon dioxide would produce the same effect."[1]

2.3 These emissions are recorded and categorised according to scope, which DEFRA defines as follows:

> "Scope 1 (Direct emissions): Emissions from activities owned or controlled by your organisation that release emissions into the atmosphere. They are direct emissions.
>
> Scope 2 (Energy indirect): Emissions released into the atmosphere associated with your consumption of purchased electricity, heat, steam and cooling. These are indirect emissions that are a consequence of your organisation's activities but which occur at sources you do not own or control.
>
> Scope 3 (Other indirect): Emissions that are a consequence of your actions, which occur at sources which you do not own or control and which are not classified as scope 2 emissions."[2]

2.4 WBC has used UK government emission conversion factors for all calculations, with the following exceptions:

- Thameswey-supplied residential/community sites: WBC used the Thameswey emissions factors for certain of these sites as these are based on floating (i.e. annually changing) grid carbon factors for electricity and gas.
- Town centre sites (heating, cooling and electricity): WBC used the Thameswey emissions factors for these sites as these are based on floating (i.e. annually changing) grid carbon factors for electricity and gas.
- Vehicle usage: WBC used individual vehicle emissions ratings where available to improve accuracy.

2.5 Following a review of previous annual GHG reports, officers identified a need for greater consistency in data collection methodology. Energy consumption data for previous years varied markedly, leading officers to conclude that readings were likely being taken from different sources from one year to the next. Therefore a new methodology in which, wherever possible, specific meter serial numbers and site locations are specified was adopted from the reporting year 2016-17 onwards.

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[1] *Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance*, Department for Environment, Food and Rural Affairs (DEFRA): June 2013, p.35-6

[2] *Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance*, Department for Environment, Food and Rural Affairs (DEFRA): June 2013, p.36

2.6 As far as possible, data for the year 2015-16 were retrospectively reorganised according to the new methodology established in 2016-17 in order to provide an indicative baseline against which the emissions data can be measured going forward.

3.0 Energy consumption and analysis

3.1 The table overleaf, *Figure 1*, details energy consumption in the years 2015-16, 2016-17 and 2017-18.

Figure 1: Annual energy consumption by source

Type of energy consumption	Base Year 2015/16	2016/17	2017/18	Difference 2016/17 – 2017/18	Percentage change (%) 2016/17 – 2017/18
Leisure pavilions - gas consumption (kWh)	140,000	136,707	247,181	110,474	80.8
Leisure pavilions - electricity consumption (kWh)	259,018	237,639	250,431	12,792	5.4
Residential sites and community sites - gas consumption (kWh)	14,217,299	11,262,794	14,931,333	3,668,539	32.6
Residential and community sites - electricity consumption (kWh)	810,393	1,601,481	2,285,392	791,088	42.7
Town centre sites - gas consumption (kWh)	3,994,039	4,101,045	3,508,640	-592,405	-14.5
Town centre sites - electricity consumption (kWh)	3,686,875	3,520,836	3,408,597	-112,240	-3.2
Woking park sites - gas consumption (kWh)	16,787,418	13,026,909	13,973,000	946,091	7.3
Woking park sites - electricity import (kWh)	1,530,658	1,545,103	1,298,000	-247,103	-16.0
Vehicles (km)	126,415	133,531	212,548	86,133	59.2

3.2 Broadly, the table shows an increase in energy consumption between 2016-17 and 2017-18. Further explanation is provided below.

3.3 There was a significant increase in gas consumption amongst leisure pavilions of 80% between 2016-17 and 2017-18. This is mostly attributed to the addition of a new pavilion at the new residential development at Brookwood Farm to the sites list and consumption data for this reporting period. Furthermore, consumption is based on estimated readings for the pavilions. There was a small increase of 5% in electricity consumption amongst leisure pavilion sites. This can again be attributed to the inclusion of the new pavilion at Brookwood Farm.

3.4 There was an increase of almost 33% in gas consumption amongst residential sites between 2016-17 and 2017-18. This can be attributed to a number of factors. In 2016-17, gas consumption figures saw a significant decrease – those for 2017-18 are now more in line with 2015-16 consumption levels. It is noted that there is improving data quality with a greater number of actual readings as opposed to estimates through the Energy Bureau for New Vision Homes (NVH) properties. Data for additional Thameswey supplied residential sites are included in the 2017-18 consumption figures. Specifically, Brockhill (205,013 kWh) and Stream Close (455,337 kWh). Data for these sites was not included in the previous year's report.

3.5 There was an increase of 43% in electricity consumption amongst residential sites between 2016-17 and 2017-18. It is noted that there is improving data quality with a greater number of actual readings as opposed to estimates through the Energy Bureau for NVH properties. We are also reporting on a greater number of NVH sites – increasing from 191 in 2016-17 to 217 in 2017-18. Electricity consumption for NVH sites increased 42% from 1,142,115 kWh to 1,616,989 kWh in 2017-18. Electricity consumption for Thameswey supplied residential sites increased by 46% from 459,367 kWh in 2016-17 to 668,403 kWh in 2017-18. It is noted that electricity consumption doubled at Tudor Court during this period. It is not known at this point why consumption doubled but this will be subject to further checks as meter readings are collected. Additionally, data for electricity consumption was included for Stream Close for this reporting period (89,305 kWh) – data for this site was not included in the previous reporting period.

3.6 There were reductions in gas and electricity consumption for Town Centre sites (15% and 3% respectively). The reduction in gas consumption could be attributed to unfortunate missing meter readings for the YPOD centre in Chobham Road in this reporting period. In 2016-17 the site recorded gas consumption of 110,320 kWh compared with just 56,750 kWh in 2017-18.

3.7 For Woking Park sites there was an increase in gas consumption of 7% and a decrease in electricity consumption by 16%. Essentially this is because the CHP ran more, using more gas compared to 2016/17 and meeting more of the sites' heat load, displacing boiler gas use. In turn, less electricity was imported (consumed) from the grid to the site as the CHP generated more electricity for use locally.

3.8 There was an increase of 59% (86,133 kms) in kilometres driven by Council staff this year. There was almost a third more trips undertaken through our car hire arrangement with Enterprise Rent A Car Ltd (92 trips this year compared with 69 trips in 2016-17). Although the increase in trips has a negative effect on total GHG emissions, the positive is that journeys are using low emission vehicles and potentially avoiding staff using their own

private vehicles for business related journeys. Car hire journeys are booked in advance requiring planning and efficiency of appointments.

3.9 There are GHG emissions associated with the use of a water supply. However, water usage and its associated GHG emissions are not within the scope of this report.

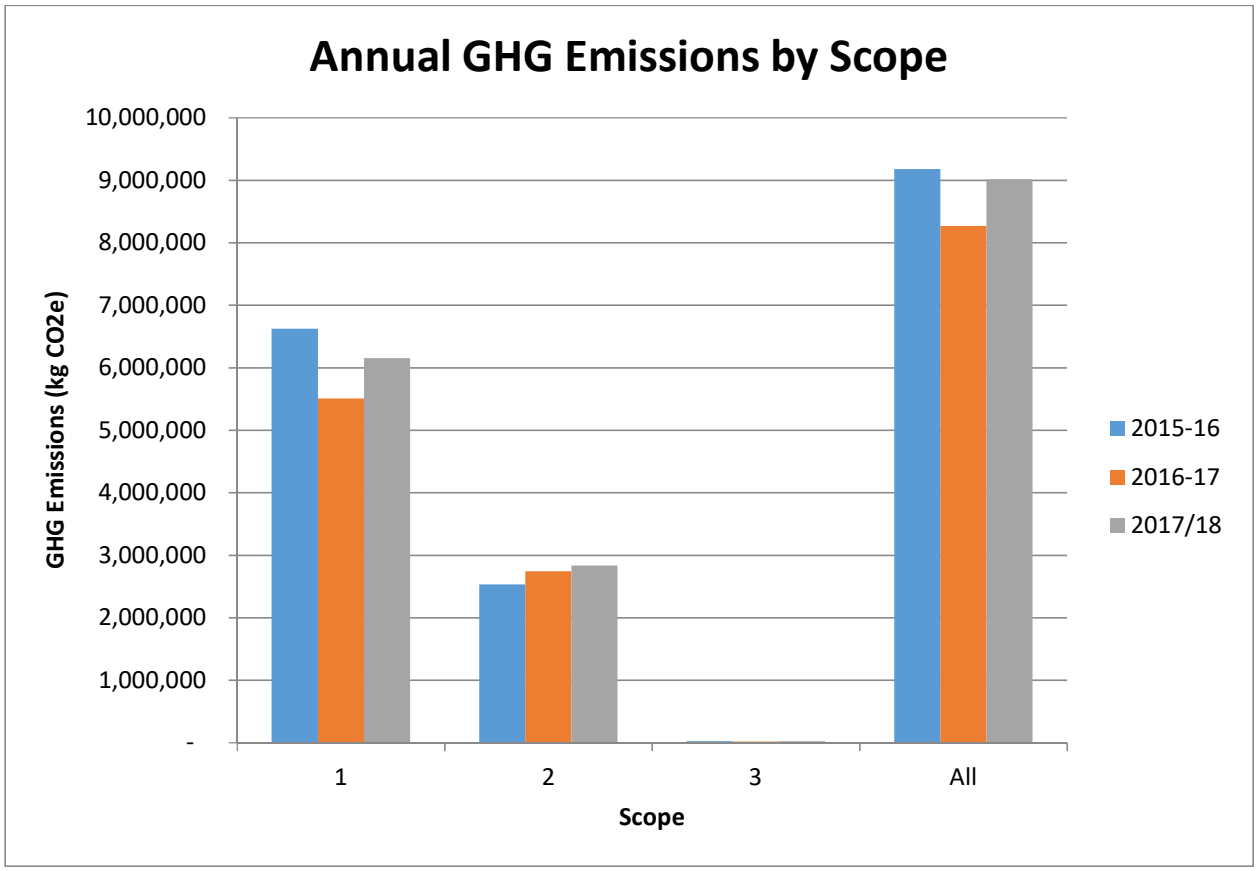
4. GHG emissions and analysis

4.1 The table and graph below, *Figures 2 and 3*, record annual GHG emissions by scope.

Figure 2: Annual GHG emissions by scope

Scope	Base Year 2015/16	2016/17	2017/18	Difference (kg CO2e) 2016/17 – 2017/18	Percentage change (%) 2016/17 – 2017/18
1	6,623,925	5,508,727	6,152,635	643,908	11.7
2	2,530,201	2,742,914	2,835,782	92,867	3.4
3	22,419	15,715	23,633	7,919	50.4
All	9,176,545	8,267,356	9,012,050	744,694	9.0

Figure 3: Annual GHG emissions by scope



4.2 Scope 1 emissions have increased by 11.7%. This is due to the increased gas consumption detailed in 3.3, 3.4 and 3.7.

4.3 Scope 2 emissions have increased by 3.4%. This is due to the increased electricity consumption detailed in 3.5.

4.4 Scope 3 emissions have increased by 50%, with total business travel increasing from 133,531km to 212,548 km.

5.0 Renewable energy: Photovoltaic (PV) electricity generation

5.1 The below table, Figure 4, records electricity generated by PV panels on WBC assets:

Figure 4: PV electricity generation by site

	PV electricity generated 2016/17 (kWh)	PV electricity generated 2017/18 (kWh)	Percentage change (%)
Residential sites	224,455	241,285	7.5
Town centre sites	83,079	93,048	12.0
Total	307,533	334,333	8.7

5.2 It is noted that there was an error in figures recorded for 2016/17 which overlooked the inclusion of one site (Albion Square). This sees a correction of the total PV generated for Town Centre sites from 52,112 kWh to 83,079 kWh during 2016/17. This in turn uplifts total PV generation across all sites for 2016-17 from 276,566 kWh to 307,533 kWh.

5.3 PV generation across all sites for 2017-18 reached 334,333 kWh seeing a percentage increase of 8.7% on last year.

6.0 Conclusion

6.1 On the basis of the data collected for this report, WBC's greenhouse gas emissions (Scopes 1-3) have increased by 9% between 2016-17 and 2017-18. The reasons for this increase can be attributed to a combination of factors as described in section 4, including:

- A larger number of sites for which consumption is recorded;
- Improved quality of data i.e. increasing number of actual meter readings as opposed to estimated meter readings;
- Increased gas consumption due to improved CHP running times.