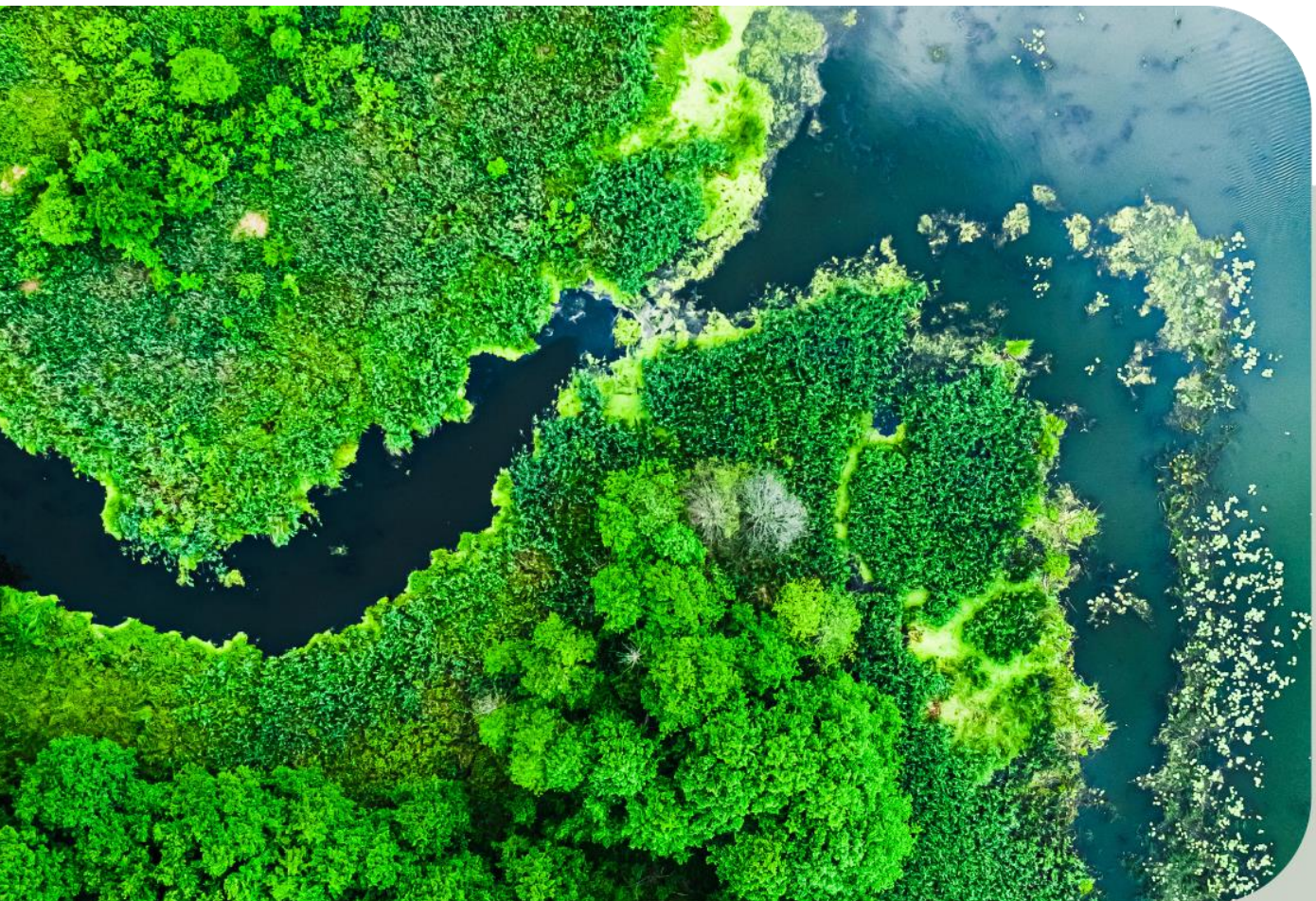


Community Emissions Report (2023)

Welwyn Hatfield Council

11 September 2025, version 1.1



1 Document Control

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1.1 Revision History

Date			
11/09/2025	1.1	Minor Amendments	Ben Fisher
31/07/2025	1.0	Final Report	Ben Fisher
28/07/2025	0.1	Initial Report	Ben Fisher

1.2 Contact Information

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Estimates of costs and savings are based on site observations, published case studies, technical references, and professional experience. They should be regarded with caution, and recommendations are subject to detailed feasibility studies. Nothing in this report is intended to be or should be interpreted as an endorsement of, or recommendation for, any supplier, service, or product.



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2 Executive Summary

This emissions report has been created to analyse the total carbon dioxide equivalent (CO₂e) emissions produced by the Welwyn Hatfield district during the calendar year 2023. This report will provide a yearly breakdown of CO₂e emission figures with backing data and commentary.

The government department, DESNZ (Department for Energy, Security and Net Zero), releases annual carbon emissions data broken down by local authorities. Due to the complexity of the data, the most recent information is always 18 months old. Welwyn Hatfield Council's 2023 CO₂e data has now been released, with annual total emissions measured in kilo tonnes of CO₂e (ktCO₂e) displayed in Table 1.

	Total ktCO ₂ e	% Change to Previous Year	% Change to Baseline (2005)
2023	529.58	-7.01%	-45.03%
2022	569.48	-5.31%	-40.89%
2021	601.42	6.85%	-37.57%
2020	562.86	-10.91%	-41.57%
2019	631.79	-4.47%	-34.42%
2018	661.33	-	-31.35%

Table 1 Welwyn Hatfield Council's annual emissions and percentage change to the previous year

2.1 Key Observations

The Welwyn Hatfield district in 2023 emitted a reported net of 529.58 ktCO₂e, a decrease of 7.01% on the previous calendar year. Welwyn Hatfield Council's 2023 net emissions were 45.03% lower than that of the baseline figure reported in 2005.

As shown in Figures 1 and 2, the percentage split across the different categories was very similar both in 2022 and 2023. Figures 1 and 2 exclude LULUCF (Land use, land-use change and forestry) as this offsetting category decreases emissions rather than produces them. Figure 3 shows that the trend in 2023 was a positive one with a decrease in carbon emissions in every sector apart from waste management and agricultural-related practices, which saw a slight increase. The biggest shift at a categorical level was in the commercial sector, where reported carbon emissions dropped by 20.21 ktCO₂e. Other notable changes were a drop of 15.11 ktCO₂e in emissions produced within the domestic sector and a decrease of 8.62 ktCO₂e in the transport sector emissions during this reporting period.

The following charts show Welwyn Hatfield Council's CO₂e emissions broken down by sector. As in previous years, transport, commercial, and domestic activity continue to be the significant sources of Welwyn Hatfield Council's emissions.

A more detailed breakdown of the individual sources can be found in the backing data section of the report.

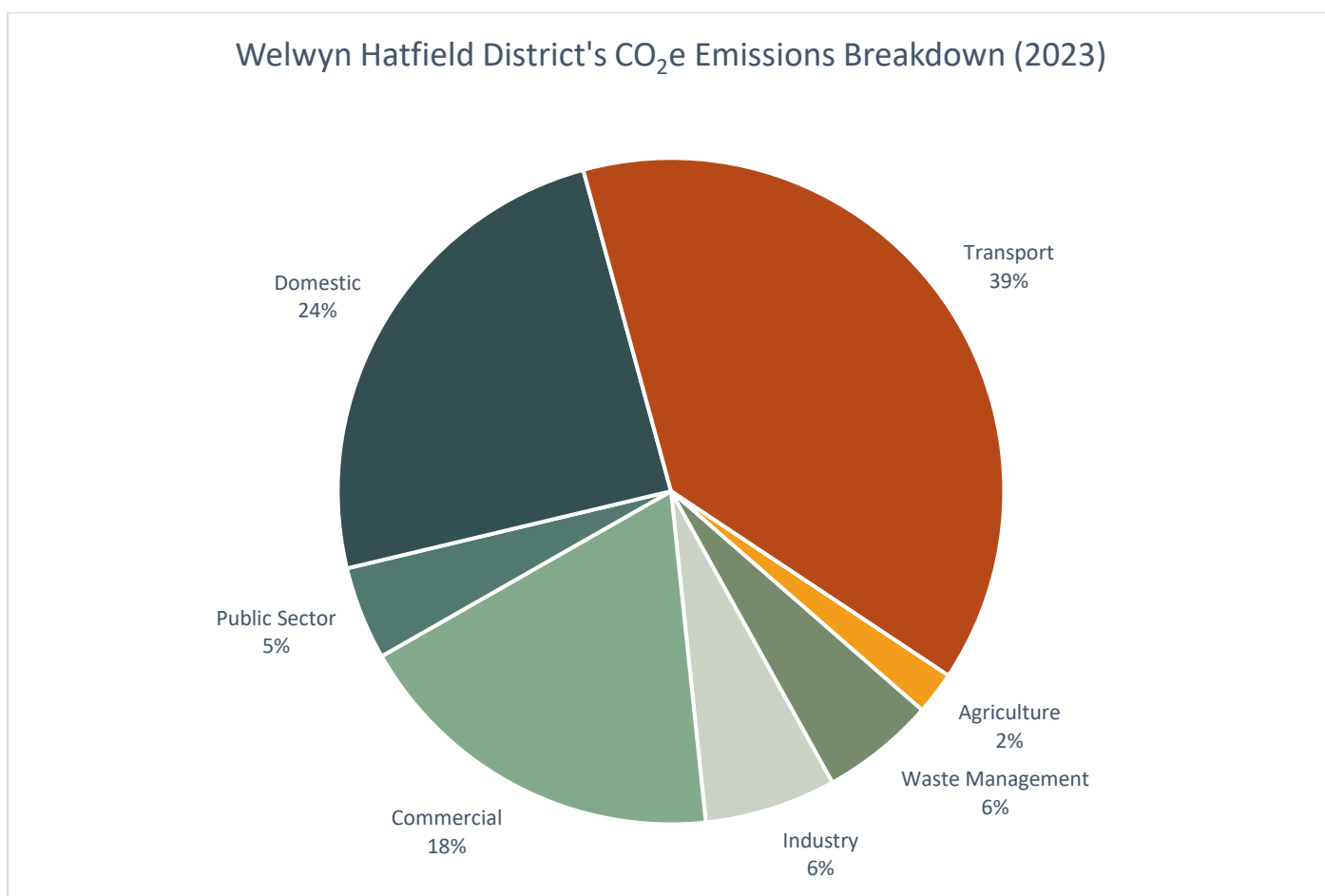


Figure 1 Welwyn Hatfield district's carbon emissions broken down by source (2023)

Welwyn Hatfield District's CO₂e Emissions Breakdown (2022)

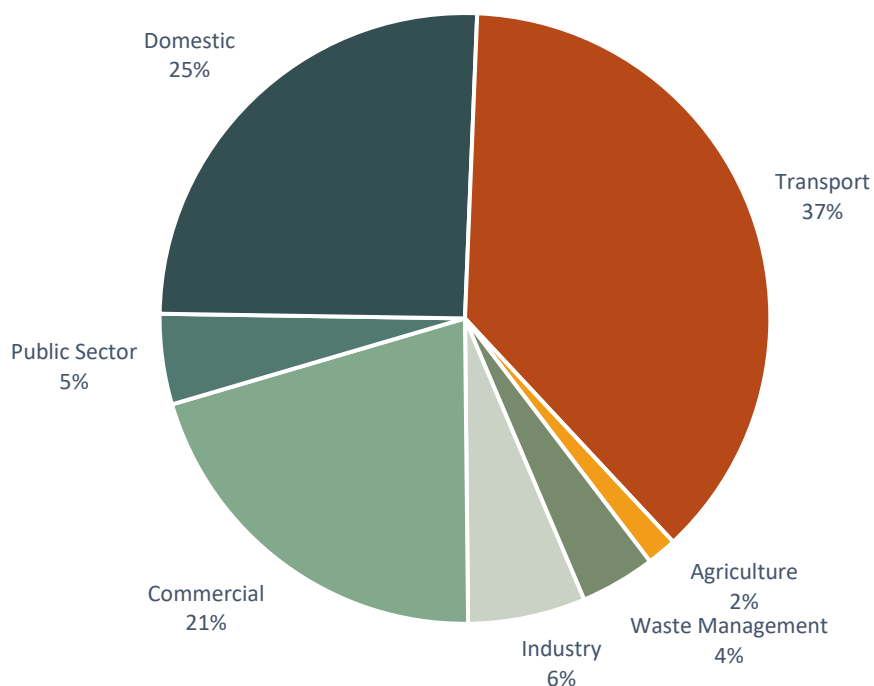


Figure 2 Welwyn Hatfield district's carbon emissions broken down by source (2022)

Carbon Emissions (ktCO₂e) Per Source Comparing 2022 to 2023

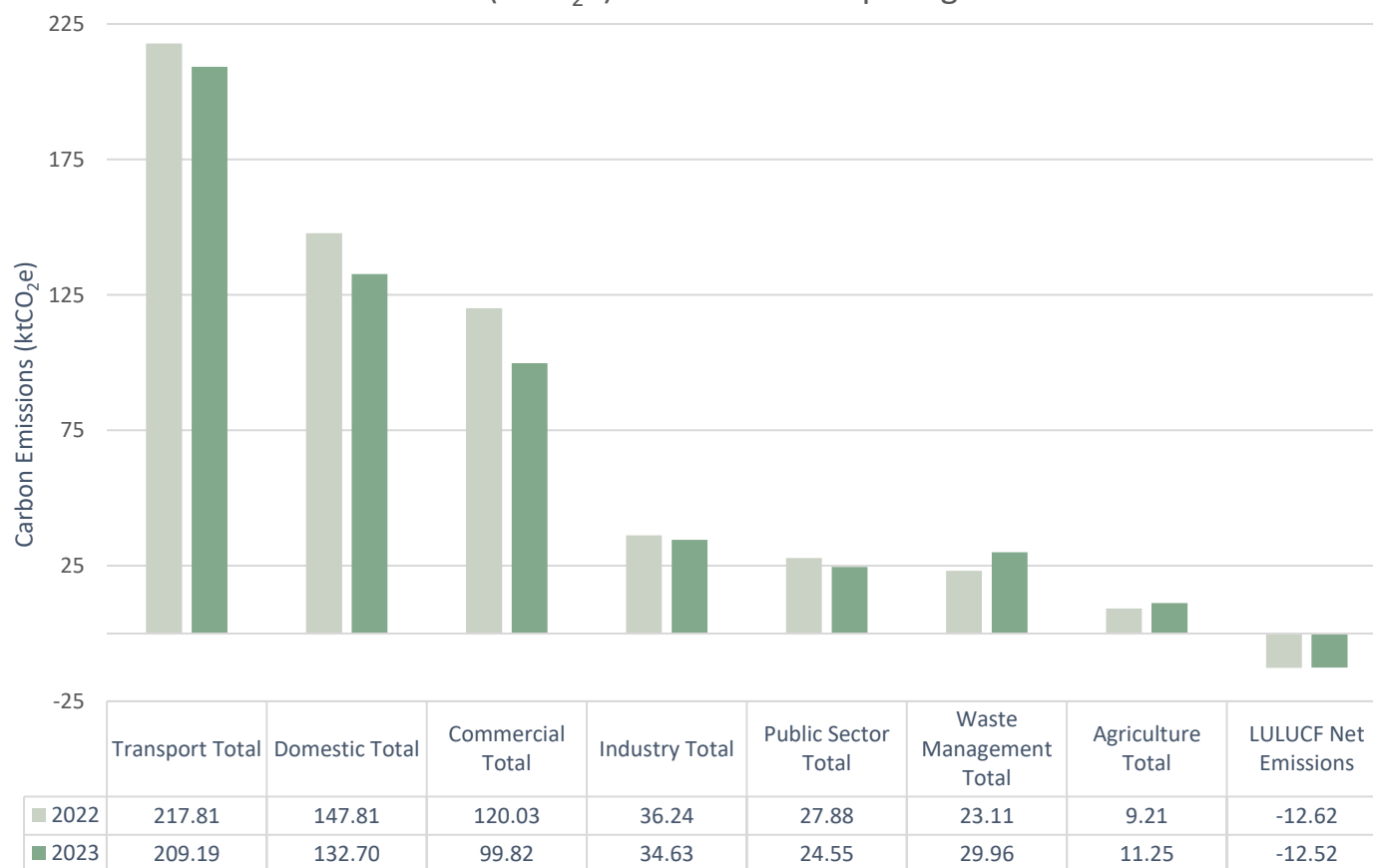


Figure 3 Welwyn Hatfield district's carbon emissions broken down by source comparing 2022 to 2023

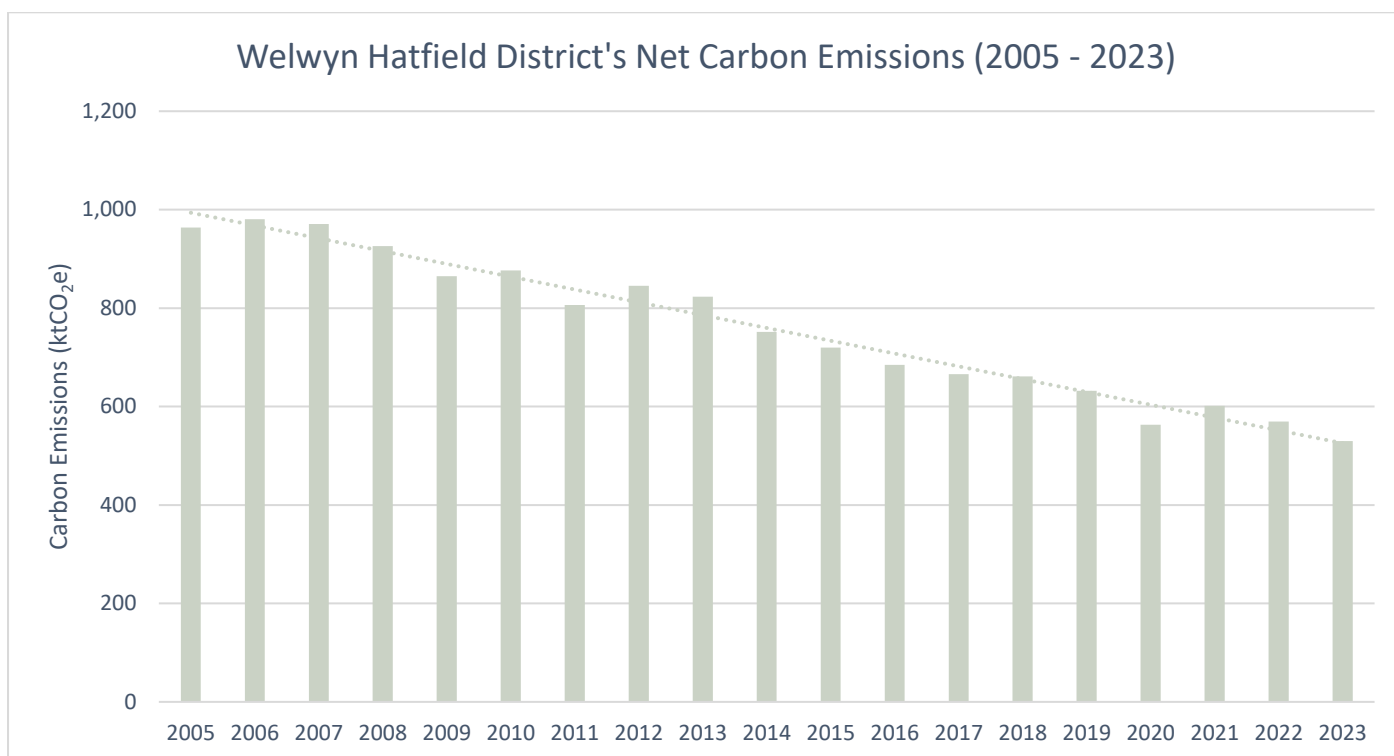


Figure 4 Welwyn Hatfield district's net carbon emissions (2005 - 2023)

3 Methodology

TEAM were able to source data covering 2005 – 2023 from the following source:

- CO₂e emissions data for Welwyn Hatfield was taken from the government's official local authority and regional greenhouse gas emissions 2005 - 2023 (data tables) report which can be located here: https://www.data.gov.uk/dataset/723c243d-2f1a-4d27-8b61-cdb93e5b10ff/local_authority_carbon_dioxide_emissions

4 Appendix

4.1 Backing Data

Table 2 contains the breakdown of activity data for the Welwyn Hatfield District dating back to 2005.

Carbon Emissions (ktCO ₂ e)	2005 (Baseline Year)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Industry Electricity	38.76	40.07	34.29	29.35	22.30	33.29	21.15	19.38	13.78	14.54	13.60	11.53
Industry Gas	15.05	11.60	9.92	10.02	9.03	7.92	6.34	5.88	5.92	7.26	6.14	6.76
Large Industrial Installations	0.00	0.00	0.01	0.08	0.08	0.29	0.55	0.21	0.19	0.19	0.18	0.18
Industry 'Other'	21.33	13.62	15.57	14.96	14.51	14.91	16.70	15.13	14.50	15.04	16.32	16.15
Industry Total	75.14	65.28	59.81	54.41	45.91	56.41	44.74	40.59	34.39	37.02	36.24	34.63
Commercial Electricity	156.35	161.63	138.35	118.42	95.04	71.62	90.82	83.90	74.80	85.78	83.15	66.75
Commercial Gas	35.61	27.45	23.49	23.72	24.36	23.11	30.93	28.48	29.64	33.59	28.24	22.05
Commercial 'Other'	8.13	6.55	6.56	5.35	6.09	6.12	6.48	8.46	8.45	6.91	8.64	11.02
Commercial Total	200.09	195.63	168.39	147.48	125.48	100.86	128.24	120.85	112.89	126.28	120.03	99.82
Public Sector Electricity	20.02	20.69	17.71	15.16	14.32	16.90	9.45	8.20	6.60	7.37	7.89	7.01
Public Sector Gas	29.10	22.43	19.19	19.38	17.28	20.76	18.69	17.60	16.99	19.07	16.86	13.79
Public Sector 'Other'	8.28	4.17	3.75	2.86	4.00	3.47	3.93	3.42	3.69	3.39	3.13	3.74
Public Sector Total	57.40	47.29	40.65	37.40	35.59	41.12	32.07	29.22	27.27	29.84	27.88	24.55
Domestic Electricity	110.92	95.47	80.98	69.29	56.85	49.14	44.89	40.35	39.39	40.08	35.88	30.66
Domestic Gas	147.18	135.27	112.80	119.45	122.10	118.51	121.52	118.81	118.66	122.27	104.96	97.09
Domestic 'Other'	8.13	8.13	7.60	7.67	7.61	7.65	7.71	7.31	7.08	6.85	6.98	4.95
Domestic Total	266.22	238.87	201.38	196.41	186.56	175.31	174.11	166.47	165.12	169.19	147.81	132.70
Road Transport (A roads)	54.82	49.55	51.85	51.93	53.15	51.40	50.08	48.54	37.84	39.90	40.60	40.17
Road Transport (Motorways)	105.36	97.38	99.72	101.92	103.76	102.09	98.91	97.38	83.40	89.60	86.55	79.38
Road Transport (Minor roads)	119.10	102.93	103.30	104.23	107.04	112.09	106.46	101.47	80.73	83.19	82.51	81.39
Diesel Railways	7.72	7.23	7.38	7.29	7.25	7.17	6.77	6.95	5.27	5.72	5.45	5.90
Transport 'Other'	3.95	2.81	2.89	2.90	2.63	2.50	2.52	2.70	2.64	2.75	2.70	2.35
Transport Total	290.95	259.89	265.13	268.28	273.83	275.25	264.74	257.04	209.89	221.16	217.81	209.19

Carbon Emissions (ktCO ₂ e)	2005 (Baseline Year)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Net Emissions: Forestry	-15.38	-16.09	-15.90	-15.89	-15.46	-15.82	-15.57	-15.60	-15.91	-15.43	-15.30	-15.11
Net Emissions: Cropland mineral soils under LUC	2.32	2.28	2.24	2.25	2.28	2.31	2.27	2.30	2.28	2.26	2.25	2.23
Net Emissions: Grassland mineral soils under LUC	-2.22	-2.40	-2.46	-2.49	-2.53	-2.54	-2.59	-2.62	-2.68	-2.70	-2.71	-2.74
Net Emissions: Settlements	3.59	3.12	3.08	2.95	2.86	2.86	2.97	2.87	2.98	2.95	3.01	3.00
Net Emissions: Peatland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Emissions: Bioenergy crops	0.00	0.00	-0.01	-0.01	-0.01	-0.01	0.00	-0.02	-0.01	-0.01	-0.01	-0.02
Net Emissions: Other LULUCF	0.00	-0.04	0.02	-0.17	0.07	0.00	0.12	-0.06	0.12	0.15	0.14	0.12
LULUCF Net Emissions	-11.69	-13.13	-13.03	-13.34	-12.79	-13.19	-12.80	-13.13	-13.22	-12.77	-12.62	-12.52
Agriculture Electricity	0.54	0.56	0.48	0.41	0.38	0.71	0.32	0.28	0.26	0.30	0.21	0.18
Agriculture Gas	0.84	0.65	0.55	0.56	0.57	0.53	0.19	0.32	0.24	0.29	0.20	0.25
Agriculture 'Other'	2.04	1.74	1.04	1.79	1.80	1.67	1.75	1.60	1.66	1.70	1.66	3.01
Agriculture Livestock	3.52	3.07	3.13	3.28	3.19	3.42	3.28	3.30	3.20	3.10	3.09	3.25
Agriculture Soils	4.66	5.08	5.14	4.71	5.10	4.57	4.53	5.38	4.32	4.28	4.05	4.56
Agriculture Total	11.60	11.10	10.35	10.76	11.05	10.89	10.07	10.88	9.69	9.66	9.21	11.25
Landfill	67.94	10.62	10.76	9.93	10.63	10.56	11.31	11.32	8.27	12.03	14.21	20.58
Waste Management 'Other'	5.70	7.48	8.14	8.20	8.34	8.91	8.86	8.56	8.55	9.01	8.90	9.38
Waste Management Total	73.64	18.10	18.90	18.14	18.97	19.47	20.17	19.87	16.82	21.04	23.11	29.96
Grand Total	963.36	823.05	751.58	719.52	684.61	666.11	661.33	631.79	562.86	601.42	569.48	529.58
% Difference from 2005 total carbon emissions	0.00%	-	-21.98%	-25.31%	-28.94%	-30.86%	-31.35%	-34.42%	-41.57%	-37.57%	-40.89%	-45.03%
% difference from the previous year	0.00%	-2.63%	-8.68%	-4.27%	-4.85%	-2.70%	-0.72%	-4.47%	-10.91%	6.85%	-5.31%	-7.01%
Population ('000s, mid-year estimate)	103.20	112.34	113.15	114.19	116.43	117.48	117.61	117.99	118.72	119.54	120.21	121.75
Per Capita Emissions (tCO ₂ e)	9.33	7.33	6.64	6.30	5.88	5.67	5.62	5.35	4.74	5.03	4.74	4.35
Occupied Area (km ²)	129.54	129.54	129.54	129.54	129.54	129.54	129.54	129.54	129.54	129.54	129.54	129.54
Emissions (ktCO ₂ e) per km ²	7.44	6.35	5.80	5.55	5.29	5.14	5.11	4.88	4.35	4.64	4.40	4.09
National Total (ktCO₂e)	656,038	530,617	490,885	474,546	447,283	436,230	430,916	417,068	377,287	395,939	375,929	356,094

Table 2 Welwyn Hatfield district's annual community emissions overview



Contact us

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