

Tunbridge Wells Borough Council

Borough Emissions Report 2005 - 2024

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1. Summary

The latest data from the Department for Energy Security and Net Zero (DESNZ) shows that emissions for Tunbridge Wells Borough totalled 417.3 ktCO₂e in 2024^{1,2}, a 2.3% reduction from 2023 and the lowest level recorded since reporting began in 2005. Since the 2005 baseline, emissions have fallen by 48.1% (387.4 ktCO₂e), reflecting significant long-term progress across the borough. Tunbridge Wells remains the second-lowest emitting district in Kent and records per-capita emissions of 3.5 tCO₂e, below the Kent average of 4.5 tCO₂e.

The largest sources of emissions in 2024 were the domestic sector (157.5 ktCO₂e) and transport (148.1 ktCO₂e), while the borough's extensive woodland and natural landscapes acted as a significant carbon sink, with the Land Use, Land Use Change and Forestry (LULUCF) sector removing 54.5 ktCO₂e from the atmosphere. Tunbridge Wells was the largest net carbon sequester in Kent, demonstrating the important role of its natural environment in supporting climate change mitigation. Overall, the borough continues to maintain low total emissions, low emissions per resident, and strong carbon sequestration performance, placing it among the strongest performers in Kent in terms of its overall carbon footprint.

2. Tunbridge Wells Borough Profile

Tunbridge Wells Borough is located in the county of Kent, in south-east England, bordering East Sussex. Covering approximately 126 square miles (326 square kilometres), the borough is characterised by rolling countryside, the High Weald National Landscape, and a mix of woodland, farmland and historic settlements. Its topography features gentle hills and valleys, with the underlying sandstone geology contributing to notable landmarks such as Royal Tunbridge Wells' historic Chalybeate Spring and the distinctive sandstone outcrops at High Rocks.

According to the latest Office for National Statistics (ONS) mid-year population estimates, Tunbridge Wells Borough had a population of 119,694 residents in 2024, an increase of 4,383 people (3.8%) since the 2021 Census population of 115,311. The borough remains one of the less densely populated districts in Kent, reflecting its predominantly rural character and extensive areas of protected landscape. Figure 1 shows an overview of the borough and its wards.

¹ [2024 UK greenhouse gas emissions, provisional figures](#)

² [UK local and regional greenhouse gas emissions statistics, 2005-2024](#)

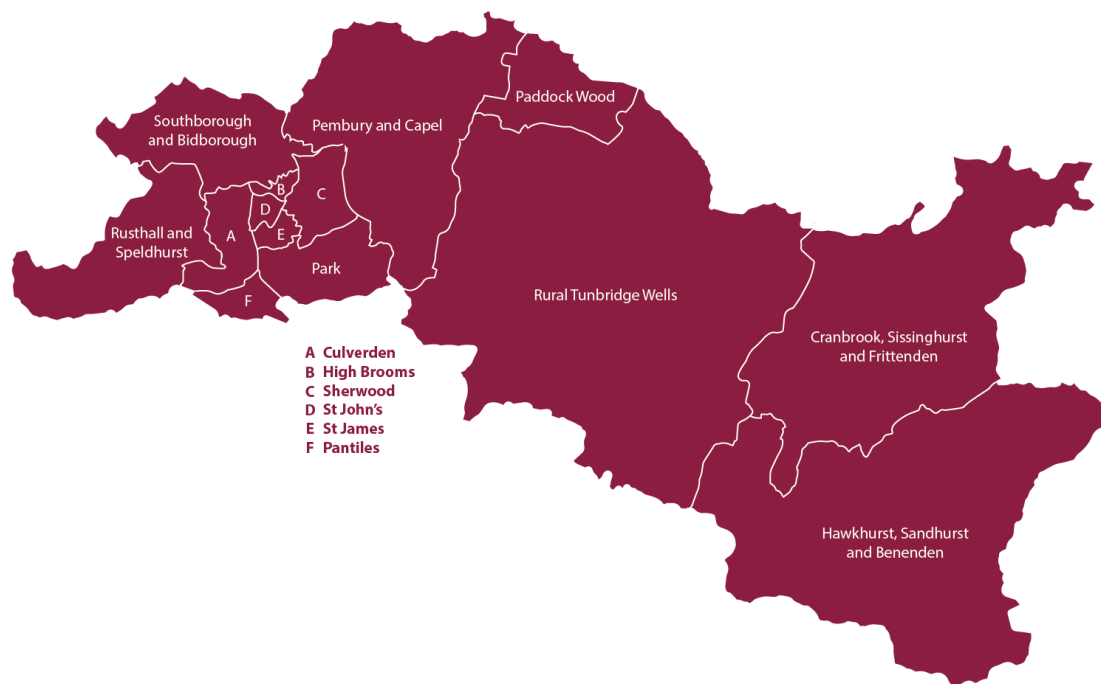


Figure 1: Map of Tunbridge Wells Borough

The Department for Energy Security & Net Zero (DESNZ) released annual statistics on Carbon Dioxide Equivalent emissions (CO₂e)³ in June 2026. The most recent data available for the Borough is 2024 due to this data being two years in arrears. These emissions are allocated on an end-user basis, meaning they are attributed to the locations where energy is consumed.

Whilst emissions from Tunbridge Wells Borough Council are included within this overall figure, this data includes emissions from all activities within the borough boundary. Borough CO₂e emissions are split into eight sectors:

- Industry
- Commercial
- Public Sector
- Domestic
- Transport
- Land Use Change and Forestry (LULUCF)
- Agriculture
- Waste

In 2024 the Borough of Tunbridge Wells emitted 417.3 kilotonnes⁴ of Carbon Dioxide Equivalent (ktCO₂e).

³ Carbon Dioxide Equivalent (CO₂e) = Carbon Dioxide, Methane and Nitrous Oxide represented as one equivalent unit, to measure the climate change impact of multiple gasses under one metric.

⁴ Kilotonne = one thousand tonnes

3. Emissions Overview (ktCO₂e)

Emissions Sector	2016	2017	2018	2019	2020	2021	2022	2023	2024
Industry	35.2	35.9	31.2	29.5	26.6	28.2	27.0	26.4	23.4
Commercial	66.8	53.3	62.0	58.4	51.1	57.1	54.3	47.1	41.4
Public Sector	24.2	24.6	21.8	20.4	19.8	21.7	19.4	17.7	17.7
Domestic	213.0	198.6	196.7	188.9	188.0	190.6	163.6	153.5	157.5
Transport	178.8	175.8	174.6	170.4	142.0	151.5	153.9	148.7	148.1
LULUCF	-53.2	-54.7	-54.2	-54.8	-55.6	-54.1	-52.9	-54.9	-54.5
Agriculture	64.2	67.1	60.9	56.9	55.2	60.3	53.5	51.9	51.0
Waste	35.3	41.1	35.8	33.6	31.9	31.2	34.0	36.6	32.8
Total Borough Emissions	564.3	541.7	528.9	503.3	458.9	486.5	452.8	427.0	417.3

4. Emissions Breakdown (ktCO₂e)

Industry	Kilotonnes Carbon Dioxide Equivalent (ktCO ₂ e)
Electricity	4.1
Gas	0.9
Large Industrial Installations	0
Other	18.4

Commercial	Kilotonnes Carbon Dioxide Equivalent (ktCO ₂ e)
Electricity	24.1
Gas	13.1
Other	4.2

Public Sector	Kilotonnes Carbon Dioxide Equivalent (ktCO ₂ e)
Electricity	5.4
Gas	10
Other	2.2

Domestic	Kilotonnes Carbon Dioxide Equivalent (ktCO ₂ e)
Electricity	32.5
Gas	99.1
Other	25.8

Transport	Kilotonnes Carbon Dioxide Equivalent (ktCO_{2e})
Road Transport (A Roads)	85.5
Road Transport (Motorways)	0
Road Transport (Minor Roads)	59.8
Diesel Railways	0.7
Other	2.1

Land Use Land Use Change and Forestry	Kilotonnes Carbon Dioxide Equivalent (ktCO_{2e})
Net Emissions: Forestry	-50.9
Net Emissions : Cropland mineral soils under LUC	4.6
Net Emissions: Grassland mineral soils under LUC	-11.7
Net Emissions: Settlements	2.9
Net Emissions: Peatland	0
Net Emissions: Bioenergy crops	0
Net Emissions: Other LULUCF	0.6

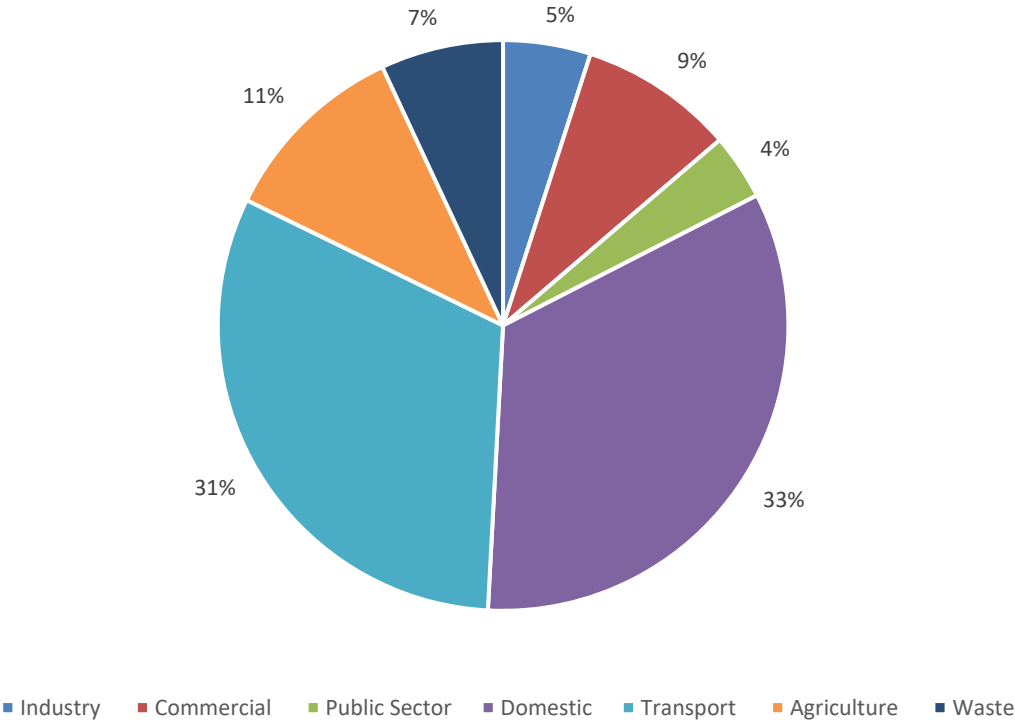
Agriculture	Kilotonnes Carbon Dioxide Equivalent (ktCO_{2e})
Electricity	2.9
Gas	0.3
Other	11.3
Livestock	21.2
Soils	15.3

Waste	Kilotonnes Carbon Dioxide Equivalent (ktCO_{2e})
Landfill	23.2
Other	9.6

Tunbridge Wells Borough	Kilotonnes Carbon Dioxide Equivalent (ktCO _{2e})
Total	417.3

Population ('000s, mid-year estimate)	119.7
Per capita emissions (tCO _{2e})	3.5
Area (km ²)	331.3
Emissions per km ² (ktCO _{2e})	1.3

Figure 2. Breakdown of 2024 Sector Emissions



5. Emissions Comparison

The emissions data for Tunbridge Wells Borough, as highlighted in the 2024 DESNZ report, reflects the borough's distinctive economic and geographical profile. With total emissions of 417.3 ktCO₂e, Tunbridge Wells is the second-lowest emitting district in Kent, behind only Gravesham, contributing around 6% of the county's total emissions. This relatively low contribution is influenced by the borough's limited industrial activity, with industry accounting for just 3% of Kent's industrial emissions.

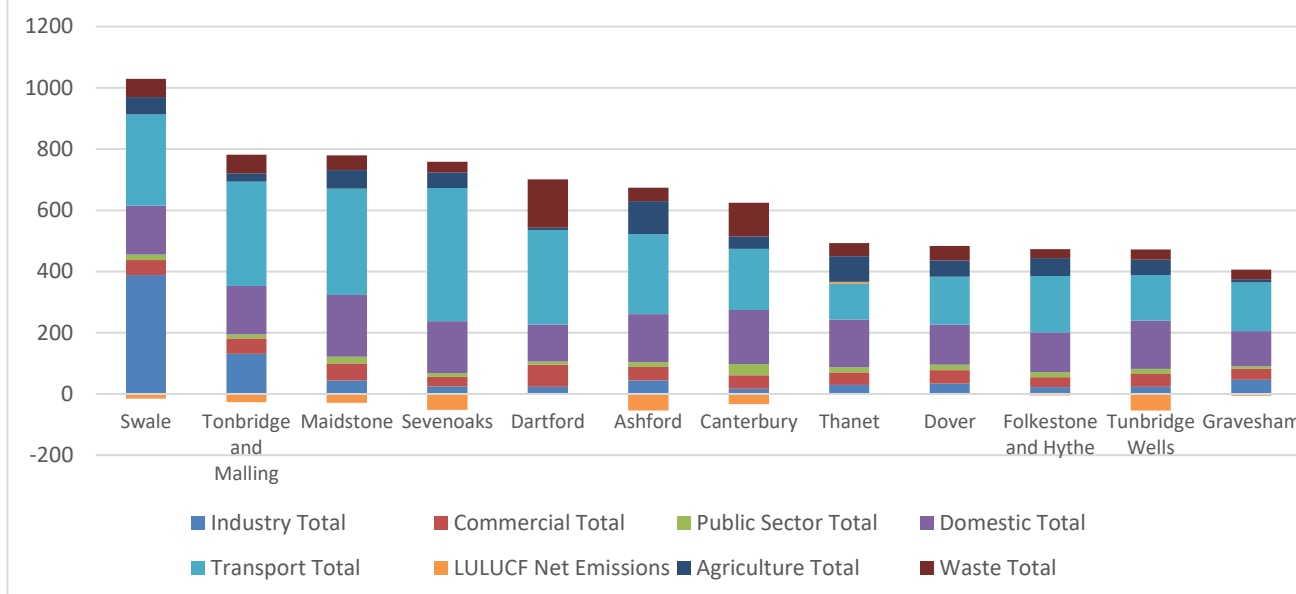
Emissions are highest in the domestic and transport sectors, contributing 157.5 ktCO₂e and 148.1 ktCO₂e respectively. Domestic emissions rank seventh-highest in Kent, reflecting the borough's dispersed rural housing stock and reliance on gas heating in some areas. Transport emissions are the second-lowest in the county, accounting for 5% of Kent's transport emissions, despite the borough's significant commuter population. Commercial and agricultural emissions sit within the middle of Kent rankings, while industry and waste remain among the borough's lowest-emitting sectors, ranking third-lowest for both.

Tunbridge Wells is also Kent's largest net carbon sequester through Land Use, Land Use Change and Forestry (LULUCF), removing 54.5 ktCO₂e in 2024. This reflects the borough's extensive woodland and grassland habitats and the influence of the High Weald landscape, which covers around 70% of the borough.

With a population of 119,694, representing 7.3% of Kent's population, Tunbridge Wells is one of the county's smaller districts. The borough also records one of Kent's lowest emissions intensities, at 1.3 ktCO₂e per km², and one of the lowest per-capita emissions rates at 3.5 tCO₂e per person, compared with the Kent average of 4.5 tCO₂e per person.

Overall, Tunbridge Wells combines low total emissions, low per-capita emissions, and low emissions density with the strongest level of carbon sequestration in Kent, making it one of the county's strongest performers in terms of its overall carbon footprint.

Figure 3. Emissions comparison across all Kent districts in 2024 (ktCO₂e)



6. Borough Emissions: 2005 - 2024

6.1. Total

Tunbridge Wells Borough's total greenhouse gas emissions have fallen from 804.7 ktCO₂e in 2005 to 417.3 ktCO₂e in 2024, representing an overall reduction of 387.4 ktCO₂e or 48.1% since the baseline year. Figure 4 (page 16) illustrates this long-term downward trend. Following relatively small fluctuations between 2005 and 2013, emissions declined more consistently from 2014 onwards, with particularly significant reductions occurring between 2019 and 2020 when emissions fell by 8.8%, largely as a result of reduced economic activity and travel during the COVID-19 pandemic. Emissions increased by 6.0% in 2021 as restrictions were lifted and activity levels returned closer to normal, before resuming their downward trajectory. In 2024, total emissions fell from 427.0 ktCO₂e in 2023 to 417.3 ktCO₂e, representing a further annual reduction of 2.3% and establishing the lowest level of total emissions recorded since the start of the data set monitoring started in 2005.

Figure 4 demonstrates that the borough's overall emissions reductions have been achieved across most sectors of the local economy. Since 2005, commercial emissions have fallen by 68.1%, public sector emissions by 61.9%, industrial emissions by 57.5%, domestic emissions by 47.7%, waste emissions by 39.5%, agricultural emissions by 34.0%, and transport emissions by 22.3%. Alongside these reductions, the borough's land use and forestry assets have continued to act as a significant carbon sink, with net carbon sequestration increasing from -49.3 ktCO₂e to -54.5 ktCO₂e over the same period. These trends demonstrate that emissions reductions have not been driven by a single sector but by broad changes across energy use, transport, waste management, industry, agriculture, and land management.

A key driver of the long-term decline has been the continued decarbonisation of the UK electricity grid, which has significantly reduced emissions associated with electricity consumption across the industrial, commercial, public sector, domestic, and agricultural sectors. Additional reductions have been supported by improvements in vehicle fuel efficiency, increased uptake of low-emission technologies, more energy-efficient buildings, changing patterns of energy consumption, working practises, and continued improvements in waste management practices. Together, these factors have enabled Tunbridge Wells to reduce its overall carbon footprint while becoming the second-lowest emitting district in Kent in 2024, despite being one of the county's larger districts by land area.

6.2. Industry

In Tunbridge Wells, the industrial sector includes local manufacturing, construction, and small-scale production activities. Emissions primarily come from energy use in these processes, such as heating, machinery operation, and transportation of goods.

Industry CO₂e emissions in Tunbridge Wells have continued their long-term decline, falling from 55.0 ktCO₂e in 2005 to 23.4 ktCO₂e in 2024. This represents a reduction of 31.6 ktCO₂e, equivalent to a 57.5% decrease from the 2005 baseline. Figure 5 (page 17) highlights this sustained downward trend, with industrial emissions falling significantly over the last two decades despite some year-to-year fluctuations. Emissions increased slightly following the COVID-19 pandemic, rising from 26.6 ktCO₂e in 2020 to 28.2 ktCO₂e in 2021 as economic activity recovered, but have since resumed their decline, reaching their lowest recorded level in 2024.

The reduction has been driven primarily by a substantial decrease in emissions associated with industrial electricity consumption. Industrial electricity emissions fell from 25.2 ktCO₂e in 2005 to 4.1 ktCO₂e in 2024, reflecting improvements in energy efficiency and the continued decarbonisation of the UK electricity grid. Industrial emissions from gas use and other fuel sources have also declined overall during this period. As highlighted within the DESNZ emissions dataset, wider changes in industrial activity and energy use patterns have contributed to this long-term reduction. For example, nationwide industry emissions dropped by 9% between 2023 and 2024 mainly due to closures of blast furnace closures in the iron and steel industry and lower coal use across the sector. Overall, the 2024 data demonstrates that the industrial sector remains one of the borough's most improved sectors, with emissions now at their lowest level since records began.

6.3. Commercial

The commercial sector in Tunbridge Wells includes retail premises, offices, hospitality businesses, healthcare facilities, and other service-based enterprises. Energy consumption for heating, lighting, cooling, refrigeration, and operational activities remains the primary source of emissions within this sector.

Commercial CO₂e emissions have continued their long-term decline, falling from 129.6 ktCO₂e in 2005 to 41.4 ktCO₂e in 2024. This represents a reduction of 88.2 ktCO₂e, equivalent to a

68.1% decrease from the 2005 baseline. Figure 6 (page 17) illustrates this trend, showing emissions peaking at 130.9 ktCO₂e in 2006, followed by fluctuations until 2012 and then a sustained decline over the following decade. While emissions rose slightly after the COVID-19 pandemic, reaching 57.1 ktCO₂e in 2021 as economic activity recovered, they have since fallen each year and reached their lowest recorded level in 2024.

The reduction has been driven primarily by falling emissions associated with electricity consumption. Commercial electricity emissions decreased from 106.0 ktCO₂e in 2005 to 24.1 ktCO₂e in 2024, a reduction of almost 77%. This reflects both improvements in energy efficiency across commercial buildings and the continued decarbonisation of the UK electricity grid. Emissions from commercial gas consumption have also fallen overall, from 18.4 ktCO₂e in 2005 to 13.1 ktCO₂e in 2024, although gas remains a significant source of emissions for many businesses. As a result of these reductions, commercial emissions now account for 41.4 ktCO₂e and represent one of the borough's most improved sectors since 2005.

6.4. Public Sector

The public sector includes the NHS, Tunbridge Wells Borough Council, emergency services, schools, libraries, and other publicly owned buildings and services. Emissions in this sector arise primarily from the consumption of electricity and gas used for heating, lighting, and operating public facilities.

Public sector CO₂e emissions have fallen from 46.2 ktCO₂e in 2005 to 17.6 ktCO₂e in 2024, representing a reduction of 28.6 ktCO₂e and an overall decrease of 61.9% from the 2005 baseline. Figure 7 (page 17) illustrates this long-term downward trend. Emissions declined steadily between 2005 and 2019, falling from 46.2 ktCO₂e to 20.4 ktCO₂e, before reaching 19.8 ktCO₂e during the COVID-19 pandemic in 2020. A small increase occurred in 2021 as public services and buildings returned to normal operation, but emissions subsequently fell again to 17.6 ktCO₂e in 2024, the lowest level recorded since the dataset began.

This reduction has been driven by significant decreases in both electricity and gas-related emissions. Public sector electricity emissions fell from 22.3 ktCO₂e in 2005 to 5.4 ktCO₂e in 2024, while public sector gas emissions declined from 20.5 ktCO₂e to 10.0 ktCO₂e over the same period. The continuing decarbonisation of the UK electricity grid has been a major factor in reducing emissions associated with electricity consumption, alongside improvements in building energy efficiency, estate rationalisation, and investment in lower-carbon technologies across the public sector.

6.5. Domestic

The domestic sector comprises of emissions generated from energy use within homes, including space heating, hot water, lighting, cooking, and electrical appliances. Domestic emissions remains the largest source of greenhouse gas emissions in Tunbridge Wells Borough. Many properties within the borough were built before modern energy efficiency standards were introduced and therefore, require higher levels of energy for heating and day-to-day use.

Domestic CO₂e emissions have fallen from 301.0 ktCO₂e in 2005 to 157.5 ktCO₂e in 2024, representing a reduction of 143.5 ktCO₂e or 47.7% over the period. Figure 8 (page 17) shows that emissions generally followed a long-term downward trend, although with fluctuations reflecting changes in weather patterns, energy prices, and household energy demand. Emissions declined from 301.0 ktCO₂e in 2005 to 188.9 ktCO₂e in 2019 before falling further during the COVID-19 period. The borough recorded its lowest domestic emissions at 153.5 ktCO₂e in 2023, before a small increase to 157.5 ktCO₂e in 2024. Despite this recent rise, domestic emissions remain substantially below the 2005 baseline.

The most significant reduction has occurred in emissions associated with household electricity use. Domestic electricity emissions have fallen from 130.0 ktCO₂e in 2005 to 32.5 ktCO₂e in 2024, a reduction of 75.0%. This has been driven largely by the continued decarbonisation of the UK electricity grid and improvements in appliance efficiency. In contrast, emissions from domestic gas consumption have declined more slowly, falling from 136.5 ktCO₂e in 2005 to 99.1 ktCO₂e in 2024, meaning gas heating remains the largest source of household emissions in the borough. The sharp reduction observed between 2021 and 2022 is consistent with DESNZ analysis, which attributes lower emissions nationally to warmer weather reducing heating demand alongside higher energy prices encouraging reduced energy consumption.

6.6. Transport

The transport sector in Tunbridge Wells includes emissions from road traffic, rail transport, public transport services, freight movements, and private vehicles. The majority of emissions arise from the combustion of petrol and diesel fuels in cars, vans and heavy goods vehicles. Reducing transport emissions remains one of the borough's greatest decarbonisation challenges due to the area's rural nature, commuting patterns, and continued reliance on private vehicles.

Transport CO₂e emissions have fallen from 190.7 ktCO₂e in 2005 to 148.1 ktCO₂e in 2024, representing a reduction of 42.6 ktCO₂e or 22.3% over the period. Figure 9 (page 18) shows that transport emissions remained relatively stable between 2005 and 2019, fluctuating between approximately 166 and 192 ktCO₂e. A significant decline occurred in 2020, when emissions fell to 142.0 ktCO₂e, reflecting reduced travel during the COVID-19 pandemic. Emissions subsequently increased to 151.5 ktCO₂e in 2021 as restrictions eased and travel demand recovered, before stabilising around current levels. In 2024, transport emissions decreased slightly from 148.7 ktCO₂e in 2023 to 148.1 ktCO₂e, remaining only 4.3% above the pandemic low recorded in 2020.

Road transport continues to account for almost all transport-related emissions in the borough. In 2024, emissions from A roads contributed 85.5 ktCO₂e, while minor roads contributed 59.8 ktCO₂e, together accounting for more than 98% of transport emissions. Unlike several other Kent districts, Tunbridge Wells contains no motorway emissions, helping to limit overall transport emissions. Improvements in vehicle fuel efficiency, the gradual uptake of electric vehicles, changes in travel behaviour, and reduced fuel consumption have all contributed to the long-term downward trend shown in Figure 9.

6.7. Land Use, Land Use Change and Forestry (LULUCF)

The Land Use, Land-Use Change and Forestry (LULUCF) sector includes emissions and carbon removals associated with forests, woodlands, grasslands, cropland, settlements, and other land uses across the borough. In Tunbridge Wells, this sector reflects the important role that the natural environment plays in addressing climate change. Activities such as woodland creation, sustainable land management, habitat restoration, and the protection of existing green infrastructure can increase carbon sequestration, whilst land-use change and development can reduce the ability of land to absorb carbon.

The LULUCF sector is unique because it is the only sector within the greenhouse gas inventory that acts as a net carbon sink, removing more greenhouse gases from the atmosphere than it emits. Since records began in 2005, Tunbridge Wells has consistently recorded negative net emissions from this sector. Net LULUCF emissions increased from -49.3 ktCO₂e in 2005 to -54.5 ktCO₂e in 2024, representing an improvement in carbon sequestration of 5.2 ktCO₂e or 10.5% over the period. Figure 10 (page 18) shows that carbon removals have remained relatively stable over time, generally fluctuating between approximately -50 and -56 ktCO₂e per year.

The borough recorded its greatest level of sequestration in 2020 at -55.6 ktCO₂e, before falling slightly during the following years. In 2024, net sequestration increased modestly from -54.9 ktCO₂e in 2023 to -54.5 ktCO₂e, remaining close to historically high levels. The dominant contributor to these removals is forestry, which accounted for -50.9 ktCO₂e in 2024, significantly offsetting emissions from other land-use categories. The extensive woodland cover associated with the High Weald landscape continues to play a vital role in maintaining this strong sequestration performance.

6.8. Agriculture

The agriculture sector includes emissions arising from livestock farming, agricultural soils, fertiliser application, fuel use, and other land management activities. Agriculture plays an important role in the rural economy of Tunbridge Wells and contributes to the character of the borough's landscape.

Agricultural CO₂e emissions have fallen from 77.3 ktCO₂e in 2005 to 51.0 ktCO₂e in 2024, representing a reduction of 26.3 ktCO₂e or 34.0% over the period. Figure 11 (page 18) shows that emissions remained relatively stable between 2005 and 2017, generally fluctuating between 64 and 79 ktCO₂e. A more pronounced decline occurred after 2017, with emissions reaching 55.2 ktCO₂e in 2020. A temporary increase to 60.3 ktCO₂e was observed in 2021, likely reflecting changes in agricultural activity following the COVID-19 pandemic, before emissions resumed their downward trend. In 2024, agricultural emissions fell to 51.0 ktCO₂e, the lowest level recorded since the dataset began.

Unlike several other sectors, agricultural emissions are driven predominantly by biological processes rather than energy consumption. In 2024, emissions from agricultural livestock

accounted for 21.2 ktCO₂e and agricultural soils accounted for 15.3 ktCO₂e, together representing over 70% of total agricultural emissions. Emissions associated with electricity use have fallen substantially from 17.0 ktCO₂e in 2005 to 2.9 ktCO₂e in 2024, reflecting the continued decarbonisation of the UK electricity grid. However, emissions from livestock and soils have remained comparatively stable, meaning future reductions will depend increasingly on improvements in farming practices, land management, livestock management, and soil carbon retention.

6.9. Waste

The waste sector includes emissions arising from the treatment and disposal of waste generated by households, businesses, and other organisations within the borough. Waste emissions are primarily produced through the decomposition of biodegradable materials, which release methane, a potent greenhouse gas. Although household waste collected in Tunbridge Wells is not sent directly to landfill, DESNZ allocates emissions from waste management activities back to the area where the waste was produced. Tunbridge Wells Borough Council is responsible for household waste collection, while Kent County Council manages waste treatment and disposal infrastructure.

Waste CO₂e emissions have fallen from 54.2 ktCO₂e in 2005 to 32.8 ktCO₂e in 2024, representing a reduction of 21.4 ktCO₂e or 39.5% since the baseline year. Figure 12 (page 18) illustrates this long-term downward trend. Emissions increased significantly between 2006 and 2008, reaching a peak of 79.3 ktCO₂e in 2008, before declining steadily over the following decade. The borough recorded its lowest waste emissions in 2021 at 31.2 ktCO₂e, after which emissions increased to 36.6 ktCO₂e in 2023 before falling again to 32.8 ktCO₂e in 2024. Despite these recent fluctuations, waste emissions remain substantially below historic levels.

Methane continues to be the dominant source of emissions within this sector. In 2024, methane emissions accounted for 27.3 ktCO₂e of the sector total, compared with just 0.2 ktCO₂e from carbon dioxide and 5.4 ktCO₂e from nitrous oxide. The long-term reduction in waste emissions has therefore been driven largely by declining methane emissions, reflecting improvements in waste treatment practices and reduced reliance on landfill disposal across Kent and the UK.

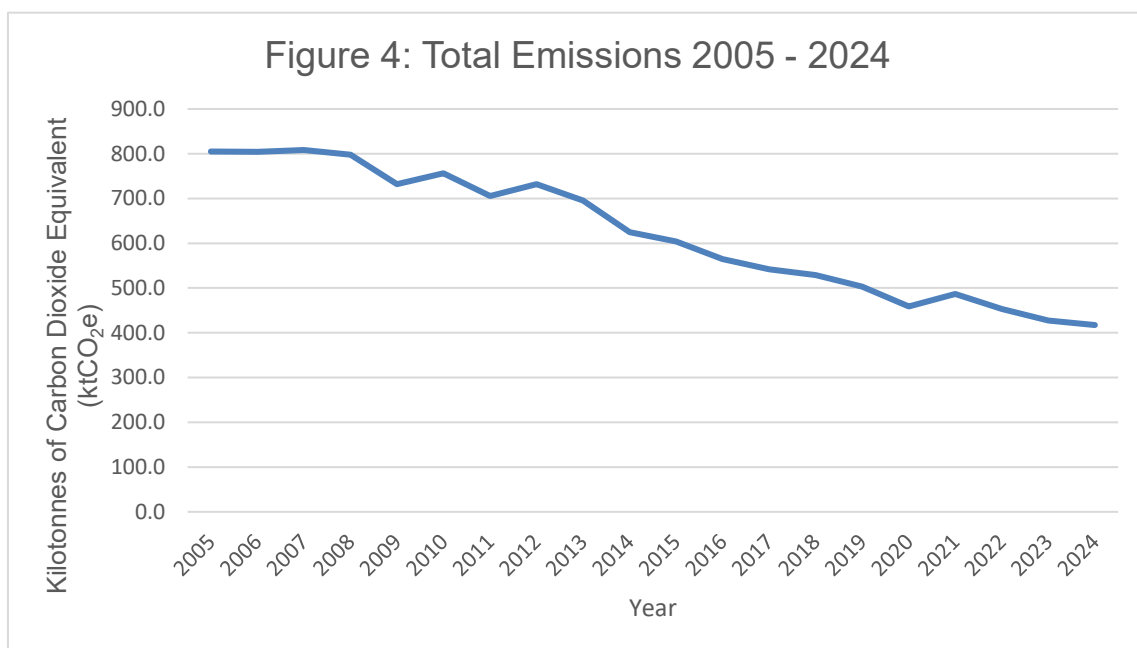


Figure 5: Industry CO₂e Total

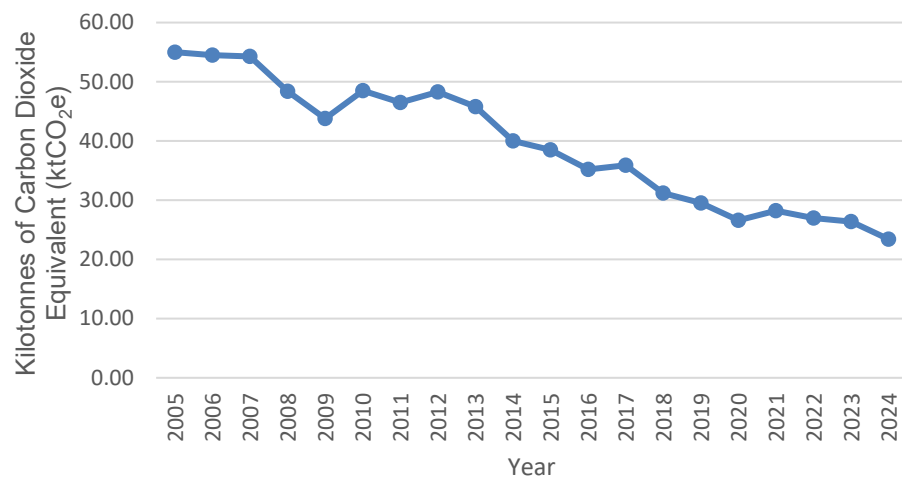


Figure 6: Commercial CO₂e Total

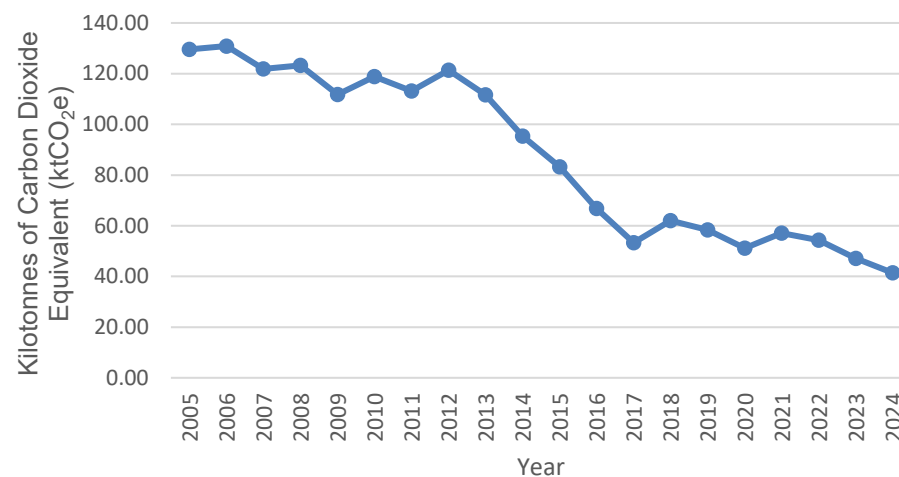


Figure 7: Public Sector CO₂e Total

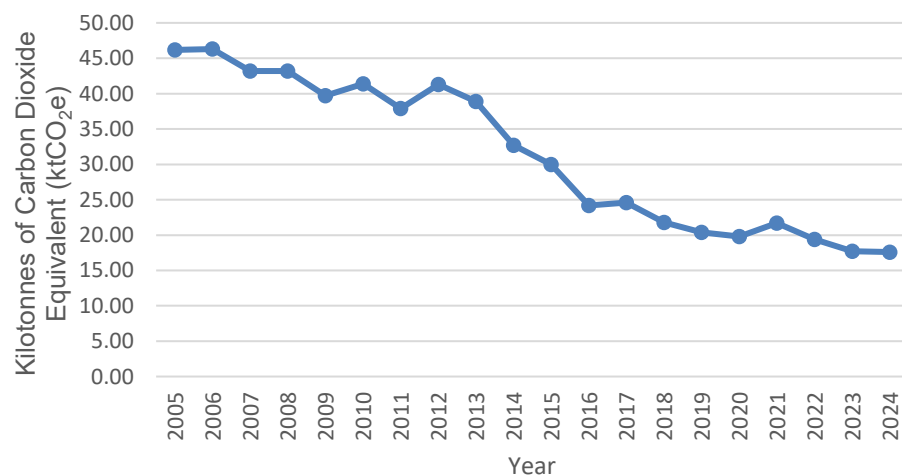


Figure 8: Domestic Sector CO₂e Total

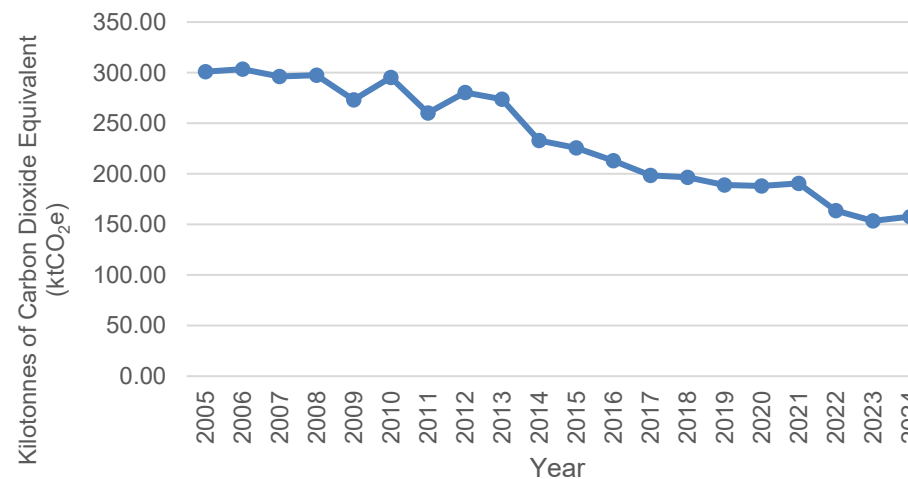


Figure 9. Transport CO₂e Total

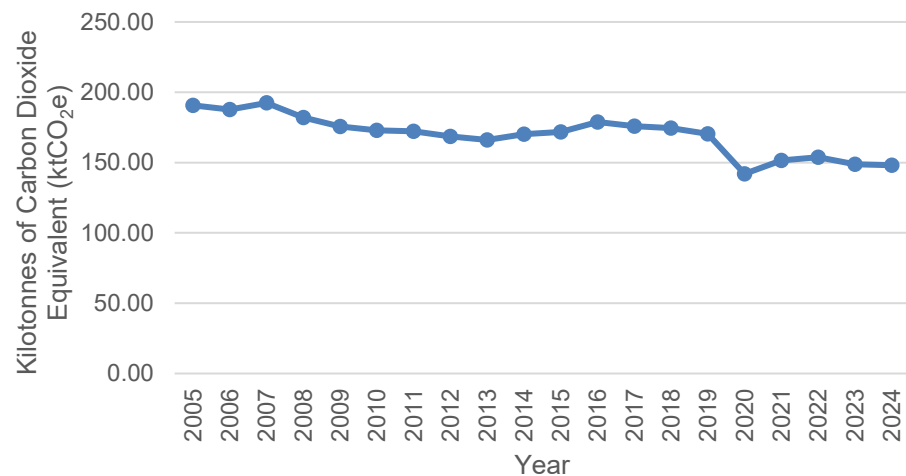


Figure 10. LULUCF Net CO₂e Emissions

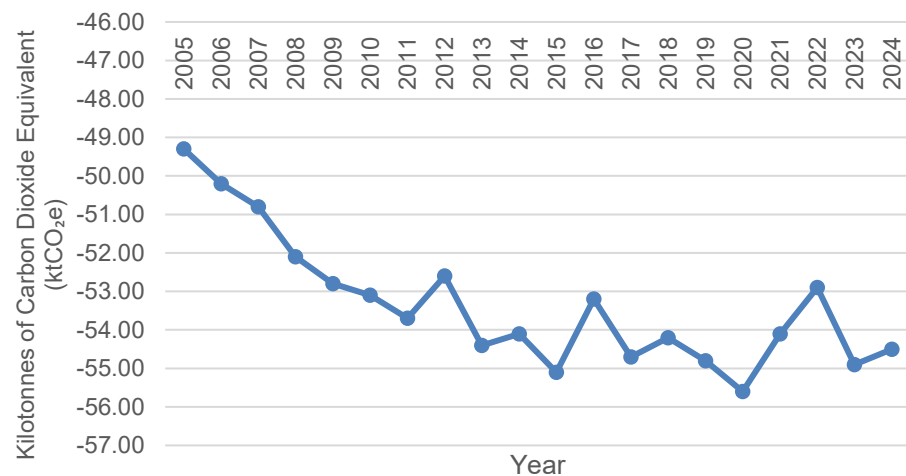


Figure 11. Agriculture CO₂e Total

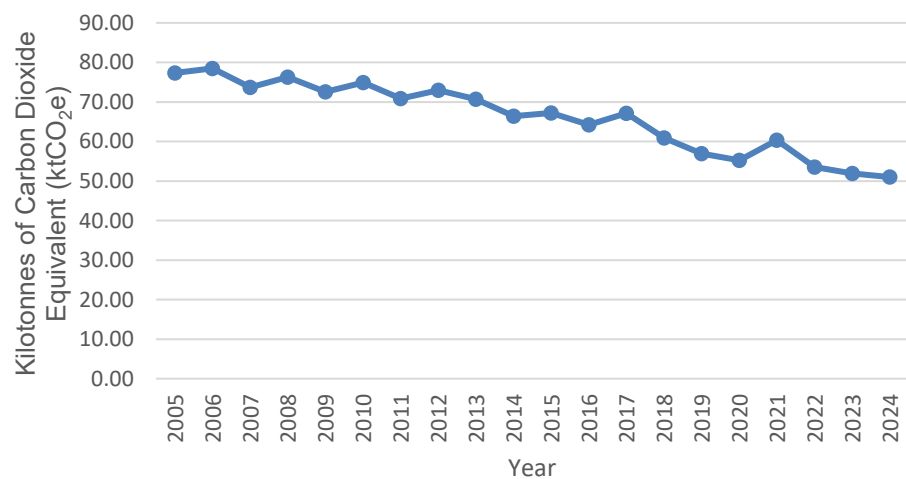
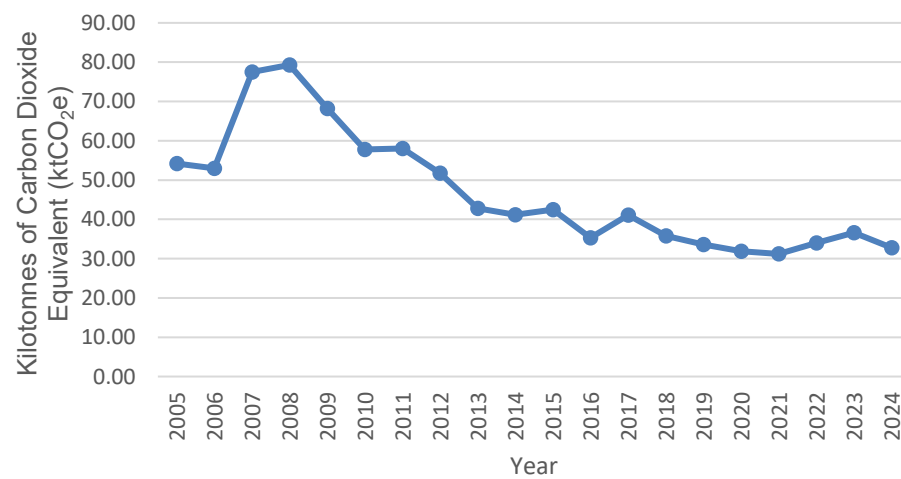


Figure 12. Waste CO₂e Total



7. Appendix 1: Tunbridge Wells Borough Emissions Breakdown

