

# **Bromley's Carbon Footprint: 2010/11 Progress Report**

LBB: Carbon Management Programme

DCLG single data list: emissions from local  
authority own estate and operations  
(former NI 185)

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## **BROMLEY'S CARBON FOOTPRINT PROGRESS REPORT: 2010/11**

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## 1. Reporting Bromley's 2010/11 Carbon Footprint

- 1.1. In 2007/08 LB Bromley worked in partnership with the Carbon Trust on the 'Carbon Management Programme'. This work directly led to Bromley Council's policy (ED08067, Minute 69) to reduce its carbon dioxide emissions by 25% over five years.
- 1.2. In March 2011 DCLG issued its new 'Single Data List' of reporting requirements<sup>1</sup>. This includes a requirement for local authorities to report on greenhouse gas emissions from their own estates and operations (formerly known as 'National Indicator 185') for both 2009/10 and 2010/11. The Government requires this data to be a) published on the internet and b) described in terms of its 'scope' (see Table 4).
- 1.3. This annual summary report serves a dual purpose. It reports on 2010/11 progress towards the 25% carbon reduction target (by 2012/13) and also satisfies the Single Data List reporting requirements.
- 1.4. In 2006/07, the Council established its carbon footprint<sup>2</sup> for the first time. The carbon baseline (which covers a number of sectors – see Section 2) was calculated as 37,780 tonnes (t) carbon dioxide equivalent (CO<sub>2</sub>e)<sup>3</sup>.
- 1.5. In 2007/08, the preparatory year during which the action plans were drawn up, LB Bromley's carbon footprint increased by 484t (1.25%) to 38,264t. This illustrates the importance of taking sustained action to reduce carbon.
- 1.6. In 2008/09 and 2009/10, the first and second action years, there was a reduction of 1,177t CO<sub>2</sub>e (3%) and 4,773t CO<sub>2</sub>e (13%) in the Council's footprint: strong evidence of positive outcomes (across the board) resulting from a comprehensive approach to reducing use of natural resources and environmental impacts.
- 1.7. In 2010/11 the third action year, there was a slight increase of 331t CO<sub>2</sub>e (1%). This can be largely attributed to the colder than average winter and its impact on gas consumption.
- 1.8. During 2010/11, significant action has been taken through a range of projects to reduce the Council's use of natural resources and environmental impacts. These have included physical measures such as window replacements, roof insulation, pool covers and centralising IT (replacing printers, scanners and photocopiers with multifunctional devices), and softer measures such as the continuation of the staff Environmental Champions' Network and taking further action to improve our data collection and monitoring.
- 1.9. Bromley's approach is to monitor and report on the effectiveness of such initiatives by measuring energy/fuel/water consumption and waste production, and expressing this data as a 'carbon equivalent' (CO<sub>2</sub>e) figure. In this way, much more than just energy use gets measured, providing a more rounded assessment of the Council's environmental impacts.
- 1.10. Section 3 provides more detail on which sectors have been included in Bromley's carbon footprint. Section 4 discusses both annual progress and progress against 2006/07 baseline. Sections 5-8 provide more detailed, sectoral, analysis including how the data was obtained, what action has been taken, and what the carbon outcome has been.

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<sup>1</sup> [DCLG Single Data List](#)

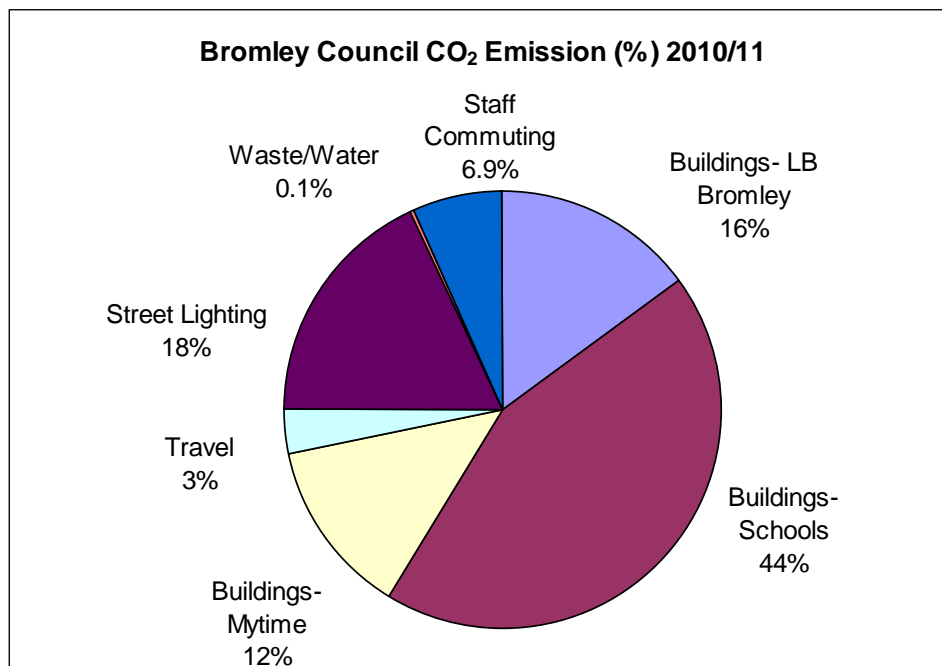
<sup>2</sup> A 'carbon footprint' measures an organisation's contribution to climate change and is usually expressed in tonnes of carbon dioxide equivalent (CO<sub>2</sub>e). Most reporting currently concerns the 'primary footprint', which measures direct CO<sub>2</sub> emissions from energy consumption and transportation.

<sup>3</sup> **CO<sub>2</sub> Equivalent (CO<sub>2</sub>e):** Six main greenhouse gases contribute to climate change and are currently controlled under the Kyoto Protocol. Each has a different 'global warming potential' with distinct atmospheric lifespan and heat-trapping strength. For reporting, the mass of each gas is translated into a carbon dioxide equivalent (CO<sub>2</sub>e) amount, allowing the impact from all sources (say, methane from waste) to be shown as one common measurement.

## 2. Sectoral Analysis

2.1. Bromley's carbon footprint comes from a number of different sources including: the energy (gas / electricity / oil) used by the Council, schools (academies and maintained schools) and Bromley Mytime (the local leisure service charitable trust); and also carbon associated with the Council's vehicle fleet, business travel, commuting, and street lighting, as well as water use and waste production at the Civic Centre.

Figure 1: What sectors did our carbon come from in 2010/11?



2.2. The pie chart above shows the main sources of carbon emissions in 2010/11. It can be seen that buildings are the Council's main source of carbon, with schools (44%) being the largest contributor both overall and within the building sector (72%). Street lighting is the next most significant source (18%) of Bromley's carbon emissions.

## 3. Making Progress

3.1. Table 1 shows progress (in both tonnage and percentage terms) comparing 2010/11 data with the previous year's (2009/10) performance. It can be seen that the Council's emissions have increased slightly by 1% (331 tonnes). This overall increase is the result of greater gas use in buildings, largely attributable to the cold weather (and increase in 'degree days'<sup>4</sup>).

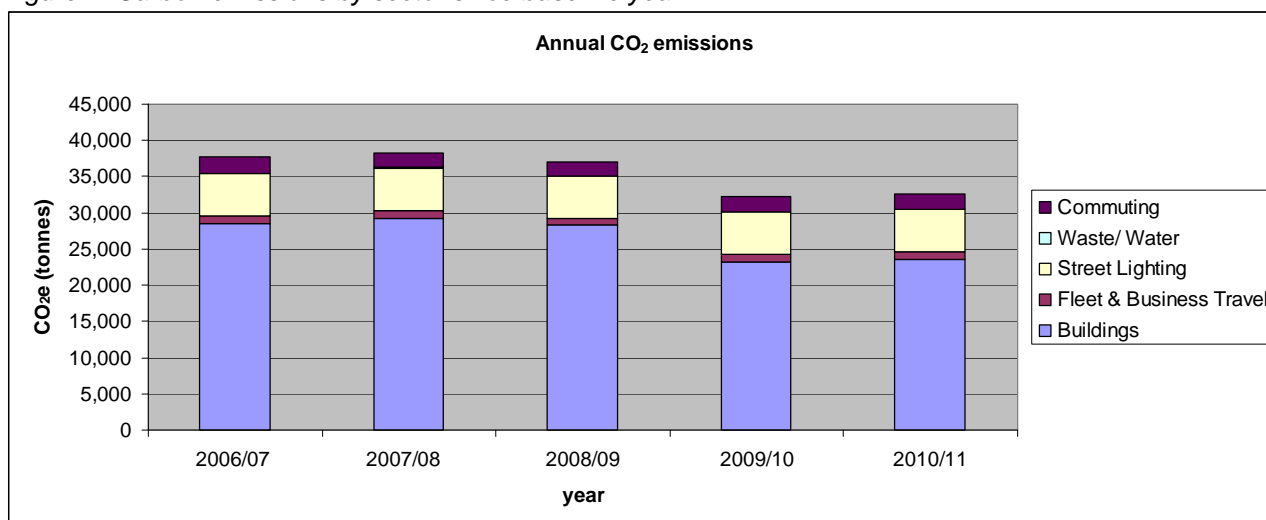
Table 1: Annual Change (2010/11 compared with 2009/10)

Sector	2009/10 (tCO <sub>2</sub> e)	2010/11 (tCO <sub>2</sub> e)	Tonnage change	Percentage change
Buildings	23,186	23,648	462	2%
Fleet & Business Travel	1,042	991	-51	-5%
Street Lighting	5,841	5,769	-72	-1%
Waste/Water	56	48	-8	-14%
Commuting	2,189	2,189	0	0%
<b>TOTAL</b>	<b>32,314</b>	<b>32,645</b>	<b>331</b>	<b>1%</b>

<sup>4</sup> Degree days are essentially a simplified representation of outside air-temperature data. The colder the weather, the greater the number of degree days.

3.2. Figure 2 shows progress, in tonnage terms, since the baseline year (2006/07):

Figure 2: Carbon emissions by sector since baseline year



3.3. Table 2 shows progress (in tonnage and percentage terms) between the baseline year (2006/07) and the current reporting year (2010/11). It can be seen that, overall, the Council has reduced its carbon emissions by 14%. Significant progress has been made in the building sector (which has the largest footprint to address) and the waste & water sector, with travel and street lighting also showing a modest reduction. In tonnage terms, the Council has reduced its carbon emissions by 5,135 tonnes against baseline, with the greatest progress being in the buildings sector (4,962t).

Table 2: Change against Baseline (2010/11 compared with 2006/07)

Sector	Baseline 2006/07 (tCO <sub>2</sub> e)	2010/11 (tCO <sub>2</sub> e)	Tonnage change	Percentage change
Buildings	28,610	23,648	-4,962	-17%
Fleet & Business Travel	1,001	991	-10	-1%
Street Lighting	5,791	5,769	-22	-0.4%
Waste/Water	104	48	-56	-54%
Commuting	2,274	2,189	-85	-4%
<b>TOTAL</b>	<b>37,780</b>	<b>32,645</b>	<b>-5,135</b>	<b>-14%</b>

3.4. Bromley remains fourteen percentage points towards its 25% (2012/13) target; with two years to go. If we can maintain this rate of progress we could hope to meet, and perhaps exceed, our target.

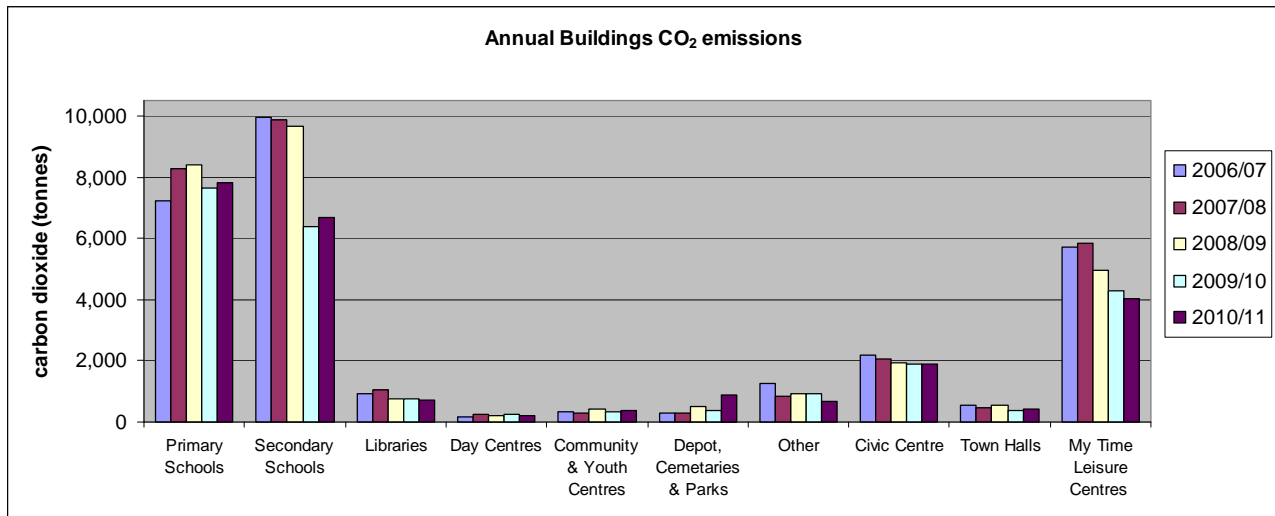
#### 4. Building Sector

4.1. **Background:** Buildings comprise Council operational property (e.g. Civic Centre, depots and libraries), schools, and the leisure facilities operated by Bromley Mytime. Schools comprise the largest element of Bromley's property-related carbon emissions (44%), followed by Council operational property (16%) and Mytime's leisure facilities (12%).

4.2. **Data acquisition:** Gas and oil are used for space-heating, hot water, swimming pools. Electricity is generally used for lighting and electrical equipment. Gas, electricity and heating-oil consumption data were provided by the Council's energy suppliers (and also by Bromley Mytime) and this data was converted into CO<sub>2</sub> emissions (using CO<sub>2</sub> conversion factors<sup>5</sup>).

<sup>5</sup> **Carbon conversion factors:** Energy use (electricity, gas, heating oil, or vehicle fuel) is converted into CO<sub>2</sub> using DEFRA's greenhouse gas conversion factors. These factors convert energy (e.g. kWh) into CO<sub>2</sub> (kg): energy used being multiplied by the relevant conversion factor. Factors vary between energy types and reflect their global warming potential. Factors are updated annually reflecting change: e.g. how electricity is generated (national mix of gas, coal, nuclear and renewables).

Figure 3: Carbon emissions from buildings



4.3. Commentary:

4.3.1. *Annual progress:* CO<sub>2</sub> emissions from all buildings increased by 462t (2%) from 23,186t (2009/10) to 23,648t (2010/11).

This 2% rise in carbon emissions is mainly due to increased gas consumption – largely attributable to colder than average weather. There were 2,099 degree days in 2010/11 – which was greater than both 2009/10 (2,062) and the 20-year average (1,821). Any change in temperature is more keenly felt in schools (which are necessarily heated to a higher temperature than most buildings) and this is also clearly indicated in the data. Equally, gas consumption fell at the Civic Centre by 9.6%

A number of initiatives have been carried out in 2010/11:

Council Operational Buildings

- High efficiency boiler installed (main boiler room)
- North Block solar hot water system completed
- New windows Civic Centre
- Roof insulation at Civic Centre
- Continuing Environmental Champions' Network work

Schools

- Bromley Sustainable School Forum
- Planned maintenance programme
- Improved data acquisition

Mytime

- Installation of smart meters, pool covers and LED lighting
- Staff housekeeping regimes

4.3.2. *Progress against baseline:* Overall, emissions have decreased by 4,962t (17%) from 28,610t (2006/07) to 23,648t (2010/11).

5. **Street Lighting Sector**

5.1. Background: Street lighting is the second largest component of Bromley's carbon footprint (after buildings). LB Bromley owns and maintains a range of street lighting and illuminated street furniture including over 27,000 street-lights, 3,000 sign-lights and illuminated signposts, 1,600 illuminated bollards, and another 900 items of illuminated street furniture. With such a large stock of street lighting and associated energy use, carbon emissions in this sector must be managed accordingly.

5.2. Data acquisition: Electricity consumption figures from street lighting and street furniture were converted into CO<sub>2</sub> emissions. It should be noted that street lighting is an 'un-metered supply' and, therefore, this carbon data is extrapolated from the Bromley inventory (number, condition and hours of operation) coupled with operational hours data from the photoelectric cell unit array.

5.3. Commentary:

5.3.1. *Annual progress:* CO<sub>2</sub> emissions from street lighting decreased by 72t (1%) from 5,841t (2009/10) to 5,769t (2010/11). This has been due to a number of initiatives including:

- Converting all centre island posts so the bollards and posts are no longer lit 24 hours
- Changing all MI26 lanterns to electronic gear, which has a faster start-up time therefore using less energy
- Ensuring all new schemes with 60 watt lamps are dimmed to 45 watts from midnight to 6am

5.3.2. *Progress against baseline:* Emissions have decreased by 22t (0.4%) from 5,791t (2006/07) to 5,769t (2010/11).

**6. Commuting Sector**

6.1. Background: Commuting is the third largest component of our carbon footprint (after buildings and street lighting). The commuting footprint covers how Council staff travel to work (most of whom are based at the Civic Centre site) and not commuting by school or Bromley Mytime staff.

6.2. Data acquisition: Data is usually extrapolated from the annual Staff Travel Survey, which gives information on the mode of transport (i.e. car, bus and train) and distance travelled from a sample of staff. This data is then converted into carbon by assigning each mode of transport with the official CO<sub>2</sub> conversion factor and multiplying the mileage. This is factored up to reflect the carbon impact of the entire Council workforce. The survey is conducted every two years (to minimise survey fatigue) and, therefore, this data is based on our 2009/10 staff survey results.

6.3. Commentary:

6.3.1. *Annual progress:* Not applicable

6.3.2. *Progress against baseline:* Emissions have decreased by 85t (4%) from 2,274t (2006/07) to 2,189t (2010/11).

6.3.3. *Detailed explanation:*

A number of initiatives were carried out in 2010/11 to reduce commuting carbon emissions:

- Electrically assisted bikes available for staff
- New showering facilities for staff to encourage cycling
- Introduction of a new cycle pod for staff to store bikes
- Introduction of the borough's second car club bay in Orpington town centre

These initiatives will also help to decrease emissions from business travel.

**7. Fleet & Business Travel Sector**

7.1. Background: The fleet is defined as vehicles directly managed by the Council but not vehicles used by our contractors (e.g. Veolia for Waste Services). Business Travel is use of private cars for Council business.

7.2. Data acquisition: Business Travel data is derived from reimbursed mileage claims collected by Human Resources. Figures were converted (using carbon factors) into CO<sub>2</sub> emissions. It should be noted that mileage is not always claimed by officers, so there will be a degree of under-reporting. Fleet emissions were calculated from fuel (litres) used by Council vehicles.

7.3. Commentary:

7.3.1. *Annual progress:* Carbon from this sector decreased by 51t (5%) compared with 2009/10.

**Fleet emissions** decreased by 5t (1%). Carbon reduction initiatives include:

- 20,000 litre Fuel Tank – allows greater control and monitoring of fuel used
- Electric bicycles available for staff to use
- Electric tipper Truck now available
- On-going fleet replacements improving fuel economy
- On-going restructuring fleet to improve vehicle use: moving to smaller vans or reducing numbers
- Continued driver training to improve fuel efficiency

**Business Travel** emissions decreased by 46t (8%). Increased fuel prices and the need to protect budgets contributed to staff driving less and planning their work more effectively (e.g. combining visits etc). The three pool cars also mean fewer people are using their own cars for business travel.

7.3.2. *Progress against baseline:* Carbon emissions from this sector decreased by 10t (1%) compared with 2006/07 baseline data.

- Fleet emissions increased 94t (27%) from 347t (2006/07) to 441t (2010/11)
- Business Travel emissions decreased by 104t (16%) from 654t (2006/07) to 550t (2010/11)

## 8. Water & Waste Sector

8.1. Background: The emissions associated with waste production and water consumption at the Civic Centre site is the smallest component to our carbon footprint. It was decided to restrict reporting for this sector to the Civic Centre due to data quality issues which have been addressed.

8.2. Data acquisition: The amount of waste (calculated by taking the number of large outdoor waste collection containers, their weight, and emptying frequency) is converted into a tonnage figure (and then into a carbon figure). Metered water consumption figures at the Civic Centre were converted into CO<sub>2</sub> emissions.

8.3. Commentary:

8.3.1. *Annual progress:* Carbon from this sector decreased by 8t (14%) compared with 2009/10. Carbon emissions associated with Civic Centre waste management alone decreased by 10t (18%). In 2010/11, 76% of Civic Centre waste was recycled compared with 73% in 2009/10. Carbon emissions associated with Civic Centre water management increase by 1.5t.

8.3.2. *Progress against baseline:* Carbon emissions from this sector decreased by 56t (54%) compared with 2006/07 baseline data.

**Waste emissions** have decreased by 53t (55%) from 97t (2006/07) to 44t (2010/11). In 2010/11, 76% of Civic Centre waste was recycled; this compares to 51% in 2006/07. This achievement is due to a number of ongoing initiatives including:

- Environmental Champions Network: staff encouraging their colleagues to 'waste less and recycle more'. The Champions have a Handbook (including information on recycling and waste avoidance) and access to a dedicated website (including a discussion forum).
- Dedicated website on the staff intranet explaining what can be recycled and where. This was necessary for the relaunch of the in-house recycling scheme.
- Ongoing in-house recycling scheme: expanded to include green bins in centralised kitchens areas for glass, plastics and cans and also containers for batteries.
- Compost bins have been sited at the Civic Centre to allow staff to compost putrescible material (e.g. tea bags etc)
- Tidy Friday & Clutter Free Friday events to encourage staff to identify what materials they no longer need and to make these items available for reuse (by other teams) or recycling.

**Water emissions** decreased by 5t (65%) from 7t (2006/07 baseline) to 2.5t (2009/10). This reduced consumption may be ascribed to a meter change, leakage control, and conservation measures. The Council also has had 'Aquafund' reporting since August 2008 (e.g. monthly benchmarking/validation reports).

## 9. Future Challenges and Targets

9.1. Despite this positive environmental financial and environmental outcome, the Council is not complacent and has identified where it needs to take further action to ensure continued progress is made. The foundation of this plan is the five-year Carbon Management Programme<sup>6</sup> which aims to reduce the Council's carbon footprint, by 25% over five years, through a range of initiatives (see Executive Report, October 2008, ED08067). These actions will help to mitigate our climate impacts and reduce revenue costs and is reported annually to the Executive.

9.2. In addition to this, the Carbon Reduction Commitment (CRC) scheme requires large organisations, like Bromley Council, to report annually on their carbon footprints and to buy allowances retrospectively for every tonne of carbon dioxide emitted. For Bromley our emissions relate to

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<sup>6</sup> During 2007/08, the council's Sustainability Team led a cross-departmental initiative (in partnership with the Carbon Trust's *Local Authority Carbon Management Programme*) to develop a five-year Strategy and Implementation Plan (SIP) to tackle emissions from the council estate (and schools and Mytime properties). The SIP included a set of action plans outlining both technical and behavioural measures to be implemented over five years with a view to reducing the council's carbon footprint by 25%.



property and schools (also see Executive Report ES10189 Carbon Reduction Commitment - January 2011). Naturally, the less carbon the Council emits, the lower will be the cost of purchasing the carbon allowances. There will also be an annual published performance league table. Sustained progress on the Carbon Management Programme should benefit the Council's compliance with, and performance under, the CRC scheme.

- 9.3. The Carbon Reduction Commitment scheme is solely geared towards emissions from buildings (including schools). A key challenge going forward is to reignite momentum in harder-to-target areas, such as commuting, business travel, and fleet emissions.
- 9.4. It is also worth noting that other 'Scope 3' emissions (from our procurement of services and goods) may also be targeted in the future and carbon reporting (as part of Financial Reporting) in the business sector and central government is fast becoming the norm. Bromley Council has included a sustainability section in its 2010/11 Annual Finance Report for the first time in line with best practice.

London Borough of Bromley: Environmental Services Department  
2010/11 Carbon Footprint Report



Table 3: 2010/11 Progress (against 2006/07 baseline and previous reporting years)

Sector	2006/07 (tCO <sub>2</sub> e)	2007/08 (tCO <sub>2</sub> e)	2008/09 (tCO <sub>2</sub> e)	2009/10 (tCO <sub>2</sub> e)	2010/11 (tCO <sub>2</sub> e)	2010/11 Progress Against Baseline		2010/11 Annual Progress (against 2009/10)	
	Baseline Year	Preparatory Year	First Year	Second Year	Third Year	Tonnage Change	Percentage Change	Tonnage Change	Percentage Change
Buildings	28,610	29,260	28,329	23,186	23,648	-4,962	-17%	462	2%
<i>Buildings – Council</i>	5,688	5,275	5,317	4,887	5,150	-538	-9%	263	5%
<i>Buildings – Schools</i>	17,216	18,160	18,049	14,025	14,486	-2,730	-16%	461	3%
<i>Buildings – Mytime</i>	5,706	5,825	4,963	4,274	4,011	-1,695	-30%	-263	-6%
Fleet / Business Travel	1,001	997	971	1,042	991	-10	-1%	-51	-5%
Street Lighting	5,791	5,908	5,729	5,841	5,769	-22	-0.4%	-72	-1%
Waste/Water	104	97	56	56	48	-56	-54%	-8	-14%
Commuting	2,274	2,002	2,002	2,189	2,189	-85	-4%	0	0%
<b>TOTAL</b>	<b>37,780</b>	<b>38,264</b>	<b>37,087</b>	<b>32,314</b>	<b>32,645</b>	<b>-5,135</b>	<b>-14%</b>	<b>331</b>	<b>1%</b>

Table 4: Summary of greenhouse gas emissions from local authority own estate and operations (successor to National Indicator 185)

	GHG emissions 2009/10 (tCO <sub>2</sub> e)	GHG emissions 2010/11 (tCO <sub>2</sub> e)
<b>Scope 1</b>		
Gas consumption	11,707	12,336
Owned transport (Green fleet)	447	441
Process emissions	not calculated	not calculated
Fugitive emissions	not calculated	not calculated
<b>Total scope 1</b>	<b>12,154</b>	<b>12,777</b>
<b>Scope 2</b>		
Purchased electricity (inc. Street Lighting)	17,320	17,081
<b>Total scope 2</b>	<b>17,320</b>	<b>17,081</b>
<b>Significant Scope 3</b>		
Business travel (Grey fleet)	595	550
Employee commuting	2,189	2,189
Waste Disposal (Civic Centre only)	54	44
Water (Civic Centre only)	2	4
Product in use	not calculated	not calculated
<b>Total significant scope 3</b>	<b>2,840</b>	<b>2,787</b>
<b>TOTAL</b>	<b>32,314</b>	<b>32,645</b>