

## **MAIDSTONE BOROUGH COUNCIL**

### **RECORD OF DECISION OF THE CABINET MEMBER FOR ENVIRONMENT (POST)**

Decision Made: 11 February 2011

#### **CARBON FOOTPRINT 2009/10**

##### **Issue for Decision**

To consider the Council's carbon footprint for 2009/10 and its progress towards achieving the carbon reduction targets adopted in November 2008 and to consider actions to further reduce our carbon emissions.

##### **Decision Made**

1. That the development of a Carbon Management Plan, in conjunction with the Carbon Trust, be agreed.
2. That the reported figures for CO<sub>2</sub> emissions from the Council's operations during 2009/10 which indicate a 9.97% reduction from 2008/09 be noted.
2. That the reasons behind the large reduction in emissions seen and also the likely increase in emissions from Maidstone Leisure Centre following a full resumption of services in 2010/11 be noted.
3. That the emissions for 2009/10 are 3.73% below the designated target for the year be noted.

##### **Reasons for Decision**

##### **BACKGROUND**

The report of the Head of Housing and Community Safety presents the Council's carbon footprint for 2009/10 and compares it against the carbon footprint for 2008/09 and details progress against the Council's annual carbon reduction targets.

In August 2009 the Council's carbon footprint for 2008/09 indicated that the CO<sub>2</sub> emissions from the Council's operations had increased by 3.48% from the previous year but that an overall 10.16% decrease since the baseline year of 2006/07 had been achieved.

In January 2010 the carbon footprint for the Council, at the mid-year point in 2009/10 was presented, which indicated that the CO<sub>2</sub> emissions

from the Council's operations over the first half of 2009/10 were 2.34% lower than in the equivalent period in 2008/09.

### CHANGES TO REPORTING PROCEDURES

In November 2008 Cabinet agreed a set of carbon reduction targets for the Council in relation to its internal carbon footprint. It was agreed that the Council would reduce its emissions below the 2006/07 baseline by 20% by 2015/16 and 30% by 2020/21. Furthermore interim annual targets of a 3% reduction year on year were agreed to help achieve these longer term targets.

In terms of monitoring against these targets all previously reported carbon footprints for the Council have been reported as 'weather corrected' emissions. This is where the CO<sub>2</sub> emission from the usage of natural gas is corrected to take into account the weather over the period of the analysis. This is known as the number of 'degree days' experienced, in relation to an average value.

The spreadsheets include the weather corrected emissions function as they have a value to local authorities in helping to understand the factors that might be influencing their emissions data. However, since the last carbon footprint reports were agreed, the national NI 185 dataset was released by the Department of Energy and Climate Change (DECC) for 2008/09, the NI 185 reporting baseline year. The emissions published are absolute emissions and not weather corrected emissions for the following reasons:-

- a) The UK as a whole is assessed on its absolute emissions under the Kyoto Protocol so absolute emissions are the preferred standard;
- b) Weather corrected emissions are not all encompassing, other factors effecting CO<sub>2</sub> emissions, such as the price of fuel, are not included in the spreadsheet;
- c) The calculation used to calculate weather corrected emission is too simple to base any significant reporting on;
- d) Calculation does not take into account heat island effects associated with specific infrastructure at a sub-regional spatial level<sup>1</sup>; and,

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<sup>1</sup> Urban areas (and specific pieces of infrastructure are often subject to heat island effects, which is when these areas are warmer than surrounding rural / less developed areas. This temperature difference is due to modification of the land surface by urban development which retains more heat and reduced the amount of evapotranspiration that occurs (due to less vegetation) that acts to lower the temperature in rural areas where vegetation is more abundant. The presence of heat islands can affect the amount of energy used to heat a building in its vicinity. As the degree data used in the spreadsheet is based around a regional spatial level (i.e. we would use data for the south-east), any heat island effects that occur at a spatial level smaller than this will not be taken into account. As the use of weather corrected emissions attempts to take into account the weather experienced over the time period of the data (and factors the emissions from gas usage accordingly), as the effects of heat islands at a sub-regional spatial level are not considered, the correction is not considered to be robust.

- e) The calculation does not take into account the specifics of an estate e.g. whether a building is insulated or not, and this will also influence the effect of temperature.

As a result of this, it is felt that it would be prudent to emulate the stance taken by DECC, and base our reporting mechanisms on absolute emissions, rather than weather corrected emissions which can be misleading.

As such, from this point forward, as set out in the report of the Head of Housing and Community Safety, the absolute CO<sub>2</sub> emissions will be reported and the previous carbon footprints will be presented in absolute emissions for comparison. The 'weather corrected' emissions can be found in Appendix A of the report of the Head of Housing and Community Safety.

### THE COUNCIL'S CARBON FOOTPRINT

The following carbon footprint data has been calculated using the latest NI 185 spreadsheet toolkit (provided by DECC) and has been calculated in-line with the National Indicator 185 methodology. However, at present the DECC website is asking local authorities to hold this information until further details are released with respect to this indicator. As Maidstone has an internal commitment to monitor their footprint, the latest spreadsheet has been used to calculate the carbon footprint for 2009/10.

As discussed above, the carbon emissions presented below, are presented as absolute carbon emissions. The weather corrected emissions can be found in Appendix A. The footprint for 2008/09 is also shown for comparison, and is also presented in absolute emissions format (therefore the footprint will be different from that reported in November 2008). In addition to this, since the 2008/09 footprint was published, more accurate information has been collected with respect to the gas emissions from Maidstone House, which has slightly amended the emissions.

Table 1: Absolute Carbon Emissions (tonnes)

CO <sub>2</sub> Emissions (tonnes)	Absolute Annual Emissions		Comparison	
	2008/09	2009/10	Change	% Change
<b>Buildings</b>				
<i>Examples:</i>				
<i>Mote Park Leisure Centre Gas</i>	1,033.44	712.00	-321.44	-31.10%
<i>Mote Park Leisure Centre Electricity</i>	184.87	248.51	63.63	34.42%
<i>Hazlitt Theatre Gas</i>	104.33	89.50	-14.82	-14.21%
<i>Hazlitt Theatre Electricity</i>	118.24	118.18	-0.06	-0.05%
<i>Maidstone Museum Gas</i>	73.23	79.62	6.39	8.73%
<i>Maidstone Museum Electricity</i>	82.99	83.51	0.52	0.63%
<i>Public Conveniences Electricity</i>	59.49	56.90	-2.58	-4.34%
<i>Main Offices Gas</i>	82.08	75.02	-7.05	-8.60%
<i>Main Offices Electricity</i>	561.33	634.75	73.43	13.08%

Total Emissions from electricity use	2,244.01	2,179.53	-64.48	-2.87%
Total Emissions from fossil fuel (gas and oil) consumption	1,560.35	1,190.65	-369.70	-23.69%
<b>Total Emissions from buildings</b>	<b>3,804.35</b>	<b>3,370.18</b>	<b>-434.17</b>	<b>-11.41%</b>

Vehicles				
<i>Examples:</i>				
<i>Waste Collection Service</i>	1,092.71	927.73	-164.98	-15.10%
<i>Maidstone Borough Services</i>	499.96	483.06	-16.90	-3.38%
<i>Pool Cars</i>	3.66	3.60	-0.06	-1.51%
<i>Casual, Essential and Lease Car users</i>	60.35	67.88	7.53	12.48%
Total Emissions from service vehicle fleet	1,956.78	1,799.13	-157.65	-8.06%
Total Emissions from business travel	67.05	77.80	10.76	16.04%
<b>Total Emissions from vehicles</b>	<b>2,023.82</b>	<b>1,876.93</b>	<b>-146.89</b>	<b>-7.26%</b>

<b>Total Emissions</b>	<b>5,828.18</b>	<b>5,247.11</b>	<b>-581.06</b>	<b>-9.97%</b>
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Table 1 above compares the carbon footprint for 2009/10 with that for 2008/09. It can be seen that the carbon footprint for 2009/10 was 5,247 tonnes of CO<sub>2</sub> compared to a carbon footprint of 5,828 tonnes of CO<sub>2</sub> for 2008/09. This equates to a 9.97% reduction in the carbon footprint for Maidstone Borough Council over this time. In terms of electricity usage, the carbon footprint for 2009/10 was 2,179 tonnes of CO<sub>2</sub>, a 2.87% reduction on 2008/09, and the footprint from fossil fuel (gas and oil) usage was 1,191 tonnes CO<sub>2</sub>, a 23.69% reduction on 2008/09. In terms of vehicles, the carbon footprint of the service vehicle fleet was 1,799 tonnes of CO<sub>2</sub>, an 8.06% reduction on 2008/09, and the footprint from business travel was 78 tonnes of CO<sub>2</sub>, a 16% increase on 2008/09.

In terms of the carbon footprint for 2009/10, 64% of the emissions came from buildings, and the remaining 36% were emissions from vehicles.

## BUILDINGS

Overall, emissions from buildings fell by 11.41% between 2008/09 and 2009/10. In 2009/10 emissions from electricity usage reduced by 2.87% and emissions from fossil fuel (gas and oil) consumption reduced by 23.69%.

Of the emissions created from buildings, 65% of these were generated through the consumption of electricity, and 35% were from the consumption of oil and natural gas. Maidstone Leisure Centre accounted for 40% of the buildings' emissions and Maidstone House and Maidstone Gateway together accounted for 21% of the buildings emissions.

The buildings highlighted in the table below were the highest contributors to the building consumption figures for 2009/10.

Table 2:

<b>Building</b>	<b>Total Emissions CO<sub>2</sub> (tonnes) 2008/09</b>	<b>Total Emissions CO<sub>2</sub> (tonnes) 2009/10</b>	<b>% change 2008/09 to 2009/10</b>	<b>% of emissions from buildings for 2009/10</b>	<b>% of total emissions for 2009/10</b>
Mote Park Leisure Centre	1689.47	1336.29	-20.90%	39.65%	26.11%
Maidstone House and Gateway	643.403	709.77	10.31%	21.06%	13.87%
Hazlitt Arts Centre	222.569	207.68	-6.69%	6.16%	4.06%
Vinters Park Crematorium	170.35	164.88	-3.21%	4.89%	3.22%
Maidstone Museum	156.224	163.17	4.45%	4.84%	3.19%
King Street Car Park	147.404	141.01	-4.34%	4.18%	2.76%

The major reason that such a decrease in emissions from buildings was seen in 2009/10 was due to an overall decrease of 20.90% in emissions from Mote Park Leisure centre. This was due to a major refurbishment which resulted in the centre operating a much reduced service during parts of 2009/10. Overall for Mote Park Leisure centre, emissions from fossil fuel usage decreased by 31.10%, emissions from Combined Heat and Power (CHP) generated electricity decreased by 20.2% and emissions from grid electricity increased by 34.42%.

Should the emissions from Mote Park Leisure Centre, have remained the same as 2008/09, the carbon footprint for 2009/10 would have been 5,600 tonnes, which equates to a 3.91% reduction from 2008/09 as opposed to the 9.97% reduction reported. In this scenario the emissions from buildings would have reduced by 2.13% as opposed to the reported 11.41% reduction.

In terms of Maidstone House and the Gateway, the overall emissions have increased by 10.31%. Looking further into this, the emissions arising from electricity consumption at the Gateway increased by 87.1% which is due to that fact that the Gateway was only fully operational for three months of the 2008/09 footprint, and was operational for all of 2009/10. In terms of Maidstone House, the emissions rising from the consumption of electricity increased by 3.7%. The footprint in 2008/09 was based on approximately nine months of occupation, and a large number of problems were experienced in controlling the lighting and air conditioning. Maidstone House was fully operational for the whole of 2009/10, and the lighting and air conditioning problems were rectified, and an increase in emissions of only 3.7% shows a marked improvement in control over the building energy consumption. Furthermore, the gas usage at Maidstone House and the Gateway fell by 8.6% due to an increased level of control over the heating system. It is hoped that this will decrease markedly in

2010/11, with the recommissioning of the biomass boiler, which was essentially non-operational for the majority of 2009/10.

Other notable features of the carbon footprint of various buildings are below:-

- The emissions arising from electricity consumption at Cobtree Golf Club decreased by 16.5% (equates to 1.76% of total footprint);
- The natural gas consumption at the Hazlitt Theatre fell by 14.2% (equates to 1.71% of total footprint); and,
- The natural gas consumption at Lockmeadow Market increased by 56.3% (equates to 0.43% of total footprint).

## VEHICLES

Overall, the emissions from vehicles fell by 7.26% between 2008/09 and 2009/10. In 2009/10 the emissions created by the service fleet reduced by 8.06% and those from the business fleet increased by 16.04%.

Of all the vehicle emissions, 96% were generated by the service fleet which includes the waste collection services and Maidstone Borough Council depot fleet, with the remaining 4% generated through business travel.

The reason for the increase in emissions from the business fleet is generally unknown, but may be a result of the current economic climate, and employees being more diligent with their mileage claims.

The emissions reduction from the service fleet was in part due to the reduction of emissions by the waste collection service by 15.10% and a reduction of 5.09% in the emissions from the Maidstone Borough Council fleet.

## PERFORMANCE AGAINST TARGETS

In November 2008 Cabinet set an annual target of a 3% reduction in carbon emissions, with the aim of achieving a 20% reduction by 2016 and 30% by 2021.

Further to the changes to reporting as outlined above, the baseline data has been revised to show the targets based on absolute emissions. Table 3 below shows the targets, based on a 3% reduction from the baseline, compared to actual emissions.

Table 3: CO<sub>2</sub> emissions compared to target emissions

Year	Tonnes of CO <sub>2</sub> (absolute emissions)	
	Target	Actual
2006 / 07 (baseline)	5972	5972
2007 / 08	5793	5478
2008 / 09	5619	5825
2009 / 10	5450	5247

Figure 1: Total CO<sub>2</sub> emissions since baseline year vs Target Emissions

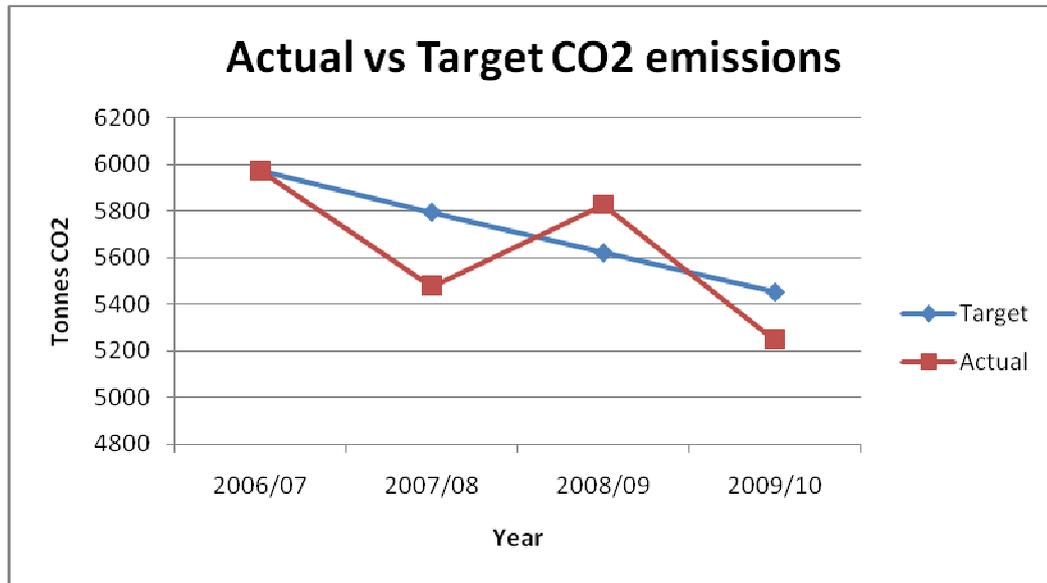
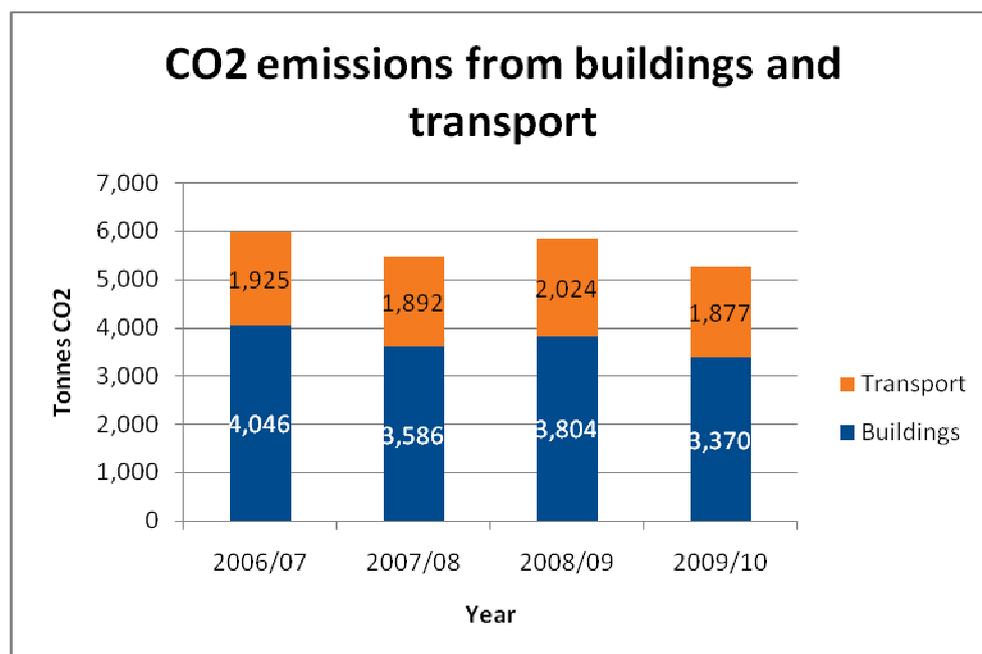


Figure 2: Total CO<sub>2</sub> emissions from buildings and transport



It can be seen that the increase in emissions experienced in 2008/09, which meant that we did not meet the target for that year, has been reversed, and the 9.97% reduction in emissions experienced means that the emissions for 2009/10 are 3.73% below the designated target for this year.

Therefore at present the council is ahead of target with respect to achieving the 20% and 30% targets by 2016 and 2021 respectively.

It should be noted that a large part of the reduction in emissions is down to the refurbishment at Mote Park Leisure Centre and the major reduction in emissions seen in its footprint for 2009/10 as a result of this, which will not be replicated in the footprint for 2010/11 when the building is fully operational again.

In section 1.3.18 the emissions were re-calculated using the figures for Mote Park Leisure Centre for 2008/09 when it was operational for the full year. Under this scenario, the carbon footprint for 2009/10 would have been 5600 tonnes of CO<sub>2</sub>, and although an improvement in the emissions would have been experienced, the target for 2009/10 would have been missed.

As such, it is important that the emissions reduction momentum that has been generated during 2009/10 is carried forward into 2010/11, to ensure that the emissions targets are met into the future. It is hoped that the Council's participation on the Carbon Trust Local Authority Carbon Management Programme (see below) will help to provide a structured plan to ensure that these targets are met into the future.

#### CARBON TRUST – LOCAL AUTHORITY CARBON MANAGEMENT (LACM) PROGRAMME

Maidstone Borough Council is currently participating in the Local Authority Carbon Management (LACM) Programme (Phase 8), run by the Carbon Trust, which provides technical and change management support to help Local Authorities realise carbon emissions savings from the services they provide. The result of the council's participation on this programme will be the development of a Carbon Management Plan, which will detail the activities that will be carried out over the next 5 years, to ensure that carbon reduction targets are met and carbon management is embedded into the organisation.

The council has signed up to be part of this programme as it was felt that although good work was being undertaken to ensure that the carbon reduction targets were met, a more formal approach looking over a 5 year period was needed to ensure that these targets were met, and to enable longer term projects to be structured into reaching the targets. It is intended that the Carbon Management Plan will be signed off by Cabinet by the end of March 2011.

#### DATA LIMITATIONS

The limitations of using the collected data to establish a carbon footprint have been explained in previous reports. It should be re-iterated however that much of the data used in the report of the Head of Housing and Community Safety has not been recorded for the specific purpose of compiling a carbon footprint and in some limited cases data has had to be estimated.

## **Alternatives considered and why rejected**

The Council could decide not to develop a Carbon Management Plan in conjunction with the Carbon Trust. However such an approach would make achievement of the Council's targets for carbon reduction very unlikely.

## **Background Papers**

Record of Decision of the Cabinet Member for Environment, dated 15th January 2010, "Quarter 1 & 2 Carbon report 2009/10".

Record of Decision of the Cabinet, dated 12th August 2009, "Carbon Footprint 2008/09".

Record of Decision of the Cabinet, dated 11th February 2009, "Review of the Environmental Sustainability of the Waste Collection Service".

Record of Decision of the Cabinet, dated 12th November 2008, "Reducing The Council's Carbon Footprint".

<p>Should you be concerned about this decision and wish to call it in, please submit a call in form signed by any two Non-Executive Members to the Head of Change and Scrutiny by: <b>18 February 2011</b></p>
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