

West Dunbartonshire Council
Carbon Management Programme

Carbon Management Plan (CMP)



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Foreword from West Dunbartonshire Council

West Dunbartonshire Council is committed to tackling climate change and ensuring environmental sustainability becomes a priority for the authority, both as a service provider and figurehead employer in this area. Working in partnership with the Carbon Trust we have produced a Plan that combines technical and strategic projects to mobilise the organisation as we take steps to achieving a significant reduction in carbon emissions.

This Plan is the result of cross-departmental action to identify opportunities to reduce consumption in energy, water, and fuel, minimise waste production, and to embed carbon management as a fundamental part of working life in West Dunbartonshire Council.

Throughout the implementation of this Plan; new and innovative measures to further reduce carbon emissions will be considered with the long term goal of achieving the Scottish Government target of an 80% reduction in emissions by 2050. This Plan will affect real and positive change throughout the organisation and has the potential to offer considerable financial savings to West Dunbartonshire Council while minimising our impact on climate change.

David McMillan
Chief Executive, West Dunbartonshire Council

Foreword from the Carbon Trust

Cutting carbon emissions as part of the fight against climate change should be a key priority for local authorities - it's all about getting your own house in order and leading by example. The UK government has identified the public sector as key to delivering carbon reduction across the UK inline with its Kyoto commitments and the Public Sector Carbon Management programme is designed in response to this. It assists organisations in saving money on energy and putting it to good use in other areas, whilst making a positive contribution to the environment by lowering their carbon emissions.

West Dunbartonshire Council was selected in 2008, amidst strong competition, to take part in this ambitious programme. West Dunbartonshire Council partnered with the Carbon Trust on this programme in order to realise vast carbon and cost savings. This Carbon Management Plan commits the organisation to a target of reducing CO₂ by one third by 2015 and underpins potential financial savings to the organisation of around £5.3 million.

There are those that can and those that do. Public sector organisations can contribute significantly to reducing CO₂ emissions. The Carbon Trust is very proud to support West Dunbartonshire Council in their ongoing implementation of carbon management.

Richard Rugg
Head of Public Sector, Carbon Trust

Management Summary

West Dunbartonshire Council is committed to addressing the causes and effect of climate change, recognising the significant impact climate change is having and will continue to have on the sustainable development of the local area, and across the globe.

The Council has pledged to reduce carbon emissions through Scotland's Climate Change Declaration and in the Single Outcome Agreement. The Carbon Management Programme will facilitate progress to reduce emissions by identifying the carbon baseline and opportunities to reduce emissions.

The Programme identified the Council's carbon baseline in 2006/07 and has set a target to reduce emissions by one third by 2014/2015 – a reduction of 12,026 tonnes of CO₂.

A number of carbon reduction opportunities have been identified to move the authority to a low-carbon future; these cover efficiencies in energy and water consumption, waste management, the Council's transport fleet, and business travel and commuting. Opportunities to develop a more strategic approach to carbon management have also been identified to embed the responsibility for carbon management throughout the whole organisation, including awareness-raising and integrating carbon budgeting into the service planning process and Committee reports.

It is accepted that price increases in energy, fuel and waste disposal will continue to rise placing an ever-increasing burden on local authority budgets. However, realising a one third reduction in carbon emissions has the potential to save the Council up to £5.4 million on the projected cost of energy, fuel and waste disposal by 2015.

This Plan should be seen as the start of a process of mobilisation – consolidating existing policy and initiatives which reduce emissions and implementing new and innovative projects over the next six years to achieve a one third reduction in carbon emissions.

1. Introduction

- 1.1 The Carbon Trust Local Authority Carbon Management (CM) programme was launched in 2003 and guides local authorities through a step-by-step process to realise a reduction in carbon emissions.
- 1.2 West Dunbartonshire Council (WDC) launched the programme in April 2008 and this Carbon Management Plan documents the work that has been undertaken to date and outlines plans for the future to reduce carbon emissions.
- 1.3 The programme complements a number of projects and policies already underway in West Dunbartonshire Council, including energy efficiency projects, the Internal Waste Prevention Plan, the Green Travel Plan, and the Sustainable Development Strategy. The CM programme looks to review existing projects and policies, establish links, and consolidate action to reduce our emissions.
- 1.4 The programme is coordinated by a Project Leader, under the supervision of the Project Sponsor. A Project Team was set up to establish a baseline of carbon emissions and identify carbon reduction opportunities. The work of this group and the strategic direction of the programme is overseen by a Programme Board.
- 1.5 The Council's carbon baseline has been established and a target has been agreed to reduce emissions by one third by 2015. This Plan provides detail on the make-up of the baseline and the opportunities which have been identified to reduce emissions. The Plan looks at the value-at-stake, both in terms of emissions and finances, if steps are not taken to implement the opportunities identified, illustrating the potential savings the Council can achieve by implementing a successful CM programme.

2. Carbon Management Strategy

2.1 Context and drivers for Carbon Management

2.1.1 There are a number of global, national, and local drivers which set the scene and provide the impetus for carbon management. Climate change is widely recognised as the most serious environmental threat facing our planet. Emissions of greenhouse gases (GHGs) from the burning of fossil fuels are having an impact on the climate of the planet. By the end of this century Scotland will have warmer, wetter winters, less snowfall and an increased risk of flooding.

It is now widely acknowledged that the change in our climate is as a result of human activity and as a result the Kyoto Protocol was agreed in 1997, which sets targets for developed countries to reduce emissions. The UN Climate Change Conference is due to take place in Copenhagen in December 2009 where it is hoped countries will agree on the main points of a new deal to follow the Kyoto Protocol, which expires in 2012.

2.1.2 Further evidence of governmental action on this issue was seen with the launch of Scotland's Climate Change Declaration in January 2007. WDC has made a commitment to the Declaration which requires a reduction in the Council's direct GHG emissions as well as encouraging best practice in the wider community. The Declaration also commits WDC to ensuring we build climate change adaptation measures into policy. Further to this, the Scottish Government has just completed a consultation on climate change adaptation seeking views on how best to deal with the impacts of climate change.

2.1.3 The Climate Change (Scotland) Act came into force on 4th August 2009. The Act sets the statutory framework for greenhouse gas emissions reduction with a target to reduce emissions by 80% by 2050 (and an interim target to achieve a 42% reduction by 2020). The Act also places duties on public bodies relating to climate change which will impact on the work of WDC. The duties on the face of the Act require that a public body must, in exercising its functions, act:

- in the way best calculated to contribute to delivery of the Act's emissions reduction targets;
- in the way best calculated to deliver any statutory adaptation programme; and
- in a way that it considers most sustainable.

2.1.4 The UK and Scottish governments have introduced two initiatives with the aim of delivering emissions reductions totalling 0.5 million tonnes of carbon (MtC) per year by 2015. Public bodies are required to produce Energy Performance Certificates for all buildings which have floor space of over 1000 m² measuring the energy efficiency of the building. The performance of the building is benchmarked against current building standards and recommended cost effective improvements.

Further to this, the Carbon Reduction Commitment (CRC) comes into force in 2010. The CRC is a new mandatory emission trading scheme with the aim of reducing the amount of carbon dioxide emitted in the UK. Under this scheme, organisations have to purchase 'allowances' for every tonne of carbon they emit. An initial estimate of the annual cost to the Council of this scheme is around £233,000. Revenue from the sale of allowances is 'recycled' back to participants as an incentive to reduce emissions - this recycling payment is based on the progress an organisation makes in reducing its carbon emissions. The Council could be liable to pay more if we do not sufficiently reduce emissions once the scheme is introduced.

- 2.1.5 There are a number of internal driving factors which further illustrate the importance of carbon management, including commitments in the SOA and Corporate Plans to reducing GHG emissions. A number of internal policies and initiatives also complement the carbon management agenda and are enhanced by it, including the Sustainable Development Strategy, Green Travel Plan, Sustainable Procurement Policy, EcoSchools, Travelling Green, Internal Waste Prevention Plan, and energy efficiency Projects. There is also a drive for efficiency savings throughout the organisation which carbon management can contribute to.

2.2 Low carbon vision

The vision for this project is to:

- Significantly reduce West Dunbartonshire Council's climate impact through a strategic approach to carbon management and commitment to investigating renewable energy opportunities and low-carbon alternatives.

2.3 Strategic themes

The strategic themes for this project are to:

- Identify opportunities for emissions reductions in energy and water consumption, waste production, and transportation
- Ensure continued investment in efficiency in these areas and seek out innovative efficiency measures with a view to an ongoing reduction in emissions
- Integrate carbon management into the daily working life of all employees
- Raise the environmental profile of the organisation locally through leading by example and encouraging our partners and the community to make changes to reduce carbon emissions

- Maintain senior management and elected member commitment to this project as part of the response to climate change

2.4 Targets and objectives

The objectives for this project are to:

- Reduce CO₂ emissions by one third by 2015 (from a baseline year of 2006/07)
- Encourage workforce involvement in the identification of opportunities and the implementation of action
- Bring together existing and future carbon management projects into a consistently managed and coherent programme by March 2010
- Identify funding streams for carbon reduction projects
- Monitor progress and report annually

This Plan supports the long-term aim to meet the Scottish Government target of an 80% reduction in emissions by 2050.

3. Emissions Baseline and Projections

3.1 Scope

3.1.1 Establishing a carbon baseline is essential to the successful implementation of this project as it enables progress against the reduction target to be monitored. Data on the following sources of emissions were collated in establishing the carbon baseline:

- Buildings – energy (electricity, gas, oil) and water consumption of all Council-owned properties excluding rented housing stock and leased non-operational properties
- Street Lighting
- Close Lighting
- Waste Disposal – all waste produced at Council-owned properties/operations excluding rented housing stock and leased non-operational properties
- Transport Fleet
- Business Travel
- Commuting

3.2 Baseline

3.2.1 As far as possible, data from 2006/07 was used to establish the baseline – where this was not available, data from 2007/08 was used. Data was sourced directly from the relevant services.

3.2.2 In terms of the quality of the data some assumptions were made in the following areas:

- Business Travel – the only readily available data was on business travel by car. As such we have not included travel by other means, ie. public transport, airplane. However, the majority of business travel is made by car so this figure is still a reasonable representation of emissions in this area.
- Waste – some assumptions were made on the volume of waste disposed of, ie. how full a bin is upon collection. However, this is unlikely to have significantly affected the results used for the baseline.
- Commuting – the data for commuting was based on a sample of approx. 20% of employees

- Street Lighting – street lighting is based on an annual estimate of usage as agreed with the electricity supplier, rather than based on precise/metered usage.

Energy represents the most significant proportion of the baseline – this data represents actual consumption as it is based on metered consumption.

3.2.3 This data has been collated and a summary of the baseline is shown below (Figures 1,2,3). For the remainder of this report, unless stated otherwise, figures for ‘energy’ include electricity, gas and oil consumption in Council properties (as listed in 3.1.1), close and street lighting; and ‘transport’ includes fleet travel, business travel and commuting.

Figure 1

Source	CO2 Emissions (tonnes)	Cost of Emissions (£)
Energy	29,018	3,414,890
Transport	3,364	1,229,267
Waste/Water	1,889	551,442
Total	34,271	5,195,599

Figure 2

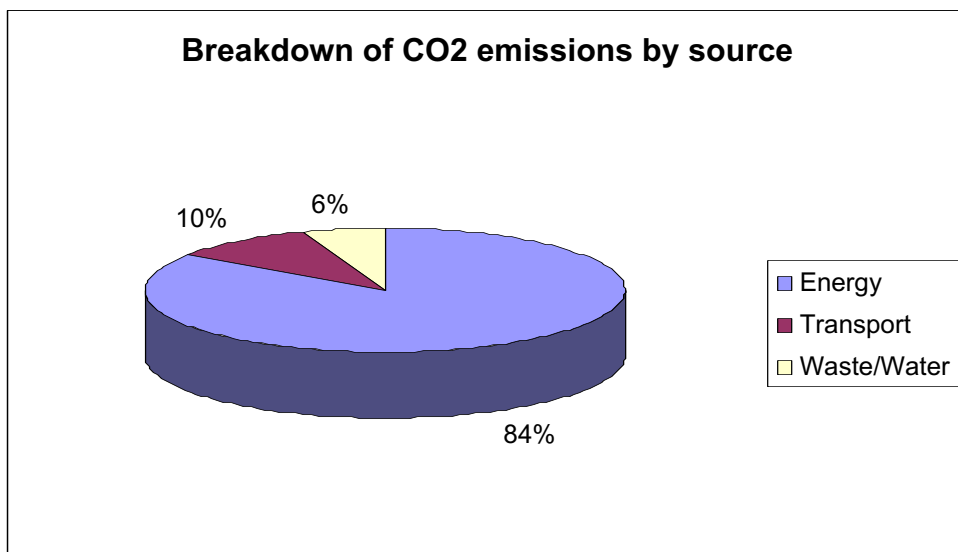
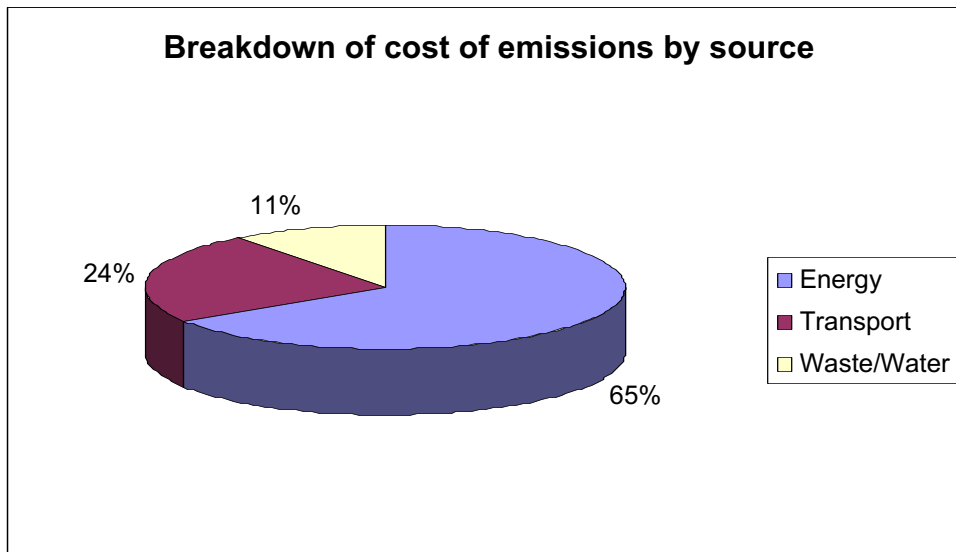


Figure 3



3.2.4 As expected, the majority of emissions come from energy consumption – 84% at a cost of over £3.4 million in 2006/07. In terms of energy use by building, schools and leisure centres use the greatest amount of energy due to the nature of use of these types of buildings. West Dunbartonshire Council buildings operate on three types of fuel – electricity, gas and oil. Electricity accounts for 57% of the total energy cost, gas 20%, and oil 23%. This document will go on to highlight the financial impact of increasing energy costs.

3.2.5 Emissions from transport represented 10% of the baseline and waste and water, 6%. In terms of transport, 83% of the emissions and cost are represented by the Council's fleet of vehicles, the remainder is business travel or 'grey fleet' where employees travel in their own car for work-related purposes, and commuting (the cost of which the Council is not accountable for). While water produces a relatively low level of emissions, the cost to the Council should be highlighted as being high in comparison – over £400,000 in 2006/07.

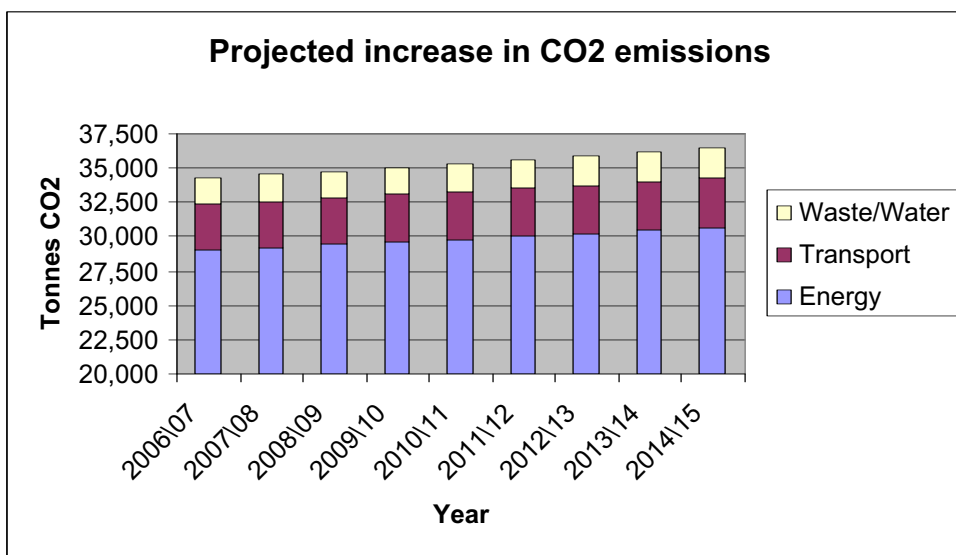
3.3 Projections – CO₂

3.3.1 Based on the data in the baseline, emissions in 2006/07 were around 34,270 tonnes of CO₂. If no action is taken to reduce emissions, we can assume consumption will increase a little each year based on increased demand on services. Consumption may also see steep jumps (or drops) as a result of certain projects or major changes in terms of the Council's physical assets or even organisational change.

3.3.2 Based on a conservative estimate of a 0.7% increase in demand on energy, water and transport each year, and an estimate of 2% annual waste growth,

emissions could potentially increase to 36,443 tonnes by 2014/15 as represented in Figure 4, below.

Figure 4



This would increase the Council's negative impact on the environment, locally and globally, and also has financial implications in terms of the Carbon Reduction Commitment (see Section 2) and progress on Scotland's Climate Change Declaration. The Council would fail to meet targets to reduce the carbon footprint as an authority and community, and would also be failing in commitments to lead by example in reducing climate impact.

3.4 Value at Stake – CO₂

3.4.1 If the Council successfully implements the CM Plan and achieves the one third reduction target by 2014/15, emissions would have fallen to 24,417 – a reduction of 12,026 tonnes against what emissions would be without any action. This can also be described as the 'value at stake' or the carbon impact of not taking steps to reduce emissions.

3.5 Progress – CO₂

3.5.1 Emissions data has been calculated for 2007/08 and 2008/09 based on actual consumption in these years. This is illustrated in the table below (Figure 5), showing a 3% reduction in emissions from energy from the baseline year (2006/07) to 2008/09. This positive trend can also be seen in a reduction in emissions from waste by 3%, and from commuting. However, emissions from business-related travel have increased by 9% and for the Council's fleet of vehicles by 2%.

Overall, there has been a 3% drop in emissions from 2006/07 – 2008/09. While this is promising, the pace of change must improve significantly in order to meet the 2014/15 target of a one third reduction. This equates to annual reductions of 4-5% from 2009/10 onwards.

Figure 5

	2006\07	2007\08	2008\09	Change
Electricity	15,911	18,187	15,846	0%
Gas	7,264	6,752	7,108	-2%
Oil	5,842	5,574	5,131	-12%
Energy Total	29,018	30,513	28,085	-3%
Fleet	2,725	2,725	2,776	2%
Business Travel	608	608	663	9%
Commuting	31	31	25	-19%
Water	84	84	86	2%
Waste	1,804	1,804	1,757	-3%
TOTAL	34,270	35,766	33,392	-3%

3.6 Projections – £

3.6.1 The total 'cost' of CO₂ emissions in 2006/07 is estimated at almost £5.2 million (£5,195,598). This represents the cost of the following commodities:

- energy (electricity, gas, oil)
- fuel (diesel, petrol)
- water (supply of clean water and waste water treatment)
- waste disposal (landfill tax and gate fees – does not include the associated costs of collecting waste)

3.6.2 This cost is projected to rise significantly as prices increase. 2008 in particular saw unprecedented rises in the cost of energy and fuel. If current levels of consumption continue and no action is taken to reduce emissions (the 'business-as-usual' scenario), by 2014/15 the 'cost' of WDC's emissions will have soared to £16,237,592. This represents a **213% increase** on the cost in 2006/07.

3.6.3 This projected cost has been based on the following assumptions of annual increases in cost:

- waste disposal – 18%

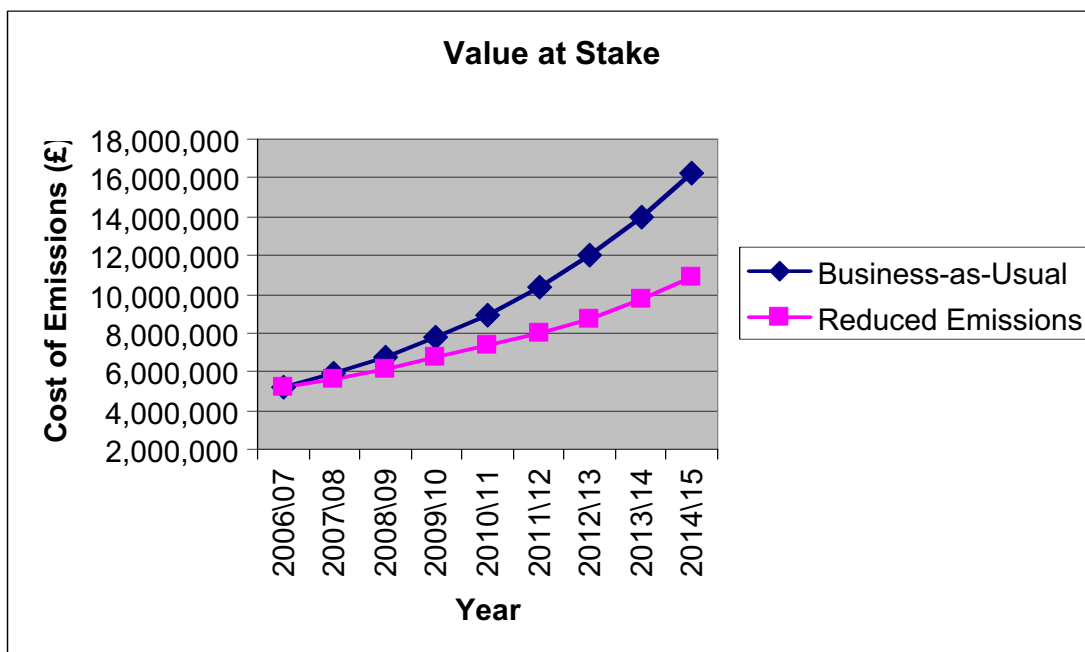
- water – 6% (estimate)
- transport (diesel, petrol) – 6% (estimate)
- oil – 6% (estimate)
- gas/electricity – 2006/07 – 2007/08 – 31% increase
2007/08 – 2008/09 – 70% increase
2008/09 – 2009/10 – 20% decrease
2010 – 2015 – 15% increase (estimate)

3.7 Value at Stake – £

3.7.1 Implementing a successful CM programme and achieving the target of reducing emissions by one third by 2015, will significantly reduce costs to the authority in terms of energy and water bills, the cost of fuel, and waste disposal, maintaining these costs at £10,879,187.

3.7.2 The following graph (Figure 6) illustrates what is known as the ‘value at stake’ of implementing the CM programme. The ‘business as usual’ line represents the annually increasing carbon costs if no action is taken to reduce emissions. If, however, action is taken to reduce emissions by one third by 2014/15, the carbon cost will reduce dramatically – represented by the ‘reduced emissions’ line.

Figure 6



3.7.3 This potential saving can be described as the ‘value at stake’ or the cost of not implementing a carbon management programme. By the target year of 2014/15, this value at stake totals £5,358,405. **In other words, there is the opportunity to save over £5.3 million on these projected costs by implementing the efficiency projects identified by this programme.**

3.8 Progress – £

3.8.1 As in Section 3.5, the cost of the Council’s emissions has been calculated for 2007/08 and 2008/09 based on actual consumption in these years. As illustrated in the following graph (Figure 7), the ‘cost’ of emissions has increased significantly in every area – despite a decrease in actual consumption in some areas, for example energy and waste (see 3.5). In total, the increase in the ‘cost’ of emissions from 2006/07 – 2008/09 was 34%. This highlights the immense challenge but also the significant opportunity offered by carbon management – by striving to reduce emissions the Council will reduce consumption of energy and fuel and reduce waste arisings thereby minimising the cost implications of these commodities.

Figure 7

	2006\07	2007\08	2008\09	Change
Electricity	1,952,818	2,369,050	3,013,863	54%
Gas	672,313	863,494	1,306,759	94%
Oil	789,676	867,967	881,106	12%
Energy Total	3,414,807	4,100,511	5,201,728	52%
Commute	n/a	n/a	n/a	n/a
Business	727,884	727,884	793,961	9%
Fleet Total	1,016,503	1,077,493	1,162,514	14%
Water	858,977	860,380	881,538	3%
Waste	133,188	153,368	180,826	36%
TOTAL	6,151,359	6,919,636	8,220,567	34%

4. Carbon Management Projects

4.1 Existing projects

4.1.1 A number of projects have been implemented since the baseline year of 2006/07 which have already resulted in a reduction in carbon emissions. These are detailed in the following table (Figure 8) and it is estimated by 2014/15, these projects will have saved emissions totalling 16.3% of the one third reduction target.

Figure 8

Project	Service	Cost	Saving £ (to 08/09)	Estimated Saving CO2	Payback	% of Target (by 2014/15)	Funding
Dry Recyclate Scheme	Waste Services	£12,800	£5,000	~55 tonnes	n/a	3.7%	SWIP Fund (Strategic Waste Implementation Plan) plus Scot Govt funding for waste audit
Loft Insulation to Care Homes	Property Services	£7473	£1657	18.8 tonnes annually	4.5 years	1.3%	CEEF (Central Energy Efficiency Fund)
Install BMS in several buildings and connect to corporate system	Property Services	£33,400	£7539	62.33 tonnes annually	4.4 years	4.1%	CEEF
Draught Proofing windows in Care Homes	Property Services	£11,884	£2692	30.6 tonnes annually	4.4 years	2%	CEEF
Pipework Insulation installed in boiler houses of Care Homes	Property Services	£3857	£845	7.05 tonnes annually	4.56 years	0.5%	CEEF
Boiler Replacements in one Care Home and one Primary School	Property Services	£59,465	£6475	41.1 tonnes annually	9.1 years	2.7%	Part Funded by CEEF

Thermostatic Radiator Valves installed in two Primary Schools	Property Services	£23910	£5266	30.22 tonnes annually	4.54 years	2%	CEEF
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4.2 Proposed projects

4.2.1 Following an Opportunities Workshop involving the Project Team, a number of potential projects were identified. These projects are listed below, illustrating cost, and potential carbon and financial saving per annum. Full details of these projects can be found in Appendix A.

Project 1 – Energy Management

Lead Service: Property Services

Funding: £215,000 is currently available through Central Energy Efficiency Fund. Some of these projects will qualify to bid for the Council’s internal Spend-to-Save. Other potential sources of funding include the Climate Challenge Fund (schools only) and the Low Carbon Buildings Programme. The remainder would have to be bid for through the internal budget process or be supported through existing departmental budgets or via other external funds.

Project	Cost			Annual Saving		Payback	Year
	Capital	Revenue	Resource	£	CO2		
Resource	35,000/ annum					>1 year	2010
Smart Metering	105,000			189,960	1138t	>1 year	2010
Water Monitoring	9,000			15,260	2.6t	>1 year	2010
Energy Management System Upgrade	5,000			84,822	610t	>1 year	2010
Energy Training			Officer Time	127,896	663t	>1 year	2010
Building Temp. Control			Officer Time	95,000	826t	>1 year	2010
Water Efficiency Projects	45,000			152,605	26t	>1 year	2010
Cavity/Loft/Pipe Insulation	150,000			30,000	317t	5 year	2010
Zoned Heating	600,000			5,000 (to 30,000)	53t (to 318 t)		2011
Boiler Replacement	600,000			25,000 (to 150,000)	264t (to 1584t)		2010

TRVs	100,000			5,000	53t		2010
Lighting Replacement	500,000			20,000 (to 100,000)	80t (to 400 t)		2010
Voltage Optimisation	600,000			13,000 (to 78,000)	80t (to 480t)		2010
Time-switch Controls	10,000			15,000	25t		2010
Total Annual CO2 Saving					4138t (to 6443t)	% Target	53.6

Project 2 – Internal Waste Review

Service responsible: Waste & Transport Services

Funding: Internal budget – Strategic Waste Implementation Plan fund

Project	Cost			Annual Saving		Payback	Year
	Cap	Rev	Res	£	CO2		
Waste Audit & Waste Minimisation measures	7,000			2,277 (to 60,504)	19t (to 218t)	>1 year	2009
Total Annual CO2 Saving					19t (to 218t)	% Target	1.8

Project 3 – Fuel/Vehicle Optimisation

Service responsible: Waste & Transport Services

Funding: Part funded through existing budgets. The remainder would have to be bid for through the internal budget process or be supported through existing departmental budgets or via other external funds.

Project	Cost			Annual Saving		Payback	Year
	Cap	Rev	Res	£	CO2		
Biodiesel 93/7 blend			Officer time	0	51t	n/a	2010
Driver Training		500/ annum		48,050	126t	>1 year	2009
Route Optimisation/GPS	72,000/ annum			48,050	126t	n/a	2010
Fleet Review			Officer time	9,418	25t	n/a	2010
Total Annual CO2 Saving					328t	% Target	2.7

Project 4 – Alternative Fuel Vehicles

Service responsible: Waste & Transport Services

Funding: Funding would be sought from the DfT (Department for Transport) Low Carbon Vehicle Procurement Programme.

Project	Cost			Annual Saving		Payback	Year
	Cap	Rev	Res	£	CO2		
Trial 2 electric vehicles	60,000			7,400	13t	8 years	n/a
Total Annual CO2 Saving					13t	% Target	0.1

Project 5 – Sustainability Assessments

Service responsible: Policy Unit

Funding: No cost

(Savings not quantifiable – see Appendix A for details)

Project 6 – Awareness Raising Campaign

Service responsible: Policy Unit

Funding: Funding would be sought through the internal budget bid process, from CEEF, or the spend-to-save fund.

Project	Cost			Annual Saving		Payback	Year
	Cap	Rev	Res	£	CO2		
Campaign		20,000		42,632 (to 255,792)	275t (to 1650t)	>1 year	2010
Total Annual CO2 Saving					275t (to 1650t)	% Target	13.7%

Project 7 – Printer Rationalisation

Service responsible: ICT Services

Funding: Funding would be sought through the budget bid process or from the spend-to-save fund.

Project	Cost			Annual Saving		Payback	Year
	Cap	Rev	Res	£	CO2		
Printer Rationalisation	tbc			7,330	31t	n/a	2010
Total Annual CO2 Saving					31t	% Target	0.3

Project 8 – Implement measures to reduce ICT energy consumption

Service responsible: ICT Services

Funding: Funding would have to be obtained from internal budgets or the spend-to-save fund.

Project	Cost			Annual Saving		Payback	Year
	Cap	Rev	Res	£	CO2		
Auto-shutdown controlled centrally and powersave devices	1,500			13,260	98t	>1 year	2010
Total Annual CO2 Saving					98t	% Target	0.8

Project 9 – Review and continued implementation of Green Travel Plan

Service responsible: Policy Unit/Roads Services

Funding: Funding would be sought through the internal budget bidding process or the spend-to-save fund. Part funding may also be obtained for specific initiatives from SPT Sustainable Travel Grants Fund.

Project	Cost			Annual Saving		Payback	Year
	Cap	Rev	Res	£	CO2		
Business Travel Officer		10,000		below	below		2010
Car Share Scheme	1,000			below	below		2009
Pool Car Trial	22,000 + 2,000/ annum			below	below		2010
Marketing	2,000			below	below		2010
				7,278 (to 72,788)	6t (to 61t)		
Total Annual CO2 Saving					6t (to 61t)	% Target	0.5

Project 10 – Grassland Maintenance

Service responsible: Land Services

Funding: No cost/from existing budgets

Project	Cost			Annual Saving		Payback	Year
	Cap	Rev	Res	£	CO2		

Reduce grass-cutting	0	0	0	0	5t	n/a	2009
Total Annual CO2 Saving					5t	% Target	0.1

4.3 Medium to long term projects

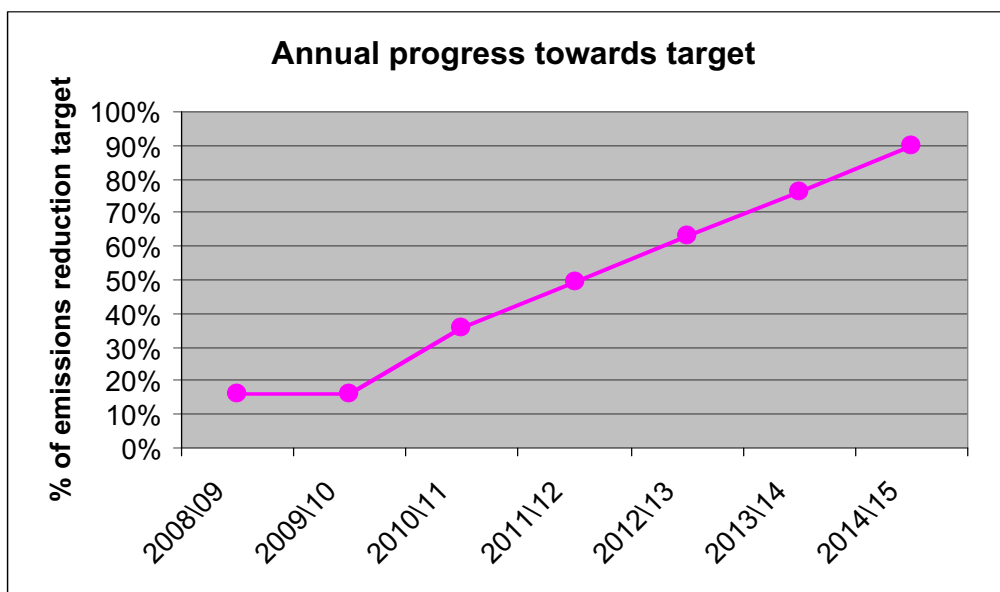
4.3.1 Further to the above listed projects, the programme will support a number of proposed long-term projects or feasibility studies. At this stage, it is not possible to identify costs and related savings associated with these projects. This illustrates the on-going commitment to finding innovative ways to reduce carbon emissions and supporting the use of renewable energy.

- Installation of rainwater capture (Meadow Centre)
- Solar Thermal energy to heat swimming pool (Our Lady & St Patrick's High School)
- Server Virtualisation
- Reuse server room/printer room heat
- Home working
- Employee shuttle bus
- Business travel policy
- Food waste collection
- Glass waste collection
- Street lighting replacement
- Possible relocation of Council headquarters
- Energy Efficiency Education Programme (schools)
- Using renewable energy source to power electric vehicles
- District Heating
- Combined Heat and Power Plant
- School Travel Plans
- Biomass Boilers (schools)
- Ground Source Heat Pumps (Bonhill Primary Schools, Goldenhill Primary School)
- Broadleaf forest Planting

4.4 Projected achievement towards target

4.4.1 The following graph (Figure 9) shows projected achievement towards the target as a result of implementing the existing and proposed projects discussed earlier in this section. By 2014/15, these projects have the potential to offer emissions reductions totalling 90% of the target of a reduction in emission of 12,026 tonnes. It should be stressed that this is an illustrative guide as factors such as the year of implementation of the individual projects would have a bearing on when reductions are achieved. It is anticipated that implementation of some of the medium to long-term projects identified in Section 4.3 would address the gap in meeting the target.

Figure 9



4.4.2 Further to this, there are a number of other factors which will have had an impact in terms of reducing emissions since 2006/07. These projects or initiatives have not been included in the scope of this plan but may result in a reduction in emissions between 2006/07 and 2014/2015, including:

- Proposals for new school builds
- Reduction in the size of the council's estate
- Energy Performance Certificates

4.4.3 As part of the council's commitment to enhancing biodiversity in West Dunbartonshire, a number of projects are planned which will contribute to

carbon sequestration locally (capturing carbon from the atmosphere). The Council has recently formed a Woodland and Grassland Management Steering Group to identify suitable woodland areas for management and expansion primarily through funding from Woodland In and Around Town grants. In addition, Forestry Commission (Scotland) has plans for extensive planting of broadleaves in the Kilpatricks, funded from their Carbon Sequestration Fund, which is estimated to increase woodland locally by approximately 5%.

5 Carbon Management Plan Financing

5.1 Assumptions

5.1.1 Previous sections have given an indication of the 'value' of taking part in the CM Programme and outlined costs, financial savings and CO₂ reduction. Quantification of cost and savings is as accurate as possible; however, some assumptions have been made at this stage.

- Costs are current and do not take inflation into account
- Energy savings have been calculated against 2009/10 energy prices – savings may be more in reality as the cost of energy increases during the term of the project
- Savings related to transport projects have been calculated against the baseline year so again may be higher in reality
- Annual savings have been calculated on the assumption that all projects scheduled for that year are funded and implemented. Required spend reduces throughout the term of the project and savings will increase.

5.2 Investment, Benefits and Savings

5.2.1 Quantified

Figure 10 (below) provides an illustrative guide to the total cost of implementing the proposed projects identified in Section 4.2 as well as the potential efficiency savings and reduction in carbon emissions. These costs are all capital costs.

Figure 10

	Year 1 2009/10	Year 2 2010/11	Year 3 2011/12	Year 4 2012/13	Year 5 2013/14	Year 6 2014/15	
Business-as-usual carbon 'cost' (£)	7,770,970	8,948,403	10,338,129	11,981,490	13,928,114	16,237,592	
Annual Saving which could be achieved by implementing CMP (£)	782,274	1,007,527	1,137,144	1,269,947	1,406,822	1,548,875	7,152,589
Required Investment (£)	984,500	476,720	481,487	486,302	491,165	496,077	3,416,251
Annual CO ₂ saving (tonnes)	2,376	2,376	3,995	5,614	7,233	8,852	

5.2.2 Unquantified

It should be acknowledged that the CM Programme offers other benefits which are not financially quantifiable but should be considered nonetheless as a fundamental aspect of implementing the Plan. These have been listed below:

- Reducing traffic-related emissions (eg. PM10, NO₂) which are at high levels in certain air quality ‘hot spots’ in West Dunbartonshire
- Reducing traffic congestion
- Improving health (eg. encouraging active travel, reducing air pollution)
- Helps the Council meet regulatory compliance in terms of reducing waste disposed of at landfill and increasing recycling/composting rates
- Better working environment for employees
- Reducing climate impact
- Offering opportunity to work in partnership with other organisations to develop innovative ways of reducing emissions
- Contributes to local authority Efficiency agenda

5.3 Additional resources

5.3.1 Officer time is required to varying degrees for the implementation of each project. In particular, a number of measures outlined in Section 4 have no capital/revenue cost attached to them; however, they do require the commitment of officer time to implement the particular aspect of a project. These are listed below with an estimate of time required.

Project	Service	Time required
Project 1 – Energy Management Training	Property Services	Up to a maximum of 2 days/month.
Project 1 – Energy Management Building Temp. Control	Property Services	Less than 1 day a month.
Project 2 – Internal Waste Review Waste Audit	Waste & Transport Services	A one-off project which would take ~4 weeks.
Project 3 - Fuel/Vehicle Optimisation Fleet Review	Waste & Transport Services	It is recommended a fleet review is carried out bi-annually. Estimated to take 1 week of officer’s time.
Project 4 – Fuel/Vehicle	Waste & Transport Services	Very limited time. (dependent

Optimisation Biodiesel Optimisation		on biodiesel blends which become available)
Project 8 – Reducing ICT energy consumption	ICT Services	Limited time.

5.4 Sources of funding

5.4.1 A limited amount of funding to support individual projects comes from existing budgets, for example, £7,000 of funding has been committed from the Strategic Waste Implementation Fund (internal budget) to support Project 2. A successful bid was made to the Spend to Save fund for two elements of Project 1 and it is anticipated further bids will be submitted. The CMT have been asked to encourage greater use of the Central Energy Efficiency Fund which currently stands at £215,000.

A bid has also been made to the capital programme for 2010/11 and 2011/12. To address the shortfall in funding, departments will be offered support through the Project Team to apply for external funding, for example, from the Low Carbon Buildings Programme. The savings described in Figure 10 can only be achieved through considerable investment.

5.4.2 Potential sources of funding are listed below:

Fund	Amount	Source	Notes
Central Energy Efficiency Fund	£215,000	Scottish Government. Managed internally by Property Services section.	CEEF operates like a loan scheme where savings are returned to the fund so this has the potential to offer a continually increasing pot of money to fund efficiency projects.
Spend to Save Fund	£250,000	West Dunbartonshire Council	Savings should be returned to the fund to offer potential to fund further projects.
Climate Challenge Fund	n/a	Scottish Government	Local authorities are not eligible to bid; however, schools can bid for monies to fund any project to reduce emissions. Monies must be spent by March 2011.
Low Carbon Buildings Programme (Phase 2)	£200,000 max bid	UK Government	For renewable energy projects. Must be 50% match funded.
Sustainable Travel Grant	£1000 max bid	SPT	Must be 50% match funded.
Low Carbon Vehicle Procurement Programme	£30mil	DfT	n/a
Carbon Trust	£50,000 over 3 years	Carbon Trust	For consultancy services.

6.0 Actions to Embed Carbon Management in Your Organisation

The Carbon Trust have produced a Carbon Management Embedding Matrix to enable organisations to assess their progress towards embedding carbon management throughout the organisation. The following sections will assess our current position in terms of embedding and outline action to further embed carbon management/reduction within West Dunbartonshire Council. The Matrix is scored from 1 (worst) – 5 (best) – a copy of the Matrix can be found in Appendix B.

6.1 Corporate Strategy – embedding CO₂ saving across your organisation

Matrix Score – 2

- Draft Climate Change Policy
- Climate Change references in other strategies

- 6.1.1 Carbon management is a corporate objective for West Dunbartonshire Council. It features in the Corporate Plan (2008-2012) under the corporate priority to ‘improve environmental quality and sustainability’ and also under the objective of ‘promoting the principles and practices of sustainable development’. The coordination of the carbon management programme sits within the Chief Executive’s department, acknowledging the corporate nature of the programme while specific actions to reduce emissions sit within individual departmental plans. These actions will be reinforced in forthcoming service plans as a result of the commitment to this programme.
- 6.1.2 West Dunbartonshire’s Community Plan also acknowledges the importance of managing carbon, with an aim to encourage local employers and business to carry out their own carbon management programmes. The Council is leading by example in this respect and made a commitment to do so under the Climate Change Declaration.
- 6.1.3 West Dunbartonshire’s Single Outcome Agreement also makes a commitment to reducing the carbon footprint of West Dunbartonshire Council under National Outcome 14 - to reduce the local and global environmental impact of our consumption and production.
- 6.1.4 Moving forward, the CM Plan will enable WDC to set firm percentage target reductions in terms of annual carbon reduction. The Plan will also facilitate further development of a Climate Change Strategy linked to the Climate Change Declaration.

6.2 Programme Management

Matrix Score – 1

- No CM monitoring

6.2.1 Programme Management is discussed in detail in Section 7. At the initiation of this programme, there was no monitoring of carbon management – this has been addressed through participation in the programme and the matrix score will have improved considerably by the time the first annual review of the programme takes place.

6.3 Responsibility – being clear that saving CO₂ is everyone's job

Matrix Score – 3

- An individual provides full time focus for CO₂ reduction and coordination across the organisation
- Senior Sponsor actively engaged

6.3.1 Embedding carbon management is important to ensure the success of this programme, ensuring all members of staff recognise that they contribute to the Council's carbon emissions and are therefore equally responsible for taking steps to reduce emissions. This will be addressed in part through a programme of raising awareness but we will also look at ways to further embed emissions savings, using best practice examples from other authorities. The viability of introducing a session on carbon management to induction training will be discussed– this will help to emphasise to employees that they are responsible for managing their own carbon footprint and the Council as an employer will support them in doing so. Further to this, a network of 'green champions' will be created to support carbon reduction initiatives throughout the organisation.

6.3.2 Specific carbon management responsibilities will be written into job descriptions of relevant posts – both posts responsible for implementation such as the Energy Officer or Sustainable Development Officer, and senior officers to ensure ongoing commitment to managing carbon.

6.4 Data Management – measuring the difference, measuring the benefit

Matrix Score – 3

- Collation of CO₂ emissions for limited scope ie. buildings only

6.4.1 As part of this programme, progress to meet the target will be reviewed annually. This provides the opportunity to look at how the relevant information

is collated and streamline the process. The frequency of the collection of data will vary based on the area in question, as illustrated in the table below.

Service/Area of Baseline	Frequency
Energy	Quarterly
Water	Quarterly
Waste	Quarterly
Fleet	Quarterly
Business Travel/Commuting	Annually
Street/Close Lighting	Annually

The Project Leader will analyse the data to estimate progress towards the target. This will give the opportunity to address any unexpected peaks or dips in consumption.

6.4.2 This information will be communicated quarterly to the Programme Board and Project Team. Certain elements will be communicated more widely to staff as feedback and encouragement as part of our awareness raising campaign, for example, a reduction in fleet emissions will be communicated to (fleet) drivers as part of the 'eco-driving' training/guidance. Progress will be reported annually to Committee and the CMT and communicated to all employees.

6.5 Communication and Training – ensuring everyone is aware

Matrix Score – 3

- Environmental/energy groups given ad hoc training, communications

6.5.1 It is acknowledged that communication and training to raise awareness of carbon management is a vital part of the Programme. The Carbon Trust advise that you should spend around 1% of your annual energy spend on awareness raising and training which should result in up to 10% savings on energy consumption.

6.5.2 Communication and training have been addressed in Projects 1 and 6 (Section 4). Project 1 includes an element of an officer's time devoted to training energy intensive services on means to reduce energy consumption (it is estimated this can result in savings of 3%). Project 6 is an awareness raising campaign – it has been estimated that over the course of the programme, an annual spend of £20,000 has the potential to offer savings of up to 6% on energy consumption. The awareness raising campaign will include other carbon reduction measures, ie. waste minimisation, car sharing. It should be noted that there has been some action on awareness raising to date including a quarterly energy newsletter, a green travel handbook, and poster/leaflet guidance on waste

minimisation and recycling. The awareness campaign will build on these existing resources and consolidate them into one campaign.

6.5.3 In conjunction with the Council's Corporate Communications section, an awareness raising campaign will be produced consisting of a variety of communications/marketing methods to ensure a consistent message is expressed to employees, and to ensure the message and guidance is communicated in the most appropriate manner dependent on the nature of employee's work, ie. providing advice on recycling building related materials to employees at DLOs, providing advice on reducing ICT consumption by email to target users of ICT equipment. The campaign will be branded to make it local to WDC and will include materials such as:

- Information leaflets
- Posters
- Surveys/competitions
- Information/promotional DVD
- Window stickers
- Energy monitors (TV)
- Newsletter

6.5.4 Further to this, as aforementioned, carbon management training will be introduced to induction training; service specific training will be offered to energy intensive services, ie. leisure, catering; eco driving training offered to all fleet drivers; a network of 'green champions'.

6.6 Finance & Investment

Matrix Score – 1

- No specific funding for CO₂ reduction projects

Finance & Investment is covered in Section 5.

6.7 Policy Alignment – saving CO₂ across your operations

Matrix Score – 1

- No alignment of policies for CO₂ reduction

6.7.1 This Plan will be used to inform action towards delivering on Scotland's Climate Change Declaration. It will also be used to inform the review of any existing plans/initiatives which contribute to reducing our emissions, for example, the Green Travel Plan, Internal Waste Prevention Plan, Sustainable Procurement Policy, and energy and water efficiency policies.

6.7.2 One of the proposed projects (Project 5) has been suggested as a means to facilitate policy alignment in relation to carbon management. This project will produce guidance for all departments on considering the 'carbon impact' of policies, plans, new initiatives etc. This will be designed with a view to ensuring continuous carbon reduction and mitigation measures.

7 Programme Management of the CM Programme

7.1 The Programme Board – strategic ownership and oversight

7.1.1 In West Dunbartonshire Council, the Programme Board is represented by an existing group – the Sustainable Development Working Group – consisting of managers from each Directorate, as follows:

David Webster (Chair)	Section Head, Performance Management
Angus Bodie	Manager, Roads, Waste & Transport Services
Sandra Brysland	Section Head, Policy & Research, Educational Services
Don Findlay	Manager, Estates & Technical Services
Adrian Gray	Section Head, Resources & Performance, Social Work & Health
Alasdair Gregor	Manager, Planning Services
Graham Pollock	Manager, Regulatory Services
Alison Wood	Team Leader, Corporate Procurement

The Board works to the following Terms of Reference:

1. Champion and provide leadership on CM
2. Set and review the strategic direction and targets
3. Own the scope of the CM Programme and prioritise the list of carbon reduction projects
4. Monitor progress towards meeting the objectives and targets
5. Remove obstacles to successful completion of CM projects
6. Review and champion plans for the financial provision of CM projects
7. Ensure that there is a framework in place to coordinate projects in the CM Programme

7.1.2 The Project Leader reports progress to the Programme Board. The Programme Board meet approx. every two-three months where progress is discussed and, when required, reports will be considered and reviewed. The Programme Board will be responsible for overseeing the strategic direction of

the project and providing senior management commitment. The Programme Board will disseminate any relevant information to their services and other relevant groups as and when required. The Sponsor will also liaise with the Programme Board at significant milestones to discuss progress and reports before they are submitted to the CMT and/or Committee.

- 7.1.3 It is anticipated to submit the Carbon Management Plan to the CMT and the Corporate & Efficient Governance Committee for approval, and seek to submit annual progress reports thereafter. Where corporate approval is required on individual projects, this will be sought by way of a report to the CMT, following input and consideration by the Programme Board.

7.2 The Carbon Management Team – delivering the projects

- 7.2.1 The Project Team consist of the following core members:

Cheryl Marshall (Project Leader)	Sustainable Development Officer
Angus Bodie	Manager, Roads, Waste & Transport Services
Owen Gallagher	Desktop Officer, ICT
Alex Grace	Procurement Officer, Corporate Procurement
Craig Jardine	Manager, Schools Estates
Lynn McAdam	Press Officer, Corporate Communications
Margaret McCluskey	Section Head, Efficient Government
Robert Robb	Senior Officer, Waste & Transport Services
Steven Thomson	Energy Officer, Property Services

- 7.2.2 Following approval of the Carbon Management Plan, it is anticipated the Project Team will meet quarterly to update on implementation within individual services and discuss progress and future projects. The Project Leader will liaise closely with members of the team individually as projects are implemented.

7.3 Succession planning for key roles

- 7.3.1 Progress on projects such as the Carbon Management Programme could falter if there are staffing changes within the organisation. To mitigate this potential threat, the role of Project Leader is considered as an essential part of the job description of Sustainable Development Officer within WDC (the SD Officer currently carries out the role of Project Leader for two days a week as required by the Carbon Trust). The projects we plan to embark on already form part of service improvement work carried out by services as part of their departmental plans and action to meet local and national targets. We are therefore confident

the work undertaken as a result of the CM Programme would continue if the individuals involved in the team were no longer in their current role.

Through the programme, we will endeavour to increase staff resource within the Energy Management team to ensure successful implementation of projects followed by the embedding of a low carbon culture within the organisation.

7.4 Ongoing stakeholder management

7.4.1 It is acknowledged that there are key stakeholders who need to be kept informed of progress throughout the implementation of carbon management. These stakeholders have been identified below, including how often they need to be updated of progress and their specific information needs.

Stakeholder	Information Need	Frequency
Sponsor Programme Board	Top level information on progress of implementation, % of target reached, CO ₂ and £ savings. Results of any feasibility studies. Detail of any 'obstacles' to inform discussion on overcoming. Link to corporate targets and Best Value.	Quarterly
Project Team	Detailed information on progress of implementation for each project, including status within council (ie. awaiting approval) savings and progress towards target.	Quarterly Plus more regular 1 on 1 contact with Project Leader
Elected Members CMT	% of target reached, CO ₂ and £ savings.	Annually
Finance (Efficient Government)	£ savings achieved.	Annually
Employees	Information on launch of particular initiatives. Savings achieved.	6-monthly newsletter

7.5 Annual progress review

7.5.1 Progress against this CM Plan will be monitored quarterly by the Programme Board and annual progress reports submitted to the CMT and the Corporate & Efficient Governance Committee. The annual report will cover:

- Action taken against each project
- CO2 savings achieved against our target
- Financial savings achieved
- Opportunities to implement new projects
- Other less quantifiable savings, such as influencing carbon reduction in the wider community or local business

7.5.2 This opportunity will also be used to report on projects which have not been fully quantified at this stage as they require feasibility studies or are more long-term, strategic goals. This may be to seek approval to implement further projects or seek funding as a result of a feasibility study.



Appendix A – Action Templates

Project 1 – Energy Management – 53.6% of target	
Description and notes	<p>Energy makes up the largest proportion of our carbon baseline (84%) at a cost of approx £3.4 million in 2006/07. Water makes up a relatively small proportion of our baseline but costs over £400,000 each year.</p> <p>There are various elements to this project and costs and savings have been identified for each element of the project (see below). The projected financial savings and emissions reductions are based on consumption and cost in 2009/10.</p> <p>In order to implement all the elements of this project and achieve the identified savings, additional time resource would be required in the existing Energy Management Team (see no. 1). It should be stressed that the additional resource is fundamental to the success of this project.</p> <p>This project would (in total) deliver carbon savings equating to 53.6% of our target in 2014/15.</p>

Quantified Costs and Benefits 2009/10 – 2014/15

1. Additional Time Resource

With direct responsibility for:

2. Smart Metering
3. Water Consumption Monitoring
4. BMS Management
5. Employee Energy Awareness Training
6. Building Temperature Control
7. Water Efficiency Projects

Cost £35,000 per annum

Emissions Reduction – achieved through implementation of measures 2-7

Financial Saving – achieved through implementation of measures 2-7

The total cost for measures 1-7 over the lifetime of the project is approx £374,000.

The implementation of these measures has the potential to generate a cumulative financial saving over the lifetime of the project of up to £4,088,258.

2. Smart Metering (incl. implementing adaptations identified through metering)

5% reduction in gas and electricity consumption

Cost £105,000

Emissions Reduction 1138 tonnes annually

Financial Saving £189,960 annually (£1,139,760 over term of project*)

Payback: less than 1 year

3. Water Consumption Monitoring

3% reduction in water consumption

Cost £9,000

Emissions Reduction 2.6 tonnes annually

Financial Saving (at least) £15,260 annually (£91,560 over term of project)

Payback: less than 1 year

4. BMS Management

5% reduction in gas and oil consumption
Cost £5000
Emissions Reduction 610 tonnes annually
Financial Saving £84,822 annually (£508,932 over term of project)
Payback: less than 1 year

5. Employee Energy Awareness Training (service specific training)

3% reduction in energy consumption
Cost £0 (free training for trainer from Carbon Trust)
Emissions Reduction 826 tonnes annually
Financial Saving £127,896 annually (£767,376 over term of project)
Payback: immediate

6. Building Temperature Control (reducing maximum temp., turning off school heating May-Sept)

Cost £0 (controlled by BMS software)
Emissions Reduction 800 tonnes annually
Financial Saving £95,000 annually (£570,000 over term of project)
Payback: immediate

7. Water Efficiency Projects (urinal controls, non-concussive taps, cistern dams, high efficiency shower-heads)

30% reduction in water consumption
Cost £45,000
Emissions Reduction 26 tonnes annually
Financial Saving £152,605 annually (£915,630 over term of project)
Payback: less than 1 year

Further to this, the following elements of this project could be implemented with support through additional time resource.

Council properties would have to be surveyed to assess suitability for the installation of the following measures. At this stage, it is difficult to predict the number of suitable properties so the savings projected below are based on an annual spend (rolling budget). For example, if we spend £100,000 on boiler replacement projects, this would result in a 25% annual reduction in heating costs in those properties where work is carried out.

8. Cavity, Loft, Pipework Insulation

20% reduction in energy (for heat) consumption
Cost £100,000 annual spend (for up to 2 years)
Emissions Reduction (indicative saving for large property) 211 tonnes annually/£100,000 spend
Financial Saving £20,000 annually/£100,000 spend

9. Zoned Heating

5% reduction in energy (for heat) consumption
Cost £100,000 annual spend (for up to 6 years)
Emissions Reduction (indicative saving for large property) 53 tonnes annually/£100,000 spend
Financial Saving £5,000 annually/£100,000 spend

10. Boiler Replacement

25% reduction in energy (for heat/hot water) consumption

Cost £100,000 annual spend (for up to 6 years)

Emissions Reduction (indicative saving for large property) 264 tonnes annually/£100,000 spend

Financial Saving £25,000 annually/£100,000 spend

11. TRVs

5% reduction in energy (for heat) consumption

Cost £100,000 (for 1 year)

Emissions Reduction (indicative saving for large property) 53 tonnes annually/£100,000 spend

Financial Saving £5,000 annually/£100,000 spend

12. Lighting Replacement (incl. daylight and occupancy sensors)

Cost £100,000 (for up to 5 years)

Emissions Reduction 200 tonnes annually/£100,000 spend

Financial Saving £20,000 - £40,000 annually/£100,000 spend

13. Voltage Optimisation

13% reduction in electricity consumption

Cost £100,000 (for up to 6 years)

Emissions Reduction (indicative saving for large property) 80 tonnes annually/£100,000 spend

Financial Saving £13,000 annually/£100,000 spend

14. Time-switch Controls

Cost £10,000

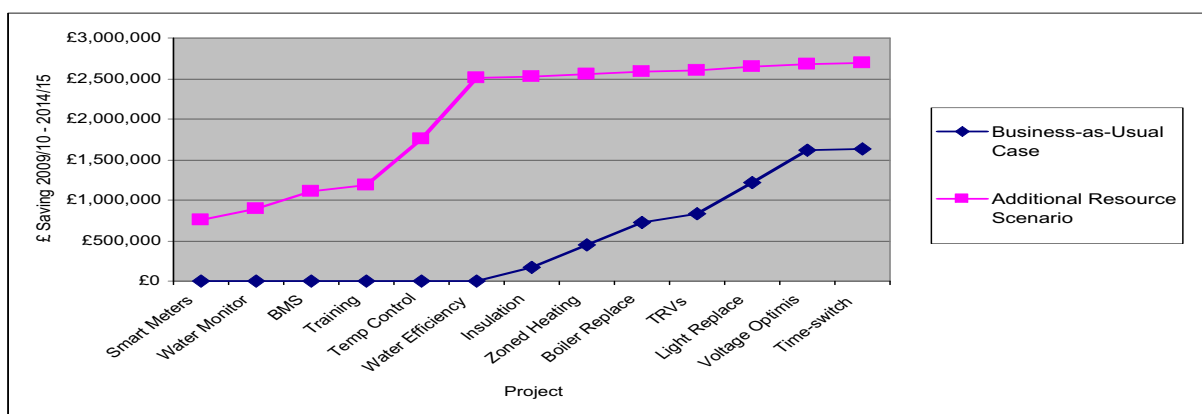
Emissions Reduction 25 tonnes annually

Financial Saving £15,000

Payback: 4 years

*'over term of project' – based on 2009/10 costs – savings may increase for some measures throughout the term of the project in line with increase in energy cost.

The potential financial saving which could be realised through the implementation of these projects is illustrated graphically below. This shows cumulative savings. The blue line represents what could be achieved in a 'business-as-usual' scenario. The pink line represents the savings that could be achieved based on the implementation of the projects listed under 1-7 (above) in addition to business-as-usual.





Resources	Funding - £215,000 available through CEEF, Spend-to-Save. Scottish Government have indicated that they <i>may</i> have some funding available for Smart Meters.
Ownership and accountability	The Property Management Section would be responsible for the implementation of these projects. Performance would be monitored by the Programme Board.
Ensuring success	<ul style="list-style-type: none"> • Securing funding • Employee commitment
Performance / success measure	Success/Performance will be measured by a reduction in consumption of electricity/gas/oil.

Project 2 – Internal Waste Review - 1.8% of target	
Description and notes	<ul style="list-style-type: none"> • Introduce small-scale composting at suitable properties (schools, care homes etc) • Optimise recycling facilities at all properties • Train catering establishments/schools in ‘love food-hate waste’ principles • Internal Waste audit
Quantified costs and benefits	<ul style="list-style-type: none"> • Costs £7,000 – container provision, officer time Total: £7,000 • Emissions reduction Waste growth is estimated at 2% per annum – reducing this to zero would see an emissions saving of 57,060 kg by 2010/11, rising to savings of 218,034 kg by 2014/15 Total: 57,060 kg • Financial savings Ensuring no growth in the amount of waste produced would reduce the future costs of waste disposal by around £8,167 by 2010/11, rising to savings of £60,504 by 2014/15 Total: £8,167 • Payback period By second year. • Other Advantages/Added Value Reducing the amount of waste we send to landfill will help the Council meet waste/recycling targets and reduce the potential for the Council to incur penalties through the Landfill Directive.
Resources	Funded directly through Waste Services ‘Strategic Waste Implementation Fund’ budget
Ownership and accountability	Waste & Transport Services section will be responsible for the implementation of this project. Progress will be monitored by the Programme Board.
Ensuring success	<ul style="list-style-type: none"> • Ensure employee/departmental ‘buy-in’ and understanding of various recycling schemes – this can be supported through the awareness raising programme and relevant intranet pages offering guidance • Work closely Catering/Education to ensure all stakeholders are consulted and are aware of policy • There may be access issues impeding the introduction of certain recycling facilities in particular properties. Work with building managers/caretaking staff/administrators to seek out alternative nearby facilities
Performance / success measure	Reduction in tonnes of waste a) disposed of at landfill, b) growth.
Timing	Commence review immediately; carry out waste audit 09/10
Sources of information and guidance	Waste and Transport Services Section SWAG, Wrap etc

Project 3 – Fuel/Vehicle Optimisation - 2.7% of target	
Description and notes	<ol style="list-style-type: none"> 1. Investigate procurement of higher biodiesel blends 2. Implement programme of route optimisation 3. Implement review of departmental vehicle requirements 4. Implement efficient driver training programme for all users of fleet vehicles ('eco-driving')
Quantified costs and benefits	<ul style="list-style-type: none"> • Costs Driver Training 'eco-driving' briefing tool talks - £500 Route Optimisation - £72,000 (annually) Total: £72,500 • Emissions reduction Biodiesel – 50,555 kg Can potentially move to a 93/7% blend (from 95/5% blend). Based on 2% reduction in emissions of diesel-fuelled vehicles. Route Optimisation – 126,387 kg Introducing GPS can result in 5% reduction in fuel consumption Fleet Review – 25,277 kg Based on a 1% reduction in the size of the (diesel) fleet Driver Training – 126,387 kg Based on a 5% reduction in fuel (diesel) consumption Total: 328,606 kg CO2 (annually) • Financial savings Biodiesel - 0 Route Optimisation - £48,050 5% reduction in fuel consumption at 0.98/litre diesel Fleet Review - £9,418 1% reduction in fuel consumption at 0.98/litre diesel Driver Training - £48,050 5% reduction in fuel consumption at 0.98/litre diesel Total: £105,518 • Payback period Less than 1 year. Driver training would be linked to introduction of GPS, therefore the 10% reduction in fuel consumption would meet the annual cost of GPS and generate further savings of £23,600. • Other Advantages/Added Value The figures for route optimisation and fleet review are estimates but could bring further savings in terms of lower maintenance and staffing costs.
Resources	Driver Training funded by Waste & Transport Section. Funding would need to be sought for Route Optimisation software.

Ownership and accountability	This project would be implemented by Waste & Transport Services and progress monitored by the Programme Board.
Ensuring success	<ul style="list-style-type: none"> • Monitor Fuel use (Already in place) • Principal risks:1: Bio-diesel blends not available or suitable. 2: Route reviews do not provide further efficiencies 3: Departments unwilling to agree review procedures 4:Drivers unwilling to alter driving techniques • Main means of risk mitigation:1,2,3 Monitor all programmes and ensure all stakeholders are consulted and aware of policy 4.Ensure training and monitoring is continual
Performance / success measure	Reduction in fleet. Reduction in litres of fuel used annually. Reduction in miles travelled by fleet vehicles annually. Reduction in related maintenance costs.
Timing	Gain commitment from all services & Implement & Monitor
Sources of information and guidance	Waste and Transport Section

Project 4 – Alternative Fuel Vehicles - up to 1% of target	
Description and notes	<ul style="list-style-type: none"> Implement trial of 2 electric/alternative fuel vehicles (small cars)
Quantified costs and benefits	<ul style="list-style-type: none"> Costs £60,000 capital investment Total: £60,000 Emissions reduction Based on fleet reduction of two diesel cars travelling approx. 20,000 miles/annum Total: 12,791 kg CO2 Financial savings Running costs: 23p/mile diesel (incl maintenance) = £9200 (2 diesel cars, 20,000 miles) 4.5p/mile electric = £1800 (2 elec cars, 20,000 miles) Total: £7400 Payback period 8 years Other Advantages/Added Value Electric vehicles (EV) have far lower running, serving and maintenance costs than diesel vehicles. No maintenance costs associated with battery or motor. Value doesn't depreciate as much/quickly as diesel and EV exempt from Road Fund License.
Resources	Funding: Low Carbon Vehicle Procurement Programme (DfT)
Ownership and accountability	This would be implemented as a trial project by Waste & Transport Services. Progress would be monitored and analysed by this section. Progress would also be reported to the Programme Board.
Ensuring success	<ul style="list-style-type: none"> Funding available- monitor whole life cost of purchase/operation of vehicles against carbon fuel comparators Principal risks: Funding unavailable to West Dunbartonshire Council Seek input into future years (2010-onwards) vehicle replacement programme
Performance / success measure	Reduction in litres of fuel used. Positive feedback on running and maintenance of vehicle. Assessment of whole life cost x diesel alternatives
Timing	Dependent on availability of funding
Sources of information and guidance	Waste and Transport Services Section

Project 5 – Sustainability Assessments	
Description and notes	<ul style="list-style-type: none"> • Introduce Sustainability Assessment for Committee Reports • Provide guidance for elected members considering reports, and • Provide guidance and training for employees on Sustainability Assessment, to include: <ul style="list-style-type: none"> - whole-life <i>environmental</i> impact including, spend to save measures, any mitigation measures - climate impact (GHG emissions related to project/policy etc being considered in Report – will it result in a reduction in emissions; how can the impact on the climate be mitigated)
Quantified costs and benefits	<ul style="list-style-type: none"> • Costs No direct costs. • Emissions reduction Unable to forecast at this stage. This would be dependent on the project/policy etc being considered. In general, the introduction of a sustainability assessment should result in an emissions reduction. • Financial savings Unable to forecast at this stage. This would be dependent on the project/policy etc being considered. • Other Advantages/Extra Benefit/Added Value etc • Payback period Unable to forecast at this stage. This would be dependent on the project/policy etc being considered. It is recommended spend-to-save measures aim for a payback period of up to 10 years.
Resources	<ul style="list-style-type: none"> • Funding Source: No direct costs. Would be implemented by Policy Unit under current staffing arrangements • Limited demand on management
Ownership and accountability	Policy Unit with guidance from Corporate Procurement
Ensuring success	<ul style="list-style-type: none"> • Use best practice examples for other authorities
Performance / success measure	
Timing	
Sources of information and guidance	Sustainable Scotland Network

Project 6 – Awareness Raising Campaign - 13.7% of target	
Description and notes	<ul style="list-style-type: none"> • Implement general employee awareness raising campaign • Introduce carbon management awareness raising to induction training • Create carbon management awareness webpage(s) • Create and support 'carbon champions'
Quantified costs and benefits	<ul style="list-style-type: none"> • Costs The Carbon Trust recommend that to run a good campaign and to allow for the production of promotional materials and competition prizes then you should allow up to 1% of your annual energy budget towards the campaign. Carbon management webpage – produced in-house with existing resources. The role of energy champions would link into the general employee awareness campaign. Total: £20000 • Emissions reduction A successful awareness raising campaign can offer estimated savings of 5%-10%. Based on a 1% increasing reduction annually from the launch of a campaign in 2009/10. Total: 275 tonnes – 1650 tonnes CO2 • Financial savings A successful awareness raising campaign can offer estimated savings of 5%-10%. Based on a 1% increasing reduction annually from the launch of a campaign in 2009/10. Total: £42,632 - £255,792 (based on 09/10 energy costs) • Payback period Less than 1 Year
Resources	<ul style="list-style-type: none"> • Funding: Spend-to-Save or budget bid
Ownership and accountability	This project would be implemented by the Policy Unit with support/input/guidance from other services involved in the CM Programme and Corporate Communications team.
Ensuring success	<ul style="list-style-type: none"> • Employee buy-in
Performance / success measure	Reduction in energy consumption/waste production/fuel consumption
Timing	
Sources of information and guidance	

Project 7 – Printer Rationalisation – up to 1% of target	
Description and notes	<ul style="list-style-type: none"> Rolling programme of printer rationalisation throughout authority Introduction of networked printers (approx. 1/50 members of staff) Networked printers set-up to print double-sided and mono as default with powersave devices Policy of not replacing printers when they become broken/obsolete where a networked printer is available
Quantified costs and benefits	<p>Printer rationalisation is a difficult area to quantify without auditing the printer requirement in every building across the Council; however, it will undoubtedly offer savings in energy consumption as desktop printers consume significant amount of energy even while not in use but powered-on. An energy consultant has looked at the opportunities presented by printer rationalisation in general and based on that, an estimate of savings across the Council are as follows:</p> <ul style="list-style-type: none"> Emissions reduction 31.7 tonnes annually Financial savings £7,330 annually
Resources	<ul style="list-style-type: none"> Funding source: Spend-to-Save fund for initial purchase Limited demand on management Apply for funding through CMT
Ownership and accountability	ICT Services
Ensuring success	<ul style="list-style-type: none">
Performance / success measure	Reduction in ICT energy consumption, reduction in amount of paper used and printer consumables
Timing	2010
Sources of information and guidance	

Project 8 – Implement measures to reduce ICT energy consumption – up to 1% of target	
Description and notes	<ul style="list-style-type: none"> Change auto-shutdown time from 11pm – 8pm Investigate auto-shutdown facility for schools PCs Introduce purchase of powersave adaptors for all new PCs Purchase powersave adaptors for all PCs purchased since April '08
Quantified costs and benefits	<ul style="list-style-type: none"> Costs <p>There is no cost related to the change in auto-shutdown time other than a very small operational cost.</p> <p>The cost of powersave adaptors will be added to the cost of a new PC</p>

	<p>(approx. £15 per PC). 100 powersave adaptors for PCs purchased since April '08 at an approximate cost of £15 each. Total: £1500</p> <ul style="list-style-type: none"> • Emissions reduction Auto-shutdown combined with powersave to turn off all associated ICT equipment - based on an estimate of 2500 corporate PCs and 4300 school PCs. A reduction of up to approx. 25kwh per PC. Assuming ICT equipment is not being switched off at end of day. Total: (potentially) 98,000 kg • Financial savings As above, based on a figure of 5.02 p/kwh, this equates to an estimated financial saving of £8534 per annum. Total: £8534 <p>Payback period</p> <ul style="list-style-type: none"> • Less than one year
Resources	<ul style="list-style-type: none"> • Funding Source: Spend-to-Save fund • Limited demand on management resources • Apply for funding through CMT
Ownership and accountability	Implemented by ICT Services
Ensuring success	
Performance / success measure	Reduction in energy consumption
Timing	
Sources of information and guidance	

Project 9 – Review and continued implementation of Green Travel Plan – up to 1% of target

Description and notes	<ul style="list-style-type: none"> • Promote regional car-sharing scheme and host WDC portal • Investigate opportunities for tele/video conferencing • Issue efficient driving guidance to all car users ('eco-driving') • Introduce Business Travel Policy • Introduce trial of Pool Car scheme • Implement review of high business mileage services • Investigate opportunities for a 'shuttle bus' between main Council offices
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	<ul style="list-style-type: none"> Continue to implement 'Westbound'
Quantified costs and benefits	<ul style="list-style-type: none"> Costs Business Travel Officer (0.5 FTE) to support this project - £10,000 p/annum Regional Car Share Scheme (web-based) - £1,000 p/annum Trial of 4 pool cars - £22,000, plus £2,000 p/annum fuel/maintenance Based on £5,500 p/car Marketing/other support - £2,000 p/annum Total: £15,000 annually, £22,000 (Yr 1) Emissions reduction By implementing the initiatives listed under 'Description', it is anticipated a 10% reduction in travel for business could be realised by 2014/15. Total: 60,766 kg Financial savings By implementing the initiatives listed under 'Description', it is anticipated a 10% reduction in travel for business could be realised by 2014/15. Based on a reduction in expenses at 40p/mile Total: £72,788 Payback period
Resources	<ul style="list-style-type: none"> Funding source : Spend-to-Save fund Limited demand on management Apply for funding through CMT
Ownership and accountability	Roads and Policy Unit joint project
Ensuring success	<ul style="list-style-type: none"> Employee buy-in Effective operation of car-share website Close monitoring Guidance and information for employees supported with marketing Cooperation with relevant services, eg. Internal Transport, ICT, Corporate Communications, Roads
Performance / success measure	Staff Travel Survey Reduction in business mileage paid
Timing	Milestones, key dates, particularly key decisions
Sources of information and guidance	SPT

Project 10 – Grassland and Wildflower Management – up to 1% of target	
Description and notes	<ul style="list-style-type: none"> • Review grass-cutting maintenance schedule/requirement for grass-cutting • 5% reduction in grass-cutting – land being used instead for grassland/wildflower meadows <p><i>As part of the council's commitment to enhancing biodiversity in West Dunbartonshire, a number of projects are planned which will contribute to carbon sequestration locally. The Council has recently formed a Woodland and Grassland Management Steering Group to identify suitable woodland areas for management and expansion primarily through funding from Woodland In and Around Town grants. In addition, Forestry Commission (Scotland) has plans for extensive planting of broadleaves in the Kilpatricks, funded from their Carbon Sequestration Fund.</i></p> <p><i>To date, around £800,000 has been spent by the Forestry Commission in West Dunbartonshire through their carbon sequestration fund. Carbon sequestered through existing woodland stock is estimated at 3,960 tonnes/annum.</i></p> <p><i>There are plans for 260 hectares of new woodland creation, which would result in a further 720 of carbon sequestered each year.</i></p>
Quantified costs and benefits	<ul style="list-style-type: none"> • Costs None. • Emissions reduction Based on a 5% reduction in grass cutting and the related reduction in petrol consumption. Total: 4,928 kg CO2 • Financial savings The savings on the cost of petrol will be redistributed to pay for materials to enhance biodiversity (eg. wildflower seed) (Saving on petrol £1873) • Payback period Immediate as no cost. • Other Advantages/Added Value This project will contribute to the enhancement of the natural environment in the area helping us meet biodiversity targets. <i>Carbon sequestration – at least 980 tonnes/annum.</i>
Resources	<ul style="list-style-type: none"> • Funding – as above; no cost attached, savings on cost of petrol will be redistributed to purchase of seed etc, met through existing Land Services budgets
Ownership and accountability	Joint project Land Services and Biodiversity Officer (Policy Unit)
Ensuring success	<ul style="list-style-type: none"> • Close consultation with Land Services and Biodiversity Officer
Performance / success measure	Reduction in petrol consumption. Improved biodiversity.
Timing	Initiate 2009/10
Sources of information	Forestry Commission



and guidance	
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Appendix B – Carbon Management Embedding Matrix



	CORPORATE STRATEGY	PROGRAMME MANAGEMENT	RESPONSIBILITY	DATA MANAGEMENT	COMMUNICATION & TRAINING	FINANCE & INVESTMENT	POLICY ALIGNMENT *
5	<ul style="list-style-type: none"> • Top level target allocated across organisation • CO₂ reduction targets in Directorate Business Plans 	<ul style="list-style-type: none"> • Senior Management Team/Committee/Court review progress against targets on quarterly basis • Quarterly diagnostic reports provided to Directorates • Progress against target published externally 	<ul style="list-style-type: none"> • CM integrated in responsibilities of senior managers • CM part of all job descriptions • Central CO₂ reduction advice available • Green Champions leading local action groups 	<ul style="list-style-type: none"> • Quarterly collation of CO₂ emissions for all sources • Data externally verified • M&T in place for: <ul style="list-style-type: none"> ○ buildings ○ street lighting ○ waste ○ transport 	<ul style="list-style-type: none"> • All staff given formalised CO₂ reduction: <ul style="list-style-type: none"> ○ induction and training ○ communications • Joint CM communications with key partners • Staff awareness tested through surveys 	<ul style="list-style-type: none"> • Finance committed for 2+yrs of Programme • External funding being routinely obtained • Ring-fenced fund for carbon reduction initiatives 	<ul style="list-style-type: none"> • CO₂ friendly operating procedure in place • Central team provide advice and review, when requested • Barriers to CO₂ reduction routinely considered and removed
4	<ul style="list-style-type: none"> • CO₂ reduction commitment in Corporate Strategy • Top level targets set for CO₂ reduction • Climate Change Strategy reviewed annually 	<ul style="list-style-type: none"> • Sponsor reviews progress and removes blockages through regular Programme Boards • Progress against targets routinely reported to Senior Mgt Team 	<ul style="list-style-type: none"> • CM integrated in to responsibilities of department heads • Senior Management Team/Committee/Court regularly updated • Staff engaged through Green Champion network 	<ul style="list-style-type: none"> • Annual collation of CO₂ emissions for: <ul style="list-style-type: none"> ○ buildings ○ street lighting ○ transport ○ waste • Data internally reviewed 	<ul style="list-style-type: none"> • All staff given CO₂ reduction: <ul style="list-style-type: none"> ○ induction ○ communications ○ CM matters communicated to external community 	<ul style="list-style-type: none"> • Coordinated financing for CO₂ reduction projects via Programme Board • Finances committed 1yr ahead • Some external financing 	<ul style="list-style-type: none"> • Comprehensive review of policies complete • Lower level policies reviewed locally • Unpopular changes being considered
3	<ul style="list-style-type: none"> • CO₂ reduction vision clearly stated and published • Climate Change Strategy endorsed by Cabinet and publicised with staff 	<ul style="list-style-type: none"> • Core team regularly review CM progress: <ul style="list-style-type: none"> ○ actions ○ profile & targets ○ new opportunities 	<ul style="list-style-type: none"> • An individual provides full time focus for CO₂ reduction and coordination across the organisation • Senior Sponsor actively engaged 	<ul style="list-style-type: none"> • Collation of CO₂ emissions for limited scope i.e. buildings only 	<ul style="list-style-type: none"> • Environmental / energy group(s) given ad hoc: <ul style="list-style-type: none"> ○ training ○ communications 	<ul style="list-style-type: none"> • A view of the cost of CO₂ reduction is developing, but finance remains ad-hoc • Some centralised resource allocated • Finance representation on CM Team 	<ul style="list-style-type: none"> • All high level and some mid level policies reviewed, irregularly • Substantial changes made, showing CO₂ savings
2	<ul style="list-style-type: none"> • Draft Climate Change Policy • Climate Change references in other strategies 	<ul style="list-style-type: none"> • Ad hoc reviews of CM actions progress 	<ul style="list-style-type: none"> • CO₂ reduction a part-time responsibility of a few department champions 	<ul style="list-style-type: none"> • No CO₂ emissions data compiled • Energy data compiled on a regular basis 	<ul style="list-style-type: none"> • Regular awareness campaigns • Staff given CM information on ad-hoc basis 	<ul style="list-style-type: none"> • Ad hoc financing for CO₂ reduction projects 	<ul style="list-style-type: none"> • Partial review of key, high level policies • Some financial quick wins made
1 Worst	<ul style="list-style-type: none"> • No policy • No Climate Change reference 	<ul style="list-style-type: none"> • No CM monitoring 	<ul style="list-style-type: none"> • No recognised CO₂ reduction responsibility 	<ul style="list-style-type: none"> • No CO₂ emissions data compiled • Estimated billing 	<ul style="list-style-type: none"> • No communication or training 	<ul style="list-style-type: none"> • No specific funding for CO₂ reduction projects 	<ul style="list-style-type: none"> • No alignment of policies for CO₂ reduction

* Major operational policies and procedures, e.g. Capital Projects, Procurement, HR, Business Travel