Local Authority Carbon Management Programme

City of York Council

Strategy and Implementation Plan (SIP)

DRAFT

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Approval:

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 local authority sector as key to delivering carbon reduction across the UK inline with its Kyoto commitments and the Local Authority Carbon Management programme is designed in response to this. It assists councils 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.

City of York Council was selected in 2007, amidst strong competition, to take part in this ambitious programme. City of York Council partnered with the Carbon Trust on this programme in order to realise vast carbon and cost savings. This Carbon Strategy and Reduction Plan commits the council to a target of reducing CO_2 by 25 % by 2013 and underpins potential financial savings to the council of around £1 million.

There are those that can and those that do. Local authorities can contribute significantly to reducing CO_2 emissions. The Carbon Trust is very proud to support City of York Council in their ongoing implementation of carbon management.

Richard Rugg
Head of Public Sector, Carbon Trust

Foreword from City of York Council

The Council has adopted as one of its corporate priorities a commitment to reduce the environmental impact of our activities. We became involved in the Local Authority Carbon Management Programme because of the great importance in reducing our carbon dioxide emissions, which in turn will contribute to reducing our impact on climate change. We are pleased to present this Strategy and Implementation Plan which sets out how City of York Council will reduce its carbon dioxide emissions over the coming years.

The potentially catastrophic consequences of global warming are a cause for action and we have set ourselves a challenging target to reduce our corporate carbon dioxide emissions by 25 % over the next 5 years on all our non-housing activities. This is only a short-term target and in the years that follow we intend to reduce our carbon footprint further. The target to reduce the carbon emissions from our housing stock presents different challenges. It is recognised that more work needs to be done before a specific target is set later in 2008.

We recognise that reducing our carbon footprint is something on which the Council should set an example to others in the city. We hope that this strong lead will encourage other employers, organisations, and individuals within the city to follow.

Stephen Galloway
Leader
City of York Council

Bill McCarthy
Chief Executive
City of York Council

Andrew Waller
Executive Member
Neighbourhood Services

Bill Woolley
Director for City Strategy
Carbon Champion

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Approvals

This Strategy and Implementation Plan is to be presented to the Executive on 22 April for approval.

Management summary

Over the financial year 2007/08 City of York Council has taken part in the Carbon Management Programme run by the Carbon Trust. This Strategy & Implementation Plan is the culmination of the past year's work. It proposes targets on carbon reduction, some of the projects to be carried out and the changes in management structure which will be needed in order to meet the targets.

This strategy is a key action within the Environmental Sustainability Strategy and forms part of the corporate strategy to "seek to place environmental sustainability at the heart of everything we do and to reduce the environmental impact of council activities and encourage, empower and promote others to do the same."

We have measured the baseline of our emissions for the financial year 2006/07. This stands at a little over 23,000 tonnes of CO_2 per year arising from our own activities (council owned buildings including schools, street lighting, fleet transport, in work staff travel, and council organisational waste). An additional 34,500 tonnes is estimated to come from the housing stock.

The targets we have set ourselves are to reduce the carbon dioxide emissions arising directly from City Council activities by 25 % of this baseline by the end of March 2013, and to reduce the emissions from the council housing stock with a specific target for this to be determined in 2008 after further work has been undertaken.

A list of potential projects which will target reducing carbon emissions has been drawn up. These include some existing projects, and some new work aimed at improving building energy efficiency, reducing waste and changing behaviour. A fund has been established to pay for these and other projects. The fund has been started with £250,000 from the capital programme, but additional funding will be required over the next five years in order to meet the targets. Predicted financial savings from the proposed projects are over £1 million.

If no action is taken, the carbon emissions resulting from City Council activities would be expected to continue to rise, adding to global warming and costing more in terms of increased energy and fuel bills.

As part of the Carbon Management Programme a senior officer/member Carbon Board has been established. The Board will continue to oversee the management of the programme and a Carbon Manager will be appointed to manager the project on a day to day basis. A data analyst will work on providing the background information to monitor our progress against targets.

The progress against the targets will be monitored at Corporate Management Team.

1 Introduction

City of York Council joined the Carbon Trust's Local Authority Carbon Management Programme in April 2007. This programme provides technical and change management support to help local authorities realise carbon emissions savings. The aim is to reduce emissions under the direct control of councils, whether caused by energy use in buildings, street lighting or vehicle fleets.

To date 143 local authorities have been involved in the Carbon Management Programme since 2003/04. City of York Council joined phase 5 of the programme in 2007/08 with 44 other local authorities. Average savings achieved over the first four phases of the scheme equate to 5,800 tonnes of CO_2 and £430,000 per authority per year. York aims to be saving 5,810 tonnes CO_2 and has so far identified projects which could save £263,000 per annum by 2013.

The Carbon Trust programme lasts a year, during which time consultants are available to assist with running workshops and to give advice and support. A framework of a five-step process leads to writing a Strategy and Implementation Plan (this document) which sets out the route to achieving the target reductions over the following five years.

This Strategy and Implementation Plan (SIP) will be seeking approval from the Executive in April 2008. It covers a five year action plan over the period April 2008 to April 2013, during which time the target is to achieve a 25% reduction in City of York Council's CO_2 emissions on all our non-housing activities. The target for reduction in the emissions attributable to the housing stock will be set after further work has been undertaken.

2 Carbon Management strategy

2.1 Context and drivers

There are a number of existing national and local activities and policies which set the background to reduction of carbon dioxide emissions and sustainability. This Strategy & Implementation Plan takes these policies on carbon reduction at City of York Council forward with direction and targets.

National:

- Climate Change Bill: Targets to reduce CO_2 emissions by 60% by 2050
- Energy White Paper: Set up of the Carbon Reduction Commitment (CRC), a carbon trading scheme for all large public and private sector organisations, which will commence in 2010
- The new Local Performance Framework: Targets to reduce emissions from council activities and the community as a whole.

City of York:

- Sustainable Community Strategy: Targets to reduce the ecological footprint of York to 3.5 ha per person by 2030 from 6.98 ha per person now.
- LSP led Climate Change Strategy for the City: Working with each partnership to identify actions towards meeting the national carbon reduction targets.

City of York Council

- Corporate Strategy 2007 – 2011: "Seek to place environmental sustainability at the heart of everything we do. Reduce the environmental impact of council activities and encourage, empower and promote others to do the same."
- Environmental Sustainability Strategy: Providing a co-ordinated framework for environmental improvements within the council
- Environmental Policy & Environmental Management System: This policy and EMS which is under development is the mechanism by which environmental improvements will be monitored, measured and improved.
- Council wide policy framework including development of:
    - Energy and Water Management Policy
    - Sustainability in Design and Construction Policy
    - Sustainable Procurement Policy
    - Joint Municipal Waste Strategy – "Let's Talk Less Rubbish"

It is recognised that human activity has increased the level of carbon dioxide and other greenhouse gases in the atmosphere and that global temperatures are increasing. The 2006 "Stern Review: The Economics of Climate Change" states that the concentration of CO_2 and equivalents of other greenhouse gases are rising at an average of 2.3 ppm per year. Stern estimates that the average global temperature has increased by 0.7 ^{0}C over the last 100 years and is now rising at an increasing rate of

0.2 ^{0}C per decade. International agreement was reached at the Kyoto summit in 1997 to reduce the level of greenhouse gases in the atmosphere.

The UK committed to reducing CO_2 by 12.5 % over 1990 levels by 2008 – 12. The 2003 Government White Paper "*Our Energy Future: Creating a Low Carbon Economy*" had as one of its four main goals:

> "*To put ourselves on the path to cut the UK's carbon dioxide emissions …… by some 60% by about 2050 ….. with real progress by 2020."*

The 2007 Energy White Paper further strengthened this goal, with the announcement of the Climate Change Bill. One of the measures included in this bill is to introduce the carbon reduction commitment (CRC), which will enable the Government to charge local authorities, who are responsible for carbon emissions over a threshold value, a levy for every tonne of CO_2 emitted.

The commitment to reduce greenhouse gas emissions from council activities is a priority action for City of York Council. This builds on existing commitments of the council to reduce its ecological footprint within the Community Strategy, and in 2005 signing up to the Nottingham Declaration on Climate Change. The Council's commitment within its Corporate Strategy to reduce greenhouse gases from its own operations underpins the Council's leadership role in developing a city wide Climate Change Strategy through the Local Strategic Partnership.

The Council is already doing much to support sustainability. Significant projects such as the PV energy generation and exemplar design and construction at the EcoDepot, the biomass boiler and low energy design at Danesgate School and the proposed sustainable build and energy generation for the new council administration building at Hungate are all examples of new buildings making significant carbon savings. The Environmental Sustainability Strategy, agreed by Executive in September 2007, provides the framework and action plan for a measured, managed and co-ordinated set of actions to improve our environmental performance by reducing our most significant environmental impacts.

Sustainable options are given priority on all school projects where replacement heating systems are required, as demonstrated by the new York High School.

This Carbon Management Programme is the action we are taking to reduce the carbon emissions of the council.

2.2 Vision

To reduce the greenhouse gas emissions from council activities and encourage, empower and promote others to do the same.

2.3 Objectives and targets

- To reduce the Council's carbon emissions from its own activities by 25% by 2013
- To reduce the carbon emissions from the Council's housing stock by 25 % by 2020
- As a consequence of the cost savings from the above, to reinvest to produce further carbon savings
- To embed carbon management into corporate policy and management practice
- To capture opportunities for using low carbon technologies and practices
- To support implementation of the Council's corporate strategy by reducing greenhouse gas emissions,
- To raise awareness and understanding of Climate Change amongst staff and Members and involve them in identifying and implementing Carbon Management actions
- To lead by example and encourage community partners, business and public to reduce carbon emissions
- To contribute to the Sustainable Community Strategy target to stabilise and reduce the Ecological Footprint of the City.

2.4 Strategy

The Carbon Management Programme will seek emissions reductions in the following areas:

- Council owned building portfolio
- Schools
- Street lighting
- Council fleet transport
- In work council travel
- Council's organisational waste
- Social housing

Offsetting of carbon emissions by, for example, planting trees or paying for carbon reduction measures elsewhere in the World will not be part of the strategy. City of York Council sees that it is important to reduce the carbon emissions from its own activities as much as possible, and not to rely on other organisations to do it on our behalf.

Similarly, we will not count any purchase of energy generated from renewable sources towards the 25 % target set out in this strategy. Only power generated from renewable energy plant owned and operated by the City Council will count towards our carbon reduction target.

The Council will support the implementation of the Carbon Management Programme as a key action within the recently approved Environmental Sustainability Strategy. Additional policies supporting the implementation of this programme include:

- Energy and water policy
- Sustainability in design
- Street lighting strategy
- Joint Municipal Waste Strategy
- Travel plan

The council has established a corporate member/officer Carbon Board to give strategic co-ordination and implement an eligibility criteria by which to allocate funding to carbon reduction programmes.

The council has established a corporate fund to support carbon reduction activities. It is intended this fund will be a combination of capital, prudential borrowing and external grants. It will be administered through the corporate Carbon Board.

Communication of progress will be through regular reports to Executive, and Directors will report quarterly to CMT on an item on carbon targets that will be added to the Corporate Dashboard.

Communication to staff will be through regular awareness raising programmes, in addition to the activities of staff across the council.

3 Emissions baseline and projections

3.1 Scope

The baseline measures the CO_2 emissions from the following areas of council activity:

- Council owned building portfolio
- Schools
- Street lighting
- Council fleet transport
- In work council travel
- Council's organisational waste
- Social housing

The information from household waste was captured however not included within the baseline activity. The reduction in CO_2 emissions from household waste is being managed through the Joint Municipal Waste Strategy – "Let's Talk Less Rubbish".

3.2 Baseline

The baseline of City of York Council is estimated at approximately 57,800 tonnes of CO_2 (23,238 from the Council's activities and 34,545 from the housing stock). The financial year 2006/07 was used as the year for which the baseline has been calculated because it is the last full year for which figures are available. These emissions have been collated from a variety of known and estimated sources.

Gathering the information has not been easy, given the current disparate monitoring systems at City of York Council, for example, many gas and electric bills have been estimated. However, the baseline gives the most accurate estimate possible at present. As carbon management progresses, data gathering will improve and the baseline in future years will be known with more certainty. This is a recognised risk which will be included in the risk log for the project.

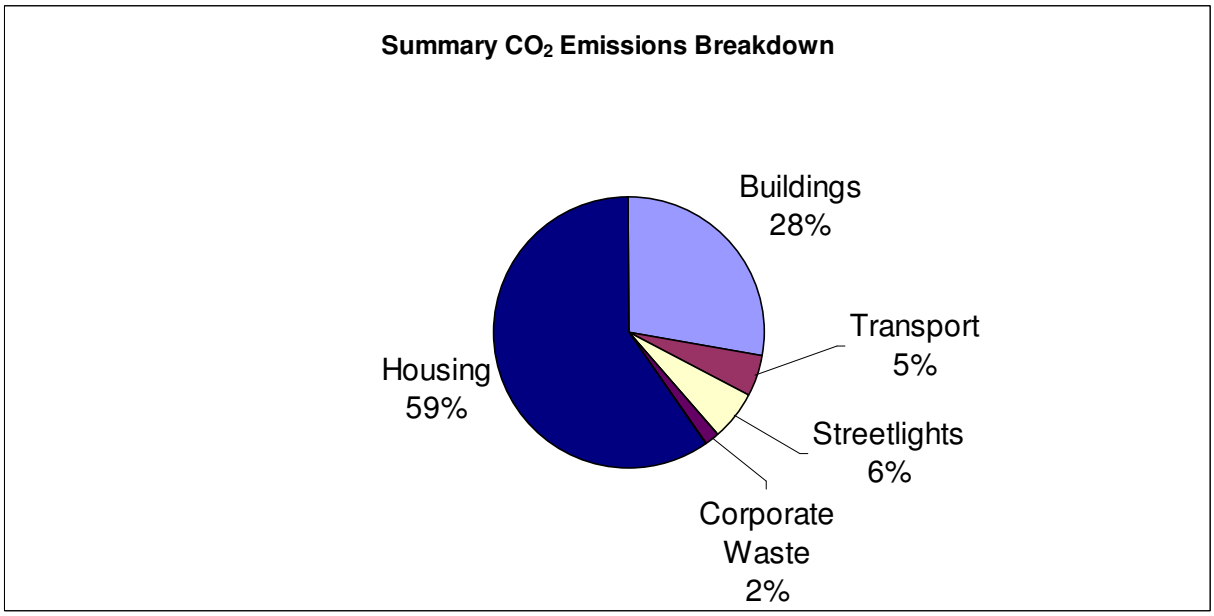
More detailed information about where the baseline data has come from and how it was calculated is contained in Appendix A.

	Buildings	Streetlighting	Transport	Corporate waste	Total
CO_2 emissions (tonnes)	16,146	3,267	2,845	980	23,238
Proportion (%)	70	14	12	4	100
Energy costs (£,000)	1,307	375	1145	53	2,880
Proportion (%)	45	13	40	2	100

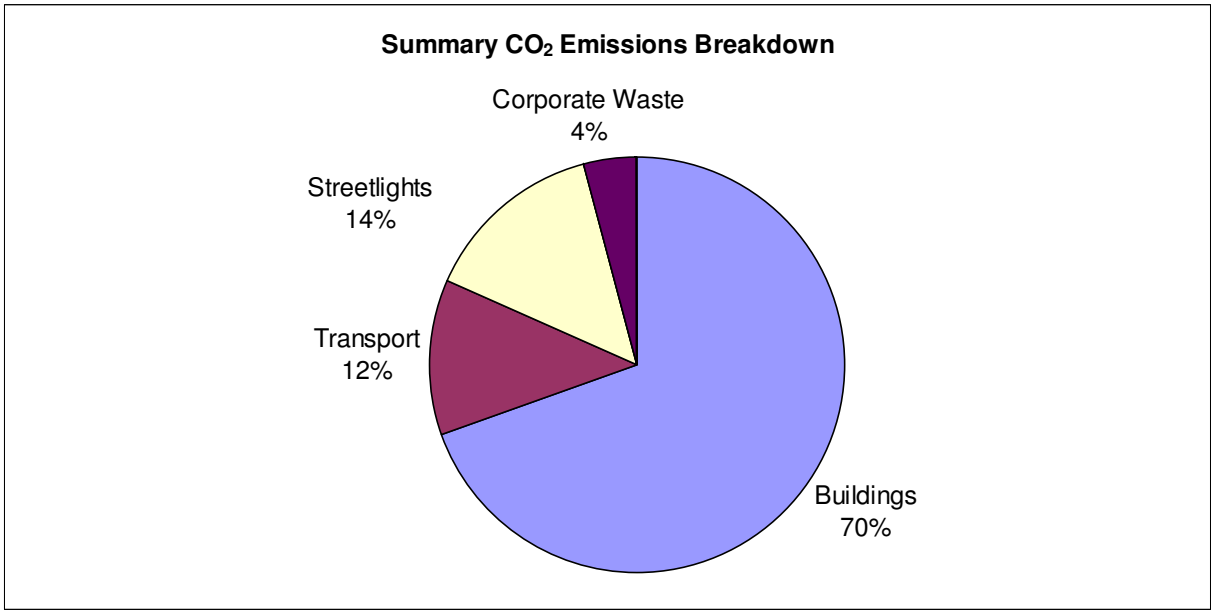
Table A. The 2006/07 baseline showing proportion of CO_2 and costs from different sources. Details of the source of these costs and emissions are contained in Appendix A.

It is estimated that the Council housing stock emits 34,545 tonnes of CO_2 per year. This is significantly more than the 23,238 tonnes for which the Council is directly

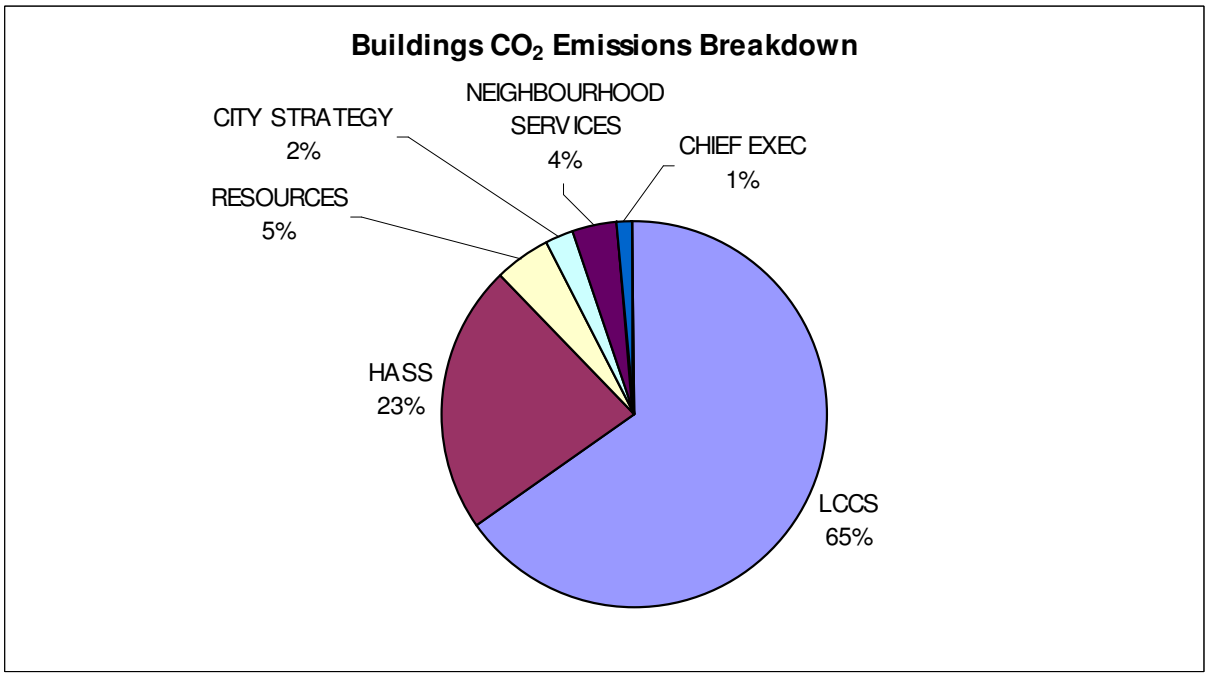
responsible from its own activities. The financial saving from any improvements to the insulation or energy performance of a dwelling results in an improved environment and reduced bills for our tenants, and no financial saving for reinvestment by the City Council. Whilst this makes the financing of Housing projects more difficult, working in partnership with other agencies will mean that a 25 % reduction by 2020 is achievable.



Pie chart 1. CO_2 emissions including housing



Pie chart 2. CO_2 emissions excluding housing



Pie chart 3. showing the CO_2 emissions for buildings by Directorate

3.3 Projections

The baseline represents a snapshot in time, and it is not known whether there is a trend in energy use at CYC. Many external organisations not actively trying to reduce their emissions are increasing the amount of energy used. DTI (now BERR) data suggests that, without taking action, gas electricity and fuel oil use will increase at an average of 0.7 % per year, and that fuel for transport use will increase at a rate of between 1.7 and 1.9 %.

Costs of electricity, gas and vehicle fuel are increasing at a rate higher than inflation. On average over the last 5 years electricity and gas prices have increased at a rate of 3.5 % pa and vehicle fuels have increased at a rate of 5 % pa. The Climate Change Levy (CCL) will increase gas, electricity and fuel oil prices by 2 % pa from 2010.

Business as usual (BAU) will mean significant increases in costs and CO_2 emissions. The following table shows the predicted increases in CO_2 emissions if no improvements or investment is implemented:

Year	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Emissions (tonnes CO_2)	**23,238**	**23,432**	**23,628**	**23,826**	**24,026**	**24,227**	**24,431**

Table B. Potential increases in emissions if no action is taken

City of York Council is already reducing its carbon footprint through projects that have already been implemented or are underway. For example, the new EcoDepot which opened in December 2006, York High School due for completion in 2009 and Hungate due for completion in 2010. These projects will all save significant amounts of CO_2

emissions and reduce energy consumption. They all also include some form of renewable energy generation.

If CYC saves the target of 25 % of CO_2 emissions, then using the Carbon Trust's calculation method by 2013 there will be substantial financial savings.

3.4 Past actions and achievements

In December 2006 Neighbourhood Services moved from the old depot on Foss Islands Road to its new purpose built EcoDepot. The new EcoOffice which achieved a BREEAM rating of "very good" is to a high environmental specification: it includes locally sourced straw bails, traditional lime plaster and a photovoltaic array with an output of 50 kWp. In the first full year of operation this array has generated 43,000 kWh of electric power for the new depot. A 15 kW wind turbine is planned for the site. This will further reduce the requirement for electricity generated by fossil fuels.

In the first nine months of operation the new depot has saved 36,000 kWh of electricity over that used on the old site. This is partly due to the new pv panels and is an equivalent of 16 tonnes of CO_2 and has saved the council £1,800. The new depot has also saved an estimated 50,000 kWh of gas over the old site, equivalent to 9 tonnes CO_2.

Several other building projects are committed which will save large amounts of CO_2 over the existing buildings. These include the new York High School which is a merger of Oaklands and Lowfields schools and the new swimming pool at Oaklands Sports Centre, which will replace Edmund Wilson Swimming Pool. The new swimming pool is to get a proportion of its heat from a large array of solar thermal collectors on its roof. These are expected to generate 82,000 kWh of heat, saving 15.6 tonnes of CO_2 and £820 per year.

The new office at Hungate will provide office space for the large majority of office based Council staff who are currently dispersed around the city in 16 different buildings. The design brief for the new office is that it should reach a rating of at least BREEAM "very good", with a desire for it to achieve the "excellent" rating. It will incorporate some on-site renewable energy generation. The exact design of this is still to be finalised.

New biomass boilers have been recently installed at Acomb Library and at the Danesgate Skills Centre. The new York High School will incorporate a biomass boiler as part of the redevelopment. It is also hoped to include a biomass boiler in the replacement Joseph Rowntree School planned to be opened in spring 2010.

The recent refurbishment of Yearsley Swimming Pool which included improved insulation of the building has cut the building's heat requirement by 52%. The building is heated by steam provided by Nestlé from their chocolate factory. The reduced requirement for steam has saved an estimated 230 tonnes of CO_2 per year.

Household waste is not included in the baseline, but it is worth noting that York achieved its target of recycling 40 % of household waste at the end of the 2006/07 financial year. This is 3 years in advance of the target deadline and was achieved from

a low base of 15 % in 2003/04 and the rate of annual increase in recycling was very high. This shows what can be done when a project is a corporate priority and is well driven. It promises well for the Carbon Management Programme which also has a tough target to achieve in a short timeframe.

In the baseline year of 2006/07 the council housing stock had an average SAP rating of 71 (SAP is the Standard Assessment Procedure which is a recognised measure of a building's energy performance). This compares well to the national average of 68 for the same year. York's SAP rating is increasing as the decent homes programme progresses due to heating systems being improved for more efficient versions and insulation levels being increased.

The Council's Travel Plan includes several initiatives designed to encourage staff to use more environmentally sustainable forms of transport both on the way to work and when at work. These include: pool bikes; pool cars; park and ride permits; schemes for loans for the purchase of cycles and bus passes, provision of cycle parking at all work places. All schools are required to write their own green travel plans.

4 Carbon Management Implementation Plan

4.1 Shortlisted actions and emission reduction opportunities

As part of the Carbon Management Programme an opportunities workshop was held on 9 October 2007. At this workshop a large number of ideas for possible projects were discussed. These were then reduced to a smaller number of projects which were priced and evaluated for their practicality. The most promising of these are listed in summary form in the tables below. These projects make a good start for the first two years of the programme, but they do not reach the 25 % target. More work will need to be done in 2008 and future years in order to identify other opportunities for CO_2 reductions. Further details of each of these projects are included in Appendix B.

The projects are divided into a number of tables showing:

(i) projects already committed
(ii) no-cost or low cost projects
(iii) longer term investment projects
(iv) projects which require further investigation
(v) housing projects are listed separately as there is a different timeframe on this target and savings from those projects do not go into the corporate pot.

(i) Projects already committed

The following projects had already been committed before the start of the Carbon Management Programme. Whilst they contribute to CO_2 savings, this was not the primary objective in setting up the projects. The budget for all these projects has already been allocated and they will not require further funding from the carbon management budget.

	Project	Lead Officer	CO_2 Savings (tonnes)	% saving from baseline	When by?
1	Hungate	Maria Wood	800	3.4	Dec 2010
2	Integrated transport	Steve Morton	70	0.3	Oct 2010
3	EcoDepot		25	0.1	complete
4	York High & Oaklands Sports Centre	Maggie Tansley	904	3.9	2008/09
5	Yearsley Pool	Andy Laslett	230	1.0	complete
6	Joseph Rowntree new build	Maggie Tansley	250	1.1	Feb 2010
7	Office recycling	Peter Davison	150	0.6	2008
		Total	2,429	10.4	

Table C

(ii) No or low cost projects

The following projects will not cost much to set up and have a quick payback period. They would be ideal projects to implement early on in the programme. The recycling of waste in schools will be cost neutral, so can start when the infrastructure is in place. The other two projects will need approval from the carbon board and funding from the carbon budget.

	Project	Lead Officer	CO_2 Savings (tonnes)	% saving from baseline	When by?
8	Recycling of waste in schools	Peter Davison	111	0.5	2008
9	Staff behaviour changes, energy champions, smart meters	Gary Christie/ Carbon manager	820	3.5	Subject to funding & approval 2008
10	Turn heating down to 19^0 C in admin buildings, alter heating system time clocks	Gary Christie	120	0.5	Subject to funding & approval 2008
		Total	1,051	4.5	

Table D

(iii) longer term investment projects and projects not yet committed
The following table includes promising projects that have a longer payback period and need further investigation to check that they are feasible and to see which will give the best carbon savings and quickest payback.

	Project	Lead Officer	CO_2 Savings (tonnes)	% saving from baseline	When by?
11	Extend EMS/BMS in schools	Gary Christie	204	0.9	Subject to funding & approval 2009
12	Improve insulation	Gary Christie	251	1.1	Subject to funding & approval 2009
13	Power perfector voltage power optimisation	Gary Christie	430	1.9	Subject to funding & approval 2008
	Total		885	3.9	

Table E

(iv) projects requiring further investigation
The following projects are being trialled and may be suitable for larger scale implementation if they prove successful.

	Project	Lead Officer	CO_2 Savings (tonnes)	% saving from baseline	When by?
14	Renewable energy in bollards trial	Ricky Watson	14	0.1	2008
	Renewable energy in bollards potential		(56/yr)	(0.2/yr)	2009 - 2013
15	Efficiency of streetlights trial	Ricky Watson	0.5	0	2008
	Efficiency of streetlights potential		(24)	(0.1/yr)	2008 - 2040
16	Satellite tracking of vehicles trial	Chris Slade	10	0	2008
		Total by 2013	354	(1.5)	

Table F (The trial costs are shown with potential costs in brackets if the projects are rolled out).

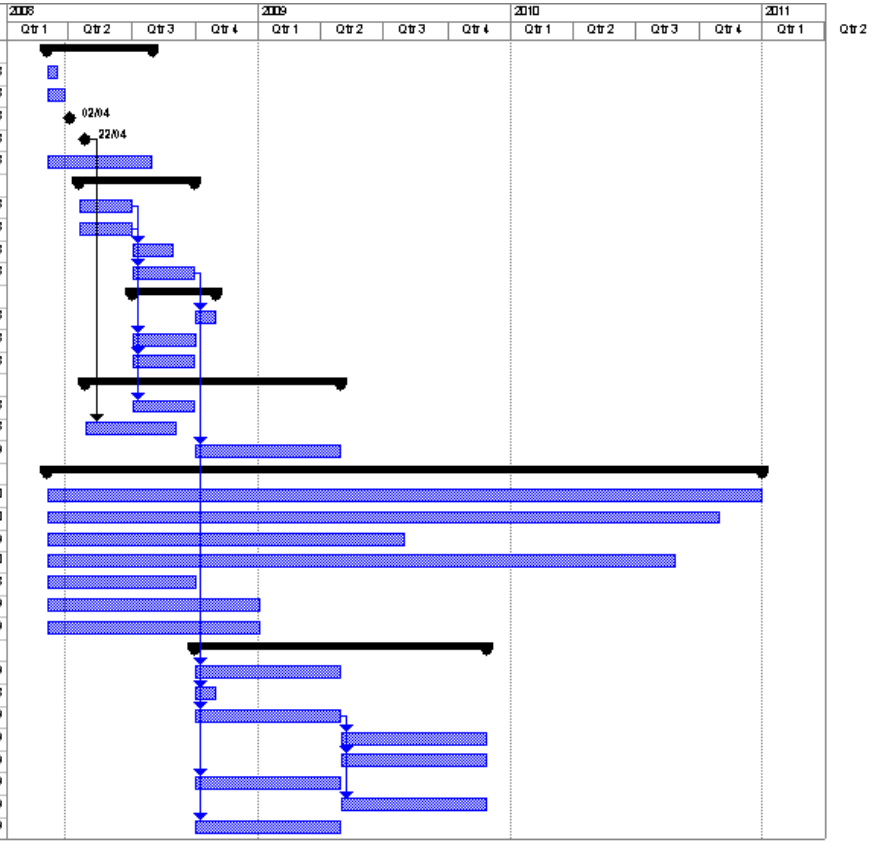
(v) Housing related projects showing savings on the Housing Baseline
The projects below are committed on the Housing Capital Programme and arise from the commitment to meet the Decent Homes Standard by 2010. Savings from the housing baseline are separate from the savings in tables i to iv, and cannot be added.

	Project	Lead Officer	CO_2 Savings (tonnes)	% saving from Housing baseline	When by?
H1	Loft insulation DHP	Mark Grandfield	211	0.3	2008/09
H2	Replacement boilers TC & DHP	Mark Grandfield	2,926	4.2	2010/11
H3	Render 11 blocks of flats DHP	Mark Grandfield	83	0.1	2010/11
Total			3,220	4.6	

Table G

4.2 Implementation plan summary

ID	Task Name	Duration	Start	Finish
1	Strategy & Implementation Plan approval	111 days	Thu 28/02/08	Thu 31/07/08
2	Complete SIP	12 days	Thu 28/02/08	Fri 14/03/08
3	Write paper for CMT	20 days	Thu 28/02/08	Wed 26/03/08
4	CMT meeting to discuss SIP	0 days	Wed 02/04/08	Wed 02/04/08
5	Executive meeting to discuss SIP	0 days	Tue 22/04/08	Tue 22/04/08
6	Include carbon targets on corporate dashboard	111 days	Thu 28/02/08	Thu 31/07/08
7	Set up of carbon management team	120 days	Tue 15/04/08	Mon 29/09/08
8	Appoint a Carbon Manager	55 days	Tue 15/04/08	Mon 30/06/08
9	Appoint a data analyst	55 days	Tue 15/04/08	Mon 30/06/08
10	Set up carbon management team structure	44 days	Tue 01/07/08	Fri 29/08/08
11	Set programme of work for 08/09 financial yr	65 days	Tue 01/07/08	Mon 29/09/08
12	Financial structure	87 days	Tue 01/07/08	Wed 29/10/08
13	Apply for Salix funding	22 days	Tue 30/09/08	Wed 29/10/08
14	set up trial fund for internal carbon tax	65 days	Tue 01/07/08	Tue 30/09/08
15	Revise CRAM process to include carbon statements	65 days	Tue 01/07/08	Mon 29/09/08
16	Cost free projects	265 days	Wed 23/04/08	Tue 28/04/09
17	Set up annual meter readings for all buildings	65 days	Tue 01/07/08	Mon 29/09/08
18	produce a programme of works for Housing	95 days	Wed 23/04/08	Tue 02/09/08
19	Write an Energy Policy	151 days	Tue 30/09/08	Tue 28/04/09
20	Approved projects	742 days	Thu 28/02/08	Fri 31/12/10
21	Hungate	742 days	Thu 28/02/08	Fri 31/12/10
22	Integrated Transport	697 days	Thu 28/02/08	Fri 29/10/10
23	York High school and Oaklands Sports Centre	372 days	Thu 28/02/08	Fri 31/07/09
24	Joseph Rowntree School rebuild	652 days	Thu 28/02/08	Fri 27/08/10
25	Display energy certificates	154 days	Thu 28/02/08	Tue 30/09/08
26	Office recycling	221 days	Thu 28/02/08	Thu 01/01/09
27	School recycling	221 days	Thu 28/02/08	Thu 01/01/09
28	Projects subject to approval and funding	304 days	Tue 30/09/08	Fri 27/11/09
29	Energy champions/smartmeters	152 days	Tue 30/09/08	Wed 29/04/09
30	Turn heating down	23 days	Tue 30/09/08	Thu 30/10/08
31	PowerPerfector	152 days	Tue 30/09/08	Wed 29/04/09
32	Extend EMS/BMS in schools	152 days	Thu 30/04/09	Fri 27/11/09
33	Improve insulation in schools	152 days	Thu 30/04/09	Fri 27/11/09
34	Renewable energy in bollards	152 days	Tue 30/09/08	Wed 29/04/09
35	Efficiency of street lighting	152 days	Thu 30/04/09	Fri 27/11/09
36	Satellite tracking of vehicles	152 days	Tue 30/09/08	Wed 29/04/09



5 Implementation Plan financing

City of York Council's current total energy bill is approximately £2.8 million. The figures below include schools, but exclude the council housing stock:

Electricity in buildings	£820 k
Gas in buildings	£451 k
heating fuel oil in buildings	£37 k
vehicle fuel	£1,145 k
electricity for street lighting	£375 k

Energy prices are predicted to increase significantly in the next few years. A conservative estimate of a 5 % increase per year would mean fuel costs rising at £150,000 per year. These potential price increases are a cause for action.

The Carbon Reduction Commitment (CRC) applies to organisations with half hourly metered electricity of greater than 6,000 MWh per year. The scheme will start in January 2010 and with the cost of the levy expected to be 2 % of the electricity bill. The details of how the costs will be charged and how it will function are not yet finalised.

5.1 Funding sources

A bid for capital funding worth £250,000 has been approved through the CRAM process. A bid will also be submitted for match funding from Salix. If both bids are successful, there will be a fund of £500,000 which will be available to be spent on carbon reduction projects. Any revenue savings from these projects will be ploughed back into the fund so that further projects can be paid for.

Salix funding is restricted to certain projects associated with buildings and street lighting. It cannot be used on projects to save vehicle fuel or on waste reduction. The Salix funding is dependent upon a commitment to recycle the revenue savings into funding future projects. Salix provide assistance in specification of projects to ensure that they are correctly priced and projected savings are realistic.

A list of projects suitable for funding will be put together. The existing carbon management programme board will continue and agree the projects which can be funded subject to EMAP and/or executive approval. Initially, priority will be given to projects which have a quick payback time and which have high carbon savings. This will enable the savings to be used to pay for further projects. As time goes on the savings will increase. The Carbon Trust has provided a spreadsheet which helps to identify the most effective projects to pursue.

On 18 December 2007 Executive approved the report "Carbon Management, energy and sustainability – funding mechanism". This report recommended that:

> "all capital investment in buildings should give full consideration to the need to meet the council's targets for reducing carbon emissions, reducing the use of the energy resource and complying with best practice on all issues of design and environmental sustainability

consideration should be given to this need when making bids for financial resources to deliver projects

a financial and target business case should be prepared for all projects"

This agreed policy needs to be conveyed to all project officers who instigate and manage capital projects to ensure that it is implemented, and a section on carbon emissions should be included as part of the CRAM form to ensure that it is considered at project proposal stage.

The Carbon Manager will advise CAMG on suitability of projects and be available to advise directorates on the details they need to include in their bids.

5.2 Education funding

Subject to final approval by the Strategy for Change by Schools and others, the Primary Capital Programme will begin in April 2009. Funding of £8.3 million has been allocated for 2009 – 11. The Primary Strategy seeks to not only improve primary facilities but also remove surplus places from the system. As a result we are likely to see some reduction in overall primary school numbers with opportunities arising from new build developments to build in some carbon saving measures.

The LA's formula funding amounts to approximately £2.25million pa and in addition schools directly receive Devolved Formula Capital (DFC) of £3million pa. There is an opportunity to influence some of this expenditure. However, there are competing priorities at schools, and the main route for funding carbon reduction projects will probably be through including energy saving measures during major capital works and potentially prudential borrowing.

Funding has been approved to rebuild Joseph Rowntree School. The aspiration going into the design phase is that it will be carbon neutral. In the baseline year this building emitted 420 tonnes CO_2, so this represents a saving of 1.8% of the Council baseline (excluding Housing).

5.3 Summary of predicted costs and savings

More detailed information for each of the projects in the above tables are included in Appendix B. This includes predicted set up capital costs and revenue savings. These are approximate costs at this stage based on estimates and benchmark figures. It is clear from the project data sheets that although they represent a very good start, they do not reach the target of 25 % reduction in CO_2 for either the Council's activities or the housing stock. More projects will need to be identified and costed over the next two years to ensure that the target reductions can be achieved.

The secured funding of £250,000 on the capital programme and potential £250,000 grant from Salix will pay for some of the proposed schemes, but will not be sufficient to pay for all of the projects needed to achieve the target. This is particularly true in Housing, where significant funding will be required over the next 13 years. Future capital funding bids will need to be submitted in order to continue the investment programme and to achieve the target.

It should be made clear that the revenue cost savings shown in the project sheets are against current energy costs. Expected increases in costs arising from predicted higher than inflation rises of energy (in the form of gas, electricity and fuel) and the introduction of the carbon reduction commitment are not included. The full revenue savings (over what would have been due had no action been taken) will need to be re-invested into the carbon fund in order that further projects can continue in future years.

6 Project management and communications

6.1 Project management

Carbon Management will be project managed using the Prince2 methodology in accordance with council policy.

The council's Director of City Strategy (Bill Woolley) will adopt the role of "Carbon Champion" for City of York Council.

A new job of Carbon Manager will be created. This will be funded by reprioritising existing staff resources.

The existing Board of:

Bill Woolley - Director of City Strategy
Cllr Andrew Waller – Executive Member for Neighbourhood Services
Steve Morton - Corporate Finance Manager
Neil Hindhaugh – Assistant Director: Head of Property Services

will continue to oversee the carbon management project and provide strategic support to the Carbon Manager to ensure success of the project at a corporate level.

The Carbon Manager will manage the project on a day to day basis supported by a Project Planning Team of established and experienced technical and support staff drawn from across the council. (This will include Sustainability Officer, Property Engineer, Energy Manager, Fleet Manager, Waste Manager, Finance Manager, Data Analyst and Administrative support).

The Carbon Manager will report regularly to the Board, on progress, policy recommendations, business cases for all investment proposals, target setting and monitoring, financial monitoring etc.

Recommendations seeking policy approval and agreement to investment programmes and priorities will be considered by the Board for submission to the council's Executive for approval.

The Carbon Manager will ensure that established and appropriate groups within the council are consulted and informed of direction and progress in carbon reduction. Notably:

- The Leader's Group (4 party representation)
- The Corporate Management Team (CMT)
- The Corporate Asset Management Group (CAMG)

The Leader's Group involvement will ensure cross party consensus/involvement in the management of Carbon Reduction for City of York Council.

CMT includes the Chief Executive and Directors of the Council. Each Director will have responsibility for ensuring that consideration and action to progress carbon reduction is to the fore and embedded in all aspects of their business, and that each directorate responds effectively to corporate carbon reduction initiatives of the council.

CAMG is a cross directorate group with responsibility for the management and investment in council assets. The group will ensure that carbon reduction initiatives become embedded in all schemes and investment in council assets in a corporate, consistent and coordinated way.

Delivery of the Carbon Management Project will be by way of a Project Plan coordinated and driven by the Carbon Manager. The Project Plan will include projects, initiatives and managed workstreams clearly allocated to delivery managers from appropriate directorates and services across the council. All of whom will report progress back to the Carbon Manager and project planning team through both check point and highlight reports.

One of the workstreams will focus upon behavioural and educational initiatives for the organisation. This will be chaired by the Carbon Manager, operate as a 'Forum' and include representatives from all directorates. It will also act as a conduit for performance monitoring of carbon reduction activity across all directorates and service areas.

Directors (or an appointed Assistant Director) will be responsible for carbon reduction performance and monitoring in their respective directorates and have a working relationship with their directorate's Forum representative. They will report to the Carbon Manager and to CMT on progress against Carbon reduction targets.

To ensure the carbon management improvements are delivered and that progress is checked effectively, action and targets need to be incorporated into the council's planning and performance framework. Work has already started on this and reviewing/calculating the carbon footprint of services will become an integral part of the directorate planning guidance from August 2008 onwards. The primary intention is to review this at a directorate business planning level, but this may initially need to be developed from service plan areas upwards.

Carbon management will also be reported in corporate performance reports from August. Initially, this will be covered under progress reports for the council's *'reduce the environmental impact of council activities'* corporate priority, which gets reported quarterly to CMT and the Executive through the Corporate Performance Dashboard. However, in the future, this may need to become a regular elements of the way we report progress under 'corporate health' - which currently covers resource management, equalities and Health & Safety.

Project Planning Team officers and members of the 'Forum' will be given appropriate time and resource in order to attend meetings and carry out tasks as contributors to the carbon management project. This may need to be written into their job

descriptions. They will be provided with training to help them in their role as and when necessary. The funding for facilities time and training will come from each person's directorate.

A new post of data analyst will be needed in order to assist with collating information on what revenue savings have been made and how each Directorate is doing against their targets for carbon reduction. Administrative support will also be required.

In parallel with the final SIP, a report will go to Executive for approval.

The council has recognised that carbon reduction is only one of a number of inextricably linked initiatives that contribute to its developing Climate Change Strategy. The management of carbon reduction will not be undertaken in isolation, but in tandem with other initiatives. A paper was submitted to and approved by the council's Executive in December 2007 recommending that funding of 'sustainability' initiatives such as carbon reduction, energy management and conservation and sustainable design should be coordinated to ensure best use of limited resources. Every effort would be made to ensure that those investments providing financial savings as well as meeting the objectives of reducing carbon and energy use would be prioritised to ensure that those financial savings in future years could be recycled for further investment.

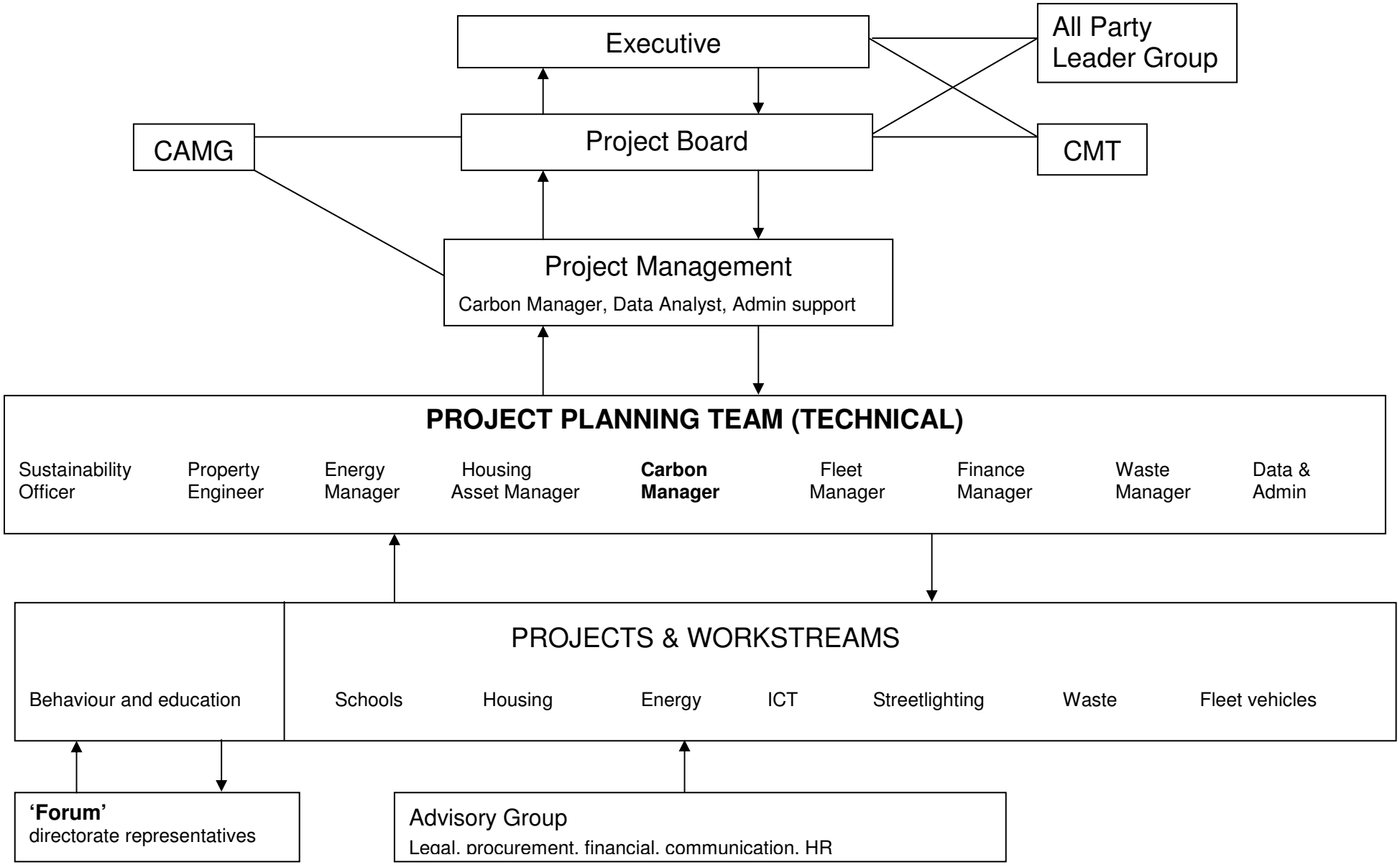
Policy alignment is needed with procedures in procurement, IT, transport, HR, property, energy management etc to ensure that carbon reduction is embedded throughout the organisation. The Carbon Manager will be responsible for liaising with those responsible for the relevant procedures to ensure that they are updated to reflect carbon reduction. An important policy which needs development is an energy supply policy. This has been included as project no 18 in Annex B, and will support several other projects.

6.2 Communications Plan

Two of the council's internal newsletters, namely, "News in Depth" and "News & Jobs", the intranet and relevant poster campaigns will be used to communicate with staff at regular intervals. There will be an initial article when the programme is launched in Spring 2008, and then regular reports to all staff to demonstrate progress against targets will help to embed carbon reduction into everyone's consciousness.

Information on the savings made in all areas will be collated and a quarterly summary will be circulated to all staff. This will enable staff to see how their actions are having an impact.

7 SIP governance, ownership and management – 7.1 Main roles and responsibilities



7.2 Members of the Forum:

New post	Carbon Manager	City Strategy
Jacqueline Warren	Sustainability Officer	City Strategy
Ricky Watson	Engineer (Projects) Highways	City Strategy
Annette Clarke	Internal Communications Officer	Chief Executives
Tom Shepherd	Investment Officer	Housing & Adult Social Services
Iain Johnson	Data Analyst	Housing & Adult Social Services
Samantha Judd	Project Manager	Learning, Culture & Childrens' Services
Chris Slade	Vehicle fleet manager	Neighbourhood Services
Elizabeth Wray	Waste Service Project Officer	Neighbourhood Services
Daniel Brookes	Health and Safety Officer	Neighbourhood Services
Ian Goater	Admin Assistant IT	Resources
Gary Christie	Energy Manager	Resources
Steve Dalby	Technical Admin Assistant	Resources
George Sands	Lead Design Engineer	Resources
Mark Stower	Procurement Officer	Resources

7.3 Carbon Management Implementation Plan: Responsibility Table.

Activity	Lead person	Others involved	Responsibility	Date
Achieve the target of 25 % reduction in CO_2 emissions	Bill McCarthy	All staff and Members	Bill McCarthy, Steve Galloway	31 Mar 2013
Finalise SIP and present it to Executive	Tom Shepherd	Board	Bill Woolley	22 April '08
Appoint Carbon Manager, including securing funding.	Mike Slater	HR	Bill Woolley	31 May '08
Appoint data analyst, including reallocating funding for post	Mike Slater	HR, all Directors	Bill Woolley	31 May '08
Set up new structure of carbon management project team	Carbon Manager	Board	Mike Slater	31 July '08
Set programme of work for 2008/09 financial year	Carbon Manager	Project team	Board	31 Aug '08
Apply for Salix funding	Steve Morton	Simon Town, Carbon Manager	Steve Morton	31 July '08
Manage implementation plan	Carbon Manager	Project team, Board	Mike Slater	Ongoing
Manage risks and issues	Carbon Manager	Board	Mike Slater	Ongoing
Align policies on procurement, IT, transport, HR etc	Carbon Manager	Relevant departments	Mike Slater	31 March 10
Collate projects for inclusion in work programme, evaluate them for effectiveness & payback	Carbon Manager	Project team, Forum	Carbon Manager	Quarterly
Include carbon targets on the corporate dashboard	Peter Lowe	Tom Shepherd	Bill Woolley	August '08
Monitor & Review Progress against targets	Data Analyst	Carbon Manager Peter Lowe, CMT	Bill McCarthy	Quarterly
Manage stakeholders & communication	Carbon Manager	Board, Forum, Annette Clarke, Data analyst	Mike Slater	Quarterly
Communicate with All party leader group	Carbon Manager	Board	Bill Woolley	Ongoing
Communicate regularly with staff	Annette Clarke	Carbon Manager, data analyst	Carbon Manager	Quarterly
Set up trial fund for internal carbon tax	Carbon Manager	Steve Morton	Steve Morton	31 Aug '08
Submit proposals for finance for Carbon Management Activities	Carbon Manager	Tom Wilkinson, Steve Morton	Steve Morton	Ongoing
Seek additional external funding for projects	Carbon Manager	Simon Town	Carbon Manager	Ongoing
CRAM process to include carbon statements for capital projects	Tom Wilkinson	Carbon Manager	Steve Morton	31 Aug '08
Ensure annual meter readings are taken at all buildings	Data analyst	Gary Christie	Data analyst	31 Aug '08
Produce a viable programme of works to meet housing stock target	Mark Grandfield	Iain Johnson, Steve Waddington	Bill Hodson	31 Aug '08
Produce a written energy policy	Gary Christie	Carbon manager	Neil Hindhaugh	31 Mar '09

Table I

7.4 Risks and issues management

The Carbon Management project will be run using the Prince2 model. A risk and issue log will be set up by the Carbon Manager at the start-up of the project. This will then be discussed and reviewed at each quarterly board meeting, and each meeting of the carbon Forum.

Issues which may be included in the risk and issue log are:

- Data from some buildings is unclear. The gas data in particular is patchy and the information for many buildings has been estimated. If and when more accurate data is collected the baseline may change. This will alter the targets for CO_2 reduction.

- Schools have devolved budgets and are not compelled to abide by the Council's carbon reduction targets. They can only be encouraged to do so. On the whole they are very much in support of energy saving ideas and renewable energy projects, but they have conflicting priorities for resources.

- Services change. Some services which are currently run in-house may be contracted out to external organisations. In order to have continuity of the baseline, either the new service provider will need to provide carbon emissions data, or the original service will have to be removed from the baseline. Conversely, new services may come directly under council control, increasing the baseline. This will need to be accounted for when comparing savings against the original baseline.

- NI 185 will be introduced by the Government as a measure of how each LA is doing in carbon reduction against a baseline set in 2008/09. Many of the easy and cheap carbon reduction measures will have been implemented by then. This will mean that York may not show very well in comparison to LAs which are starting later on carbon management programmes. However, it may mean that we are better placed because we have the infrastructure in place. The baseline for NI 185 may include different measures which have not been included in the CMP baseline, and vice versa.

- The emissions resulting from the Council's contracts should be considered for inclusion in the baseline, including all the work that the council out-sources.

- Lifetime analysis has not been assessed in any of the information gathered in this report. Comparing it with the financial model of capital and revenue budgets, this project has only looked at "revenue carbon", that is the day to day energy which is used such as electricity, gas and vehicle fuel. It has not looked at "capital carbon" or the embodied energy used in the manufacture of the products purchased by the Council.

- Whilst it may be very difficult to assess how successful projects such as energy champions have been, every effort must be made to realise the projected revenue savings in order to finance future projects within the plan.

- The predicted savings should be challenging, but achievable. However, if projected targets are too ambitious, then additional projects and funding will be required to make up the shortfall. This may be at relatively short notice because the feedback on savings will lag behind the implementation of projects. To mitigate against this, it would be wise to aim to meet the target ahead of schedule.

- Energy use may drift upwards in places where there is no concerted effort to reduce its use. This is where a written energy policy will help to restrain excessive energy use in all areas of Council activities.

- If key staff leave the Council, then there will be lack of continuity in the programme and possible delays to projects.

- The funding from Salix has not been secured. If this and other grants are not obtained then the shortfall in funding to meet the projects will need to be found from within council budgets.

7.5 Benefits management

A Data Analyst will be employed and will report directly to the Carbon Manager. The Data Analyst will work closely with the Energy Manager to collate data on energy bills, apportion them to each directorate and provide as accurate information as possible on how each directorate is doing against their target. This data will be presented to CMT every quarter as part of the corporate dashboard. The data analyst will also compile quarterly reports to be circulated to all staff to show how each area is doing against its target.

Display Energy Certificates are required for all public buildings with a floor area of over 1,000 m^2 by October 2008. This is approximately 90 of CYC's building sites. This legislation will mean that gas and electric meters will be read annually in these buildings. The data analyst and Gary Christie will ensure that accurate readings are taken at least annually on all electric and gas meters.

7.6 Reporting and evaluation

The Board will meet quarterly to review progress against targets. This will be before the CMT meetings at which a carbon review is discussed on the corporate dashboard. The Strategy and Implementation Plan will be reviewed annually by the Board. At the annual SIP review meeting the programme of works and budget for following year will be agreed with the Carbon Manager.

The "Carbon Champion", Bill Woolley, will report to the All party leader group on progress against the targets in the SIP on a regular basis.

Appendix A

The baseline calculation was taken from the following information:

Council owned buildings

Gas and electricity used at each building has been taken from actual and estimated meter readings and from bills paid. These have been multiplied by standard factors provided by the Carbon Trust to convert the energy used into tonnes of CO_2. There are corporate gas and electricity contracts which set the tariff of price per kWh. Gas and electricity use at each building are monitored by the energy manager, although many of the figures used for the baseline are estimates because bills do not neatly fall on the anniversary of the previous reading and many bills are estimated rather than actual readings.

A corporate contract has been set up with a fuel oil supplier, which gives preferential prices to CYC customers, but each building is free to purchase oil from whoever they want. There are two Social Services Centres which use fuel oil for heating. This is not monitored centrally by the energy manager and the estimates for annual consumption come from bills paid in one financial year.

The new EcoDepot opened in December 2006. There will be substantial savings attributable to the move from the old depot at Foss Islands. However, very little of this will be shown in the baseline year.

Schools

Schools are included in the corporate gas and electricity contracts, but pay their gas and electricity bills directly, without going through the energy manager. They are free to use different suppliers if they so wish, although in reality only xx do so. Because each school is responsible for reading the meters and paying the bills from their own budget the data for electricity readings are very approximate. The detail has been provided by each school based on the annual budget and does not necessarily reflect the electricity used in an exact year. The corporate electricity supplier has not been able to provide a full list of what has been used at each building.

The corporate gas supplier has provided details of how much gas has been used at each site for a calendar year. However, even these are approximate because the meter readings are not all for an exact year and some are based on estimated readings.

10 primary schools use fuel oil to heat the buildings. The figures have come from data provided by the individual schools.

Social housing

The council owns just over 8,000 dwellings. Each of these has an estimated SAP rating, which is calculated based on the known insulation and heating system within the database of stock condition. The Codeman database used by the Housing Asset Management Team calculates an average quantity of CO_2 emissions for each dwelling from the knowledge of its size and SAP. When added together the total estimated

emissions for the whole housing stock is 34,545 tonnes pa. This is 59 % of the total in the CYC baseline.

The savings from any improvements to the SAP rating of the housing stock go to the tenants rather than to the Council as landlord. This means that there is no return on investment, which makes funding capital works more difficult. The Housing Asset Management Team has been concentrating on achieving the Decent Homes Programme over the last few years. Much of this work has involved improving the insulation of dwellings to reduce fuel poverty and upgrading of boilers to modern efficient models. The Decent Homes Programme comes to an end in 2010. At that point the housing capital programme will revert to replacing kitchens every 30 years, bathrooms every 40 years rewiring the electrical system every 30 years, replacing boilers every 15 years and the heating distribution system every 40 years.

A solar thermal system was installed on one of the council houses in February 2008. This is a trial system to gain experience in installation, to monitor energy savings and evaluate the practicality of using the technology more widely.

There is some capital funding which will be available for minor improvement works to the energy rating of the stock over the next two years. However, the number of dwellings owned by the council means that significant investment would be needed in order to achieve the savings of 25 % as set out in the target. It will take Housing much longer than the 5 year target for the rest of the Council's activities to achieve a 25 % cut in CO_2 emissions and a proposed target would be to reach the goal by 2020. This is in itself ambitious and is based on a profile of considerable investment into the stock to improve the SAP rating which is reducing the Housing stock's CO_2 emissions at a rate of 2 % per year.

A project will be set up within the Housing Asset Management Team in the spring of 2008 to investigate how to achieve this goal of 25 % reduction by 2020. This will look at improvements which can be made to the fabric of the dwellings, emerging technology and renewable energy generation. However, the level of continuing capital investment in the housing stock post 2010/11 cannot be confirmed at this time and will be the subject of a future financial assessment. This may affect the Council's ability to achieve a 25 % reduction by 2020.

The communal lighting in blocks of council flats is unmetered. The electricity used 12 years ago was estimated based on the number of lights and the hours of use at the time. Many lights have since been replaced with more energy efficient models but the bills use the power consumption from 1996. This is also the figure used for the baseline.

Street lighting

The baseline data for streetlights, floodlights, road traffic bollards, traffic signals and traffic lights is based on the metered electricity which was measured ……

Council fleet transport

The fleet transport baseline uses the total volume of vehicle fuel dispensed at the Neighbourhood Services pumps between 1 April 2006 and 31 March 2007, plus the

petrol and diesel bought at petrol stations using fuel cards. This quantity of fuel relates directly to a quantity of CO_2 and can be seen as an accurate reflection of emissions that the fleet is responsible for.

In work council mileage claims

The annual mileage claims for all 6 directorates were totalled and multiplied by a conversion factor provided by the Carbon Trust. This estimates the fuel used per km based on an average size of car engine and average driving conditions.

Council's organisational waste

This is estimated from the quantity of waste collected from all CYC buildings (schools, offices, leisure centres, social services centres etc.).

General Note

It has not been possible to obtain information on electricity and gas use for a number of buildings. This means that the baseline will be higher than shown. When a data analyst is employed to research the information available, data will be improved. Although the baseline may increase through the addition of other buildings, the potential to make savings on the baseline will increase in proportion.

Appendix B: Individual actions

(i) Projects already committed

Project 1: Admin Accom review and move to Hungate	
Description and notes	City of York Council's office accommodation is being rationalised. Many of the large, old inefficient buildings are being vacated and a new purpose built office will be provided on a site at Hungate.
Quantified costs and benefits	The cost of the energy and environmental benefits of the new site are included in the total project cost. The existing buildings have an estimated total emissions level of approximately 1437 tonnes CO_2. (480 from gas and 957 from electricity) The proposed design is for a floor area of 12,500 m^2 with an emissions target of 26 kg CO_2 per m^2 per year = 325 tonnes CO_2 per year. Made up of 33 tonnes for a bio-fuel boiler and 292 tonnes electricity. On top of this is the consumption of electrical equipment eg computers etc estimated at 25 kg/m^2 pa = 312 tonnes CO_2 pa. Total estimated saving of 800 tonnes CO_2 per year (1437 – (325 + 312)). Financial savings £47,000 per year (based on saving £6,000 on heating and £41,000 on electricity)
Resources	Funding: Build cost £28 Million. Committed as part of the accommodation review project Management: project team in place
Ownership and accountability	**responsible** for delivery: Maria Wood/ Ian Asher/Roy Grant **accountable** for delivery or decision making and responsible for approval / sign-off Admin. Accom. Project Board; to be **consulted** in decision making: Executive, Admin. Accom. Project Board. individuals to be **informed** of actions, decisions or progress: Executive, Admin Accom Project Board, Admin Accom Project planning team, Carbon Manager
Ensuring success	Known key success factors: measure targets for energy consumption. Principal risks: Technical, financial, other: Insufficient funding for project – the budget for the renewable energy and insulation portions of the build are reduced Time pressure means lack of consultation. Main means of risk mitigation Full project team employed, adequately resourced. Budget and timescales set with accountability to Executive
Performance / success measure	Reduction in carbon emissions and energy bills from the existing buildings. New office block reaching acceptable standards of comfort in terms of temperature and fresh air.
Timing	Planning application April 08 Start on site Nov 08 Completion Sept 2010 Occupation end 2010
Sources of information and guidance	Energy Consumption Guide 19 – Energy Use in Offices George Sands, Maria Wood, Martin Bissell (Gifford & Partners)

Project 2 : Integrated Transport	
Description and notes	A corporate project designed to reduce the overall spend on contracted transport for HASS and LCCS clients. This will include improved vehicle utilisation for both the internal fleet, improved partnership working with other local authorities and community transport providers as well as ensuring contracted transport is provided using the most environmentally friendly vehicles and that the overall number of journeys across the city is reduced.
Quantified costs and benefits	• Financial investment, operational costs • Consultant fees - £588k for 30 months • Emissions reduction: • 20% reduction based on increased utilisation of current vehicle capacity • Financial savings: • The project will save c£1.2m (gross) over the life of the project (30 months) • Payback period: 30 months
Resources	Joint funding made available through Y&H Assembly. Funding made available from the start of the project and being managed by Steve Morton – Corporate Finance
Ownership and accountability	**responsible** for delivery or decision making; Strategic Steering group/ Operational Project Board. Bill Hodson/Steve Morton. **accountable** for delivery or decision making and responsible for approval / sign-off; Simon Wing to be **consulted** in decision making; SSG and OPB. Service Heads to be **informed** of actions, decisions or progress. Service users.
Ensuring success	Known key success factors • Reduction of the number of vehicles/taxis being used to transport HASS/LCCS clients • Improved working relationships with other transport providers (neighbouring local authorities, York Ambulance Service and other community/public transport providers). • Full integration of HASS/LCCS transport services and utilisation of TRAPEZE transport management systems. Principal risks • Lack of financial support to migrate HASS client data onto TRAPEZE will mean that true utilisation of vehicle capacity will not be achieved. • Lack of investment or collaboration by other partners – the establishment of a regional transport forum has mean that ideas and progress is being shared by all partners
Performance / success measure	Financial savings targets identified for the reduction of taxi expenditure 20% target for the reduction of miles travelled by transport providers (both from the internal fleet and external partners)
Timing	Project start date – April 2007 Project end date – October 2010 Decision on funding for the migration of HASS IT data on to TRAPEZE through the corporate IT development plan is expected in early 2008.
Sources of information and guidance	Steve Morton

Project 3: Move to new EcoDepot at Hazel Court	
Description and notes	Neighbourhood Services administration offices moved from the Foss Islands Depot to a new purpose built eco-office which includes construction from straw bales and lime plaster, electricity generation from photovoltaic cells and future provision for a wind turbine. The building was designed to be carbon neutral in its construction and received a BREEAM Very Good assessment.
Quantified costs and benefits	• The new depot was build by Keyland Gregory as part of a development deal with CYC • Predicted electricity generation from wind power 42,000 kWh pa saving 18 tonnes CO_2 • Predicted electricity generation from solar power 10,500 kWh pa saving 4.5 tonnes CO_2 • Aprox £12k saving on water usage
Resources	• Funding: Environmental measures PV's DTI 112K CYC 130K • Water harvesting and Eco Office environmental measures Yorkshire Forward £569K
Ownership and accountability	Original project decisions taken by CYC Officers together with Members. Only remaining work to complete installation of wind turbine
Ensuring success	The funding for the wind turbine is still to be secured.
Performance / success measure	Meter readings are being taken on site, however due to patchy utility billing the exact cost of the new depots energy use can not be measured at present. Neighbourhood Services together with the Sustainability Officer will provide measures during 2008 and give an up to date projected carbon savings forecast.
Timing	
Sources of information and guidance	Daniel Brookes, Kristina Peat

Project 4: York High & Oaklands Sports Centre

Description and notes

Oaklands and Lowfields schools have merged to form the new York High School which will be accommodated on the Cornlands Road site once the existing school building has been extended and refurbished. Edmond Wilson swimming pool will close and a new pool will be provided by extending the existing Oaklands Sports Centre, which is also on the Cornland Road site.

Quantified costs and benefits

	Edmond Wilson	Lowfields	Oaklands	Total
06/07 elec (MWh)	368	192	557	1,117
06/07 gas (MWh)	1,376	1,121	1,146	3,643
06/07 total (MWh)	1,744	1,314	1,703	4,751
06/07 emissions total gas & elec (tonnes CO_2)	412	290	451	1,153
06/07 energy cost (£,000)	14	21	39	74

A biomass boiler and an array of solar thermal panels will provide heating and hot water for the site, resulting in zero carbon for heating and hot water.

Predicted electricity usage of new York High School and Oaklands Sports Centre: 580 MWh producing emissions of 249 tonnes CO_2

Emissions reduction: 904 tonnes CO_2

Financial savings: £450k pa on the schools and £130k pa on the sports centres. This is total revenue savings, not just the savings resulting from improved energy efficiency.

Resources

The total project budget is £20m which is being funded by:-

LCCS	9,616,440
CYC Other	840,000
School Capital	445,000
Prudential Borrowing	2,829,000
Capital Receipts	6,455,000

Ownership and accountability

A Project Board has been established to be responsible, accountable, consulted and informed on all project decisions. It is made up of the following core members:-

Maggie Tansley	Project Exec, CYC, LCCS
Ian Savage	Senior User School, Governor & F&P Comm. Chair
David Ellis	Senior User School, Head Teacher
Andy Laslett	Senior User Sports Centre, CYC, LCCS
Ian Asher	Senior Supplier, CYC, SBD
Alan Thomas	Senior Supplier, CYC, SBD

	Steve Taylor	Senior Supplier, Clugstons
	Chris Underwood	Senior Supplier, WYG Project Manager
	Michael Brown	Senior Supplier, WYG Project Manager
	Colin MacDonald	Project Assurance, CYC, LCCS
	Samantha Judd	Client Project Manager CYC, LCCS
	Carole McMullan	Project Support CYC, LCCS
Ensuring success	*Known key success factors* Reduced energy consumption / carbon emissions *Principal risks and risk mitigation:* all project risks have been quantified on a risk register, which is regularly reviewed and managed. The value of the registers forms part of the target cost to ensure that funding is in place should any of these risks occur.	
Performance / success measure	• Both buildings on site will get their energy from biomass or solar energy generation • All equipment purchased will be Grade A energy use • Energy usage can be measured and compared to baseline for all previous premises and facilities • Where possible existing furniture will be used or recycled via and external company • A whole site recycling policy will be in force to reduce landfill waste • A whole site travel plan will be developed to actively promote green travel to the site • Achieving a 'v. good' BREEAM rating	
Timing	School Programme Jan 08 - Target cost agreed Nov 08 - Construction completion Jan 09 - School Occupation Pool Programme May 08 - Target cost agreed Jun 09 - Construction complete Jul 09 – Facilities operational	
Sources of information and guidance	**George Sands / Gary Christie / BSP / Saunders / DfES Buildings Bulletins**	

Project 5: Yearsley Pool refurbishment	
Description and notes	Yearsley Swimming Pool has been refurbished. This was completed in November 2007. The refurbishment included recladding the roof and walls with insulated steel faced sheeting.
Quantified costs and benefits	The building is heated by steam from the Nestlé factory and the work will save approximately: 230 tonnes CO_2 and £26k pa. The old building used 1,446 kWH of steam per m^2, and 125 kWh electricity per m^2. Predictions for post refurbishment are 697 kWh/m^2 steam with electricity unchanged at 125 kWH/m^2.
Resources	Project complete
Ownership and accountability	Project complete
Ensuring success	
Performance / success measure	The energy use of the building will be monitored over the first year to verify the predicted savings.
Timing	Project complete
Sources of information and guidance	Yearsley Pool carbon statement George Sands, Andy Laslett, Steve Owen

Project 6: Joseph Rowntree School	
Description and notes	Replacement of Joseph Rowntree School A new school will be built in the grounds of Joseph Rowntree School. When building work on the new school is complete, the old school will be demolished and the grounds landscaped.
Quantified costs and benefits	The aim is to achieve a 60 % saving of Carbon emissions on 2002 building regulations requirements, when the new school opens in February 2010. A long term aspiration is that the new school will be carbon neutral in the future. In the baseline year of 2006/07 this building was responsible for the emission of 420 tonnes CO_2. Savings will be in excess of 250 tCO_2. Savings will be made through generating heat and hot water from a bio-mass boiler, grey water harvesting, a green roof, thermal mass of the building design, building orientation and smart ICT solutions. The building is on target to achieve a BREEAM rating of at least 'very good' with an expectation that it will achieve 'excellent'.
Resources	The project has secure funding through the LCCS capital programme.
Ownership and accountability	**responsible** for delivery or decision making: Project Board; Anna Evans. **accountable** for delivery or decision making and responsible for approval / sign-off: Project Board. to be **consulted** in decision making; school governors, school senior management team, students, parents, staff, building users, external partners eg Sport England, conservation, Joseph Rowntree Housing Trust, local residents, LCCS Senior management team, technical panel. to be **informed** of actions, decisions or progress: report to members quarterly. School governors, school senior management team, students, parents, staff, users of building, external partners eg Sport England, conservation, Joseph Rowntree Housing Trust, local residents, LCCS Senior management team, technical panel.
Ensuring success	**Known key success factors:** The DCFS calculator will be used to confirm the carbon reduction achieved. **Principal risks:** Delays at planning stage, confirmation of ownership of a pump house on site, failures in project management, maintaining educational standards at school for duration of project, retaining pupil numbers at school during the project. **Main means of risk mitigation:** Good project management; ongoing consultation with all involved; collaborative working; ownership and monitoring of risk register.
Performance / success measure	Use of the DCFS carbon calculator and comparison of electricity and fuel use before and after project completion.
Timing	Milestones, key dates, particularly key decisions Planning application: March 2008 Start on site: July 2008 Open new school: Feb 2010 Demolition of old school building March 2010 to Sept 2010
Sources of information and guidance	**Anna Evans, Burro Happold engineers, DCSF, CYC Property Services**

Project 7: Office recycling project for council buildings	
Description and notes	• Council buildings already have a collection of paper for recycling (under an existing contract) and many also have confidential waste paper collections • The intention is to introduce a recycling collection for council buildings for cardboard, plastic bottles and cans/tins.
Quantified costs and benefits	• Offices will see a reduction in collections of waste to landfill. This cost will increase each financial year in line with the increase in landfill tax charges per tonne of waste landfilled • It is estimated that 841 tonnes of waste could be diverted from landfill through increased recycling of paper, cardboard, plastic bottles and cans. This is a very approximate calculation based on percentage waste composition for office type waste. A full audit of CYC office waste has not been done. • Emissions reduction – 150 tonnes CO_2 • Cost neutral
Resources	• Funding - Waste Services has purchased a three compartment recycling vehicle but will need to cover costs for the crew, container hire and reprocessor (gate) fee • Operational costs have not yet been determined but will aim to be more favourable for recycling (for 2008/9) versus landfill of waste • A report was presented to Members on 9 October 2007 proposing changes to the Commercial Waste collections, to allow provision of recycling collections to schools and commercial organisations (including council offices). Members supported this proposal and work is now underway to plan the implementation of recycling collections. • Collection costs to be met from existing office budgets • Management – building managers will need to be responsible for maximising recycling within their own building
Ownership and accountability	• Acting Head of Waste Services Peter Davison is responsible and accountable for delivering this project • Consultation with office/building managers is underway, by Waste Services, to look at the options for each of the main council administrative offices (storage capacity, container requirements, number of employees etc) • All employees within these buildings are to be informed of any new services. Employees need to be responsible for separating their own waste into the appropriate container.
Ensuring success	• Key success factor - many employees will recycle at home and so already demonstrate commitment to recycling. There is a high demand for this service from council staff. • The council needs to manage its own waste more sustainably • Risk – this is a new service which the council has not undertaken before. We need to create a new collection round to incorporate collections from council offices and schools. All buildings will have different amounts of recyclable waste and it will take time to establish the most efficient servicing schedule. Other risk factors are linked to accessibility of offices (e.g. city centre) and storage for additional bins within bin stores • Risk will be mitigated by starting with collections from a small number of large office admin buildings (for example 9 St Leonards',

	De Grey House, Guildhall and Mill House) and reviewing the service at regular interval for a set period. The service can then be extended to other council offices and buildings, as required.
Performance / success measure	• We cannot weigh individual wheeled bins, but can make an assumption of the amount of recyclable waste which can be stored in each container, per building, and thus the amount recycled per building • We will know the overall weight of recyclable waste collected per day per vehicle load, and this can be used to provide details of the amount of recyclable waste collected from the council offices (and thus diverted from landfill) • This information can be fed back to offices and staff at regular intervals
Timing	• Some preparation needs to be done before collections can start. This includes analysis of current waste collection arrangements and recycling requirements, bin storage capacity etc. • The collections will start as soon as a schedule has been compiled – date TBC within 2007/08
Sources of information and guidance	Elizabeth Wray

(ii) No or low cost projects

Project 8: Recycling project for schools	
Description and notes	• The intention is to introduce a recycling collection for schools for cardboard, plastic bottles and cans/tins.
Quantified costs and benefits	• There will be a reduction in collections of waste to landfill. This cost will increase each financial year in line with the increase in landfill tax charges per tonne of waste landfilled • It is estimated that 250 of the 1116 tonnes of waste could be diverted from landfill through increased recycling of paper, cardboard, plastic bottles and cans. This is a very approximate calculation based on percentage waste composition for school type waste. A full audit of CYC school waste has not been done. • Emissions reduction – 111 tonnes CO_2 • Cost neutral
Resources	• Funding - Waste Services has purchased a three compartment recycling vehicle but will need to cover costs for the crew, container hire and reprocessor (gate) fee • Operational costs have not yet been determined but will aim to be more favourable for recycling (for 2008/9) versus landfill of waste • A report was presented to Members on 9 October 2007 proposing changes to the Commercial Waste collections, to allow provision of recycling collections to schools and commercial organisations. Members supported this proposal and work is now underway to plan the implementation of recycling collections. • Collection costs to be met from existing school budgets • Management – schools will need to be responsible for maximising recycling within their own building
Ownership and accountability	• Acting Head of Waste Services Peter Davison is responsible and accountable for delivering this project • Consultation with schools is underway, by Waste Services, to look at the options for each of the schools (storage capacity, container requirements, number of employees etc) • All employees within these buildings are to be informed of any new services. Employees need to be responsible for separating their own waste into the appropriate container.
Ensuring success	• Key success factor - many employees will recycle at home and so already demonstrate commitment to recycling. There is a high demand for this service from council staff. • The council needs to manage its own waste more sustainably • Risk – this is a new service which the council has not undertaken before. We need to create a new collection round to incorporate collections from council offices and schools. All buildings will have different amounts of recyclable waste and it will take time to establish the most efficient servicing schedule. Other risk factors are linked to accessibility and storage for additional bins within bin stores.
Performance / success measure	• We cannot weigh individual wheeled bins, but can make an assumption of the amount of recyclable waste which can be stored in each container, per building, and thus the amount recycled per building • We will know the overall weight of recyclable waste collected per

	day per vehicle load, and this can be used to provide details of the amount of recyclable waste collected from the schools (and thus diverted from landfill) • This information can be fed back to schools at regular intervals
Timing	• Some preparation needs to be done before collections can start. This includes analysis of current waste collection arrangements and recycling requirements, bin storage capacity etc. • The collections will start as soon as a schedule has been compiled – date TBC within 2007/08
Sources of information and guidance	Elizabeth Wray

Project 9: Staff behaviour change/set up "Energy Champions" network, monitor using smart meters	
Description and notes	Building audits will be carried out for larger buildings as part of the requirement for display energy certificates (project 6). This will help to identify the best sites for smart/additional sub-metering of gas, electricity and/or heat. Set up a programme for meter installation in separately managed buildings or monitor energy use of kitchens, server rooms, sports halls, etc. The installation of new meters will help in monitoring and inform staff on site of how well their improvement measures are working. • Bespoke training & building audits in carbon reduction • League tables & target setting for energy reduction in council buildings • Traffic light switches - label all switches so people know what they are and if they can be switched off. Energy use displays in new office so clear what is being left on Establish a programme of training for key staff to include: • School Caretakers: Focusing on correct setting of heating controls, timeclock, etc, along with general awareness training on "good housekeeping" practices. • Building Managers and caretakers: General awareness training, correct setting of controls, making use of monitoring information. • Building users – including school staff and pupils: general awareness and good housekeeping • Procurement staff: Awareness of long term energy costs when purchasing all types of equipment. Use of lifetime costing methodology. • Architects & design staff: **training** in low energy building design and integration of renewable energy technologies into building design. A programme of disseminating clear advice to building users in all the different sectors of the council's activities via a network of "energy champions". This should include: • Training for "energy champions" • Switching off computers when not in use and enabling energy management software • Using energysave options on photocopiers and other office equipment • Switching off lights in empty rooms or when daylight provides sufficient light

	• Correct use of thermostats for heating and air conditioning • Closing windows and external doors in winter • Purchasing energy efficient goods including lamps, computer monitors, catering equipment, refrigeration equipment, laundry equipment and general office electrical equipment.
Quantified costs and benefits	ESTIMATED COST: £100,000 £80,000 for installation of new meters; £20,000, for publicity, training, minor purchases of stickers, leaflets etc. This project will take up a significant amount of time for the energy manager and the carbon manager. Successful good housekeeping measures by all building users: average of 5 % of total energy costs (£65,000) Annual savings (5 % of current totals): building electricity = £41,000 = 820 MWh = 350 tonnes CO_2 building gas = £22,000 = 2,250 MWh = 431 tonnes CO_2 building fuel oil = £2,000 = 140 MWh = 39 tonnes CO_2 Payback period 1.5 years
Resources	Funding from the carbon capital programme (subject to approval)
Ownership and accountability	**responsible** for delivery or decision making; Carbon Manager/Gary Christie **accountable** for delivery or decision making and responsible for approval / sign-off; Carbon Board to approve project. to be **consulted** in decision making: Carbon Manager, Gary Christie, Annette Clark to be **informed** of actions, decisions or progress: Gary Christie, carbon manager, Carbon Board, all staff to be informed of progress.
Ensuring success	Motivation tends to fall if programme is not kept active. Energy champions need to be given sufficient facilities time to undertake the tasks given to them. It needs to be a recognised task which will be given the priority among other tasks. Energy Performance Certificates will help with publicity.
Performance / success measure	Adequate monitoring to ensure savings and carbon reductions are being achieved. Publicity will keep project high in peoples list of priorities.
Timing	Funding to be sought from the carbon capital fund – will need to go to the Carbon Board as a proposal to be considered with others. If successful it can begin in the summer of 2008, with a second drive in the autumn of 2008 as heating is turned on and days are shorter.
Sources of information and guidance	

Project 10: Turn heating down	
Description and notes	The maximum recommended level for heating is 19ºC. Many of the council's buildings are heated above 19ºC.
Quantified costs and benefits	Estimated Cost £4,000 Cost Saving up to £1,000 per year (typical site) CO_2 Savings 6 tonnes/year per site An estimate of 20 sites gives a total saving of £20,000 and 120 tonnes CO_2 Payback instant Approx 8% saved for each degree of overheating
Resources	Small sum of £4,000 included for minor alterations to control circuits etc which may be required to enable the heating to be turned down. This project may take a significant amount of time for Gary Christie or the carbon manager.
Ownership and accountability	**responsible** for delivery or decision making; Carbon Manager/Gary Christie **accountable** for delivery or decision making and responsible for approval / sign-off; Carbon Board to approve project. to be **consulted** in decision making: Carbon Manager, Gary Christie, representative from each building included in the programme. to be **informed** of actions, decisions or progress: Gary Christie, carbon manager, Carbon Board.
Ensuring success	Enforcing a policy of heating to 19ºC is likely to require considerable time in setting up control systems and dealing with staff complaints. However, well controlled heating systems will make the process easier. Where existing resources allow (also through energy champions) CYC will endeavour to enforce a policy of heating our buildings to 19ºC. Adequate resources in place to implement project Financial resources available to implement project
Performance / success measure	Adequate monitoring to ensure savings and carbon reductions are being achieved. Regular checks on the temperatures in various locations and recording of the energy use at each site – to be monitored by the data analyst.
Timing	Funding to be sought from the carbon capital fund – will need to go to the Carbon Board as a proposal to be considered with others. If successful it can begin in the autumn of 2008 as the heating is turned on.
Sources of information and guidance	Gary Christie

(iii) Longer term investment projects and projects not yet committed

Project 11: Extend EMS/BMS at schools	
Description and notes	Replace obsolete energy management systems installed in the 1980's. The advantages of doing a planned replacement could be summarised as: • New controls would offer at least 10-15% energy savings and therefore CO_2 emissions. • Financial savings on fuel budgets. • A new control system would mean no disruption to the schools when an old control fails. New panels would also be compatible for expansion to include any reboilering or boiler house modifications in the future. • With a new system any malfunctions repairs can be quickly and easily repaired- with expertise and spares readily available. Improved facilities on site- the school caretaker or bursar would be able to make minor adjustments themselves to time and temperature levels. At present they have no access to change settings.
Quantified costs and benefits	Estimated Cost: £200,000 Cost Saving: £32,250 per year CO_2 Savings: 204 tonnes per year Payback 7: Years
Resources	Sources for funding to be investigated, but possible sources include the carbon capital programme, Central Government Grants, Specific Grants external to the authority (e.g. Yorkshire Forward), Specific Loans external to the authority (e.g. Salix), Prudential borrowing, CRAM process, The building user (e.g. tenants or schools).
Ownership and accountability	**responsible** for delivery or decision making; Carbon Manager/Gary Christie **accountable** for delivery or decision making and responsible for approval / sign-off; Carbon Board to be **consulted** in decision making; Maggie Tansley, School head teachers to be **informed** of actions, decisions or progress; Maggie Tansley, school head teachers
Ensuring success	Project needs to be investigated further to see which schools would get the best results. Adequate resources in place to implement project Financial resources available to implement project Agreement with LCCS and individual schools
Performance / success measure	Adequate monitoring to ensure savings and carbon reductions are being achieved.
Timing	Spring/summer 2008 investigate further which schools and determine exact costs. Put proposals to Carbon Board for consideration within the carbon capital programme summer 2008.
Sources of information and guidance	Gary Christie

Project 12: Improve insulation (including roof spaces)	
Description and notes	Cavity wall insulation, draught-proofing and roof-void insulation are three of the most cost-effective methods for reducing heat-losses in buildings. Many of the school buildings built in the '60's and 70's have large expanses of glazing, which will be a major source of heat-loss. Set up a rolling programme for reducing heat-losses in older buildings, to incorporate the following measures: • Install blown fibre insulation in external cavity walls. • Draught-proof external doors • Upgrade roof insulation in buildings where accessible roof voids are present. Where this is not practical, but suspended ceilings have been fitted, Insulate above ceiling tiles using sealed insulation bags. • Replacement of single glazed windows with new high performance double glazed units. • Replacement of single glazed roof-lights with triple sheet polycarbonate units (openable in rooms prone to over-heating).
Quantified costs and benefits	**Estimated Cost £200,000** Cost Saving £22,450 per year CO_2 Savings 251 tonnes CO_2 per year Payback 9 Years
Resources	Sources for funding to be investigated, but possible sources include the carbon capital programme, Central Government Grants, Specific Grants external to the authority (e.g. Yorkshire Forward), Specific Loans external to the authority (e.g. Salix), Prudential borrowing, CRAM process, The building user (e.g. tenants or schools).
Ownership and accountability	**responsible** for delivery or decision making; Carbon Manager/Gary Christie **accountable** for delivery or decision making and responsible for approval / sign-off; Carbon Board to be **consulted** in decision making; Maggie Tansley, School head teachers to be **informed** of actions, decisions or progress; Maggie Tansley, school head teachers
Ensuring success	Project needs to be investigated further to see which schools would get the best results. Adequate resources in place to implement project Financial resources available to implement project Agreement with LCCS and individual schools
Performance / success measure	Adequate monitoring to ensure savings and carbon reductions are being achieved.
Timing	Spring/summer 2008 investigate further which schools and determine exact costs. Put proposals to Carbon Board for consideration within the carbon capital programme summer 2008.
Sources of information and guidance	Gary Christie

Project 13: powerPerfector Voltage Power Optimisation	
	PowerPerfector is a Voltage Power Optimiser, giving energy, cost and carbon savings by efficiently optimising a site's supply voltage. By optimising the voltage, electrical equipment runs more efficiently and consumes less energy. There are a number of added benefits with the powerPerfector which also help to improve power quality. The PowerPerfector's main functions are: • Reduction of energy use and costs by up to 20% by optimising the electricity supply voltage (depending on the electrical load make up of the facility) • Reduction of carbon emissions by up to 20%. • Protection of electrical and electronic equipment from voltage transients and short-term power surges up to 25,000V. • Lowering of maintenance costs on motors, lighting and other electrical equipment. • Suppression of harmonics that can damage sensitive equipment. • Reduction in operating temperatures of motors and lighting. • Extension of the life of electrical components through reduced electrical stresses. • Correction of 3-phase voltage imbalance, reducing wasteful neutral currents. The project with City of York Council includes the installation of 21 powerPerfector units at 21 sites. The quantified costs and benefits are for the project as a whole. The costs and savings shown are a good estimate to be confirmed following voltage logging and site survey.
Quantified costs and benefits	Financial Investment: £260,000 Operational Costs: £0 Emissions Reduction: 430 tonnes of CO_2 per year Financial Savings: £74,000 per year Payback Period: 3.4 years
Resources	Sources for funding to be investigated, but possible sources include the carbon capital programme, Central Government Grants, Specific Grants external to the authority (e.g. Yorkshire Forward), Specific Loans external to the authority (e.g. Salix), Prudential borrowing, CRAM process, The building user (e.g. tenants or schools).
Ownership and accountability	**responsible** for delivery or decision making; Gary Christie **accountable** for delivery or decision making and responsible for approval / sign-off; Carbon Board to be **consulted** in decision making; Contact available at each site with access to switch room to perform voltage logging and facilitate site survey. Capital programme manager from relevant Directorate: Maggie Tansley, Mark Grandfield. to be **informed** of actions, decisions or progress; Capital programme manager from relevant Directorate: Maggie Tansley, Mark Grandfield.
Ensuring success	Project needs to be investigated further to see which buildings would get the best results. Adequate resources in place to implement project Financial resources available to implement project Agreement with LCCS, HASS and individual buildings Key Success Factors • Appropriate voltages on sites. • Sufficient space for installation

	• Ease of installation • Ability to organise electrical supply shutdown for 2-8 hours Risk and risk mitigation: • 10 year warranty • £10 million public liability insurance • 30+ year life expectancy • Solid technology requires no maintenance • 24/7 response team at powerPerfector
Performance / success measure	Adequate monitoring to ensure savings and carbon reductions are being achieved Free savings report within 3 months of installation. Analysis is based on Half Hourly Data sourced from the npower website.
Timing	Each site requires 1 week's worth of voltage logging and less than 3 weeks to complete the site survey. Key decisions: Spring/summer 2008 investigate further which buildings and determine exact costs. Put proposals to Carbon Board for consideration within the carbon capital programme summer 2008.
Sources of information and guidance	Gary Christie

(iv) Projects requiring further investigation

Project 14: Renewable energy in traffic bollards	
Description and notes	Disconnect all bollards, signs etc from mains electricity supply and power them using renewable energy eg solar panels.
Quantified costs and benefits	Existing bollards use 150 W and are powered 24 hours a day, 365 days a year = 1,314 kWh = £66 = 600 kg CO_2 per year per bollard Cost per standard bollard = £250, Cost for a renewable energy bollard = £350. However, installation and maintenance costs of the renewable energy bollard are lower and will bring the installed cost down to that of the standard bollard.
Resources	A trial of 25 renewable energy bollards has been commissioned. These are predicted to save £1,700, 33 MWh and 14 tonnes CO_2 per year. If the trial proves successful 100 bollards could be replaced each year as part of the maintenance cycle saving £6,800, 132 MWh and 56 tonnes CO_2 per year.
Ownership and accountability	**responsible** for delivery or decision making: Ricky Watson **accountable** for delivery or decision making and responsible for approval / sign-off: Ricky Watson to be **consulted** in decision making: None to be **informed** of actions, decisions or progress: None
Ensuring success	There is a risk of using a new technology. This will be mitigated by running the trial of 25 bollards in the first year.
Performance / success measure	Measured reduction in energy usage by bollards.
Timing	Trial new bollards are being installed Report on the success of the trial bollards will be ongoing. Decision on whether to continue the programme in May 2008.
Sources of information and guidance	Ricky Watson

Project 15: Efficiency of streetlights	
Description and notes	Solar powered equipment and efficiency of streetlights
Quantified costs and benefits	£100 per light for replacement, more efficient lamp. Annual savings per lamp: 114 kWh; £6; 50 kg CO_2 Payback period 20 years
Resources	A trial is being carried out on a few lamps. If this proves successful it could be increased to cover all lamps which are replaced every year. The maintenance programme currently replaces 500 lamps per year. Replacing these would cost £50,000 per year. Potential annual savings on 500 lamps: 570MWh; £2,855; 24 tonnes CO_2
Ownership and accountability	**responsible** for delivery or decision making: Ricky Watson **accountable** for delivery or decision making and responsible for approval / sign-off: Ricky Watson to be **consulted** in decision making: On dimming etc. Local Residents and Members fully. to be **informed** of actions, decisions or progress: Ricky Watson
Ensuring success	There is a risk when using a new technology. This will be mitigated by running the trial in the first year.
Performance / success measure	Measured by reduced electricity used by streetlights.
Timing	Trial on different lamps levels start March 2008 end Date May 2008 Report on the success of the trial lamps May 2008 Decision on whether to continue the programme May 2008
Sources of information and guidance	Sustainable streetlighting strategy Ricky Watson

Project 16: Satellite Tracking on Fleet Vehicles	
Description and notes	To evaluate the cost benefit of fitting satellite tracking on fleet vehicles. A programme has started on waste vehicles and gritting vehicles. 46 vehicles have so far been fitted with the tracking equipment.
Quantified costs and benefits	There will be a unit cost per vehicle and base station software costs. There may also be ongoing licence/upgrade costs and transmission costs. Costs for current system are:£46,820 for equipment and £33,120 for servicing over 5 years = £16,000 per year. Benefits should be saving of fuel through more efficient journeys using better route planning and less risk of unauthorised journeys. Other benefits will come from data transfer regarding other operations on certain vehicle types such as bin lifted, gulleys emptied or roads gritted. This is a 5 year contract and as the system was only purchased in December 2007 no results are available yet. Estimates from the Carbon Trust suggest that savings of 5% can be made by more economic routing of routes. However, the vehicle tracking is installed on refuse gritters and street cleaning vehicles which use a large proportion of their fuel on non-driving activities such as lifting bins into the back of the vehicle, so an estimate of the savings are only 1% of fuel. If the 46 vehicles with the tracking system use 50% of the Neighbourhood Services diesel, then a saving of 0.01 x 0.5 x 2006 tonnes = 10 tonnes CO_2 saved. Greater savings may be possible from other vehicles on maintenance works.
Resources	
Ownership and accountability	**responsible** for delivery or decision making; Chris Slade & Vehicle user dept. **accountable** for delivery or decision making and responsible for approval / sign-off; Chris Slade & Vehicle user dept. to be **consulted** in decision making; Chris Slade & Vehicle user dept. to be **informed** of actions, decisions or progress; Members.
Ensuring success	Consultation with drivers.
Performance / success measure	Measure of fuel used by converted vehicles against previous or control vehicles.
Timing	5 year contract from December 2007. Possibilities for extension to more vehicles (subject to EU thresholds) if the current programme proves successful.
Sources of information and guidance	Carbon Trust, FTA, DfT, Chosen Supplier.

Project 17 : Display Energy Certificates	
Description and notes	The EU Directive on The Energy Performance of Buildings requires public buildings with a floor area of over 1,000 m^2 to have a display energy certificate. The UK government will impose fines if these are not in place by October 2008.
Quantified costs and benefits	Cost: £80,000 for 92 sites Emissions reduction: Minimal. The surveys will identify areas where further investment is needed. Financial savings: : Minimal. The surveys will identify areas where further investment is needed.
Resources	£80,000 plus 1 week of Energy Manager's time
Ownership and accountability	**responsible** for delivery or decision making; Gary Christie **accountable** for delivery or decision making and responsible for approval / sign-off; Gary Christie, Linda Brook, David Baren, Andy Laslett, Tom Shepherd, to be **consulted** in decision making: Gary Christie, Linda Brook, David Baren, Andy Laslett, Tom Shepherd, to be **informed** of actions, decisions or progress: Gary Christie, Linda Brook, David Baren, Andy Laslett, Tom Shepherd, Main contact at each building.
Ensuring success	Known key success factors: Increased awareness of energy efficiency Risks: not completed on time due to other priorities. Prosecution for failure to display certificates Risk mitigation: set an agreed programme of work
Performance / success measure	Very difficult to gauge.
Timing	key dates: To be complete by October 2008, as required by the Energy Performance of Buildings Directive.
Sources of information and guidance	DEFRA website http://www.defra.gov.uk/

Project 18: Future energy supply policy (including full sustainability appraisal of energy sources) Major shift in how we use, procure and generate energy	
Description and notes	A written energy policy will confirm priorities for action, clarify management and departmental responsibilities for energy management, and set targets for future achievements. The energy policy should also include clear criteria for purchasing equipment and electrical goods, and energy performance standards for new and refurbished buildings. The energy policy would also need to incorporate the council's obligations towards renewable energy targets and home energy conservation, and could form part of an overall environmental policy. It should include the following key attributes: • Implementation (how the objectives will be met) • Applicability to different parts of the organisation • Acquisition of commitment • Allocation of responsibilities • An on-going review process
Quantified costs and benefits	This project is part of a package of measures which includes staff training and general efficiency savings. The Carbon Trust Website states that a corporate policy can save 10 – 20 % of energy bills. These savings are recorded in other project sheets and will be easier to achieve if this policy is completed.
Resources	This project will take up a significant amount of the energy manager and carbon manager's time.
Ownership and accountability	**responsible** for delivery or decision making; Gary Christie, Carbon Manager **accountable** for delivery or decision making and responsible for approval / sign-off; Carbon Board to be **consulted** in decision making: Carbon Board, Procurement to be **informed** of actions, decisions or progress: Carbon Board, Procurement, CMT
Ensuring success	Policy needs to provide clear unambiguous goals without creating a straightjacket for those who are charged with implementation
Performance / success measure	
Timing	
Sources of information and guidance	Gary Christie, Carbon Trust Website

(v) Housing related projects

Project H1: Decent Homes: Roofing and Loft Insulation	
Description and notes	*To bring all council owned homes up to decent homes standard by 2010. This includes a number of energy efficiency measures to give the homes affordable warmth.* Re-Roofing (includes replace/top-up of loft insulation) - 596 properties will have loft insulation replaced up to new building regs levels Insulation - 248 properties miscellaneous top up loft insulation
Quantified costs and benefits	Roofing Programme £2.20m Insulation £0.11m Staffing costs of TC & Project teams: £1.05m Typically, a loft insulation upgrade will result in a CO_2 emissions saving of 250kg/year (Source: Energy Saving trust). This represents a 3% saving on a typical property with insufficient loft insulation 844 properties represent 10.55% of CYC's Housing stock, so the overall saving amounts to 0.32% of CO_2 emitted by our social housing stock. Financial savings will be reflected in the tenants' own gas and electricity bills, so there is no direct financial saving for CYC Payback period n/a
Resources	Funding will be provided from the Housing Capital Programme via a CRAM bid. This has already been submitted. The project will be managed by the Housing Asset Management Projects team
Ownership and accountability	**Responsible** for delivery: Mark Grandfield, Andy Wilcock to be **consulted** in decision making: Mark Grandfield, Andy Wilcock to be **informed** of actions, decisions or progress: Steve Waddington, Debbie Mitchell
Ensuring success	The aim of this project is to meet the Government target of all homes complying with the decent homes standard by 2010. Risks: Cannot gain access to some of the homes Funding is needed for another priority Project not completed on time Risk mitigation: Good project management / ongoing communication with all involved. Good budget management
Performance / success measure	The SAP ratings for the homes will increase, showing lowered CO_2 emissions levels for the average house.
Timing	Ongoing programme:
Sources of information and guidance	Emissions data from Codeman stock condition database, which calculates SAP rating and emissions statistics of CYC properties. Typical savings sourced from Energy Saving Trust website

Project H2a : Decent Homes: Heating Only Programme	
Description and notes	To bring all council owned homes up to decent homes standard by 2010. This includes a number of energy efficiency measures to give the homes affordable warmth. Heating (heating only programme) - 2,700 properties old boilers replaced with new A rated ones
Quantified costs and benefits	Heating Only Programme £6.24m Operational costs: staffing costs of Tenants Choice and Project teams: £1.05m Typically an upgrade to an 'A' rated energy efficient boiler results in a CO_2 emissions saving of 875kg/year (Source: Energy Saving Trust). This is around a 10% saving on a typical property with an old heating system 2,700 properties represent 33.75% of CYC's Housing stock, so the overall saving amounts to 3.38% of CO_2 emitted by our social housing stock. Financial savings will be reflected in the tenants' own gas and electricity bills, so there is no direct financial saving for CYC Payback period n/a
Resources	Funding will be provided from the Housing Capital Programme via a CRAM bid. This has already been submitted. **The project will be managed by the Housing Asset Management Projects team**
Ownership and accountability	**Responsible** for delivery: Mark Grandfield, Andy Wilcock to be **consulted** in decision making: Mark Grandfield, Andy Wilcock to be **informed** of actions, decisions or progress Steve Waddington, Debbie Mitchell
Ensuring success	The aim of this project is to meet the Government target of all homes complying with the decent homes standard by 2010. Risks: Cannot gain access to some of the homes Funding is needed for another priority Project not completed on time Risk mitigation: Good project management and ongoing communication with all involved. Good budget management
Performance / success measure	The SAP ratings for the homes will increase, showing lowered CO_2 emissions levels for the average house.
Timing	Ongoing programme:
Sources of information and guidance	Emissions data from Codeman stock condition database, which calculates SAP rating and emissions statistics of CYC properties. Typical savings sourced from Energy Saving Trust website

Project H2b : Decent Homes: Tenant's Choice Heating Programme	
Description and notes	To bring all council owned homes up to decent homes standard by 2010. This includes a number of energy efficiency measures to give the homes affordable warmth. Heating (Tenants Choice) - 644 properties old boilers replaced with new A rated
Quantified costs and benefits	Tenant's Choice Heating £1.49m Operational costs: staffing costs of Tenants Choice and Project teams: £1.05m Typically, an upgrade to an 'A' rated energy efficient boiler results in a CO_2 emissions saving of 875kg/year (Source: Energy Saving Trust). This is around a 10% saving on a typical property with an old heating system. 644 properties represent 8.05% of CYC's Housing stock, so the overall saving amounts to 0.8% of CO_2 emitted by our social housing stock. Financial savings will be reflected in the tenants' own gas and electricity bills, so there is no direct financial saving for CYC Payback period n/a
Resources	Funding will be provided from the Housing Capital Programme via a CRAM bid. This has already been submitted. The project will be managed by the Housing Asset Management Tenant's Choice team
Ownership and accountability	**Responsible** for delivery: Mark Grandfield, Andy Wilcock To be **consulted** in decision making: Mark Grandfield, Andy Wilcock To be **informed** of actions, decisions or progress Steve Waddington, Debbie Mitchell
Ensuring success	The aim of this project is to meet the Government target of all homes complying with the decent homes standard by 2010. Risks: Cannot gain access to some of the homes Funding is needed for another priority Project not completed on time Risk mitigation: Good project management / ongoing communication with all involved. Good budget management
Performance / success measure	The SAP ratings for the homes will increase, showing lowered CO_2 emissions levels for the average house.
Timing	Ongoing programme
Sources of information and guidance	Emissions data from Codeman stock condition database, which calculates SAP rating and emissions statistics of CYC properties. Typical savings sourced from Energy Saving Trust website

Project H3 : Decent Homes: Render 11 blocks of flats	
Description and notes	To bring all council owned homes up to decent homes standard by 2010. This includes a number of energy efficiency measures to give the homes affordable warmth. Render 11 blocks of flats (110 properties) in Lindsay Avenue to improve their thermal insulation.
Quantified costs and benefits	Financial investment, operational costs £480,000 Typically, rendering has a similar effect to cavity wall insulation, namely a CO_2 emissions saving of 750kg/year (Source: Energy Saving Trust). This is around an 8% saving on a typical property with no wall insulation. 110 properties represent 1.4% of CYC's Housing stock, so the overall saving amounts to 0.11% of CO_2 emitted by our social housing stock. Financial savings will be reflected in the tenants' own gas and electricity bills, so there is no direct financial saving for CYC Payback period n/a
Resources	Funding will be provided from the Housing Capital Programme via a CRAM bid. This has already been submitted. The project will be managed by the Housing Asset Management Projects team
Ownership and accountability	**Responsible** for delivery: Mark Grandfield, Andy Wilcock To be **consulted** in decision making: Mark Grandfield, Andy Wilcock To be **informed** of actions, decisions or progress Steve Waddington, Debbie Mitchell
Ensuring success	This is a project in which the Housing Projects Team has previous experience. Risks are therefore small.
Performance / success measure	The SAP ratings for the homes will increase, showing lowered CO_2 emissions levels for the average house.
Timing	To be carried out in financial years 2009/10 and 2010/11.
Sources of information and guidance	Emissions data from Codeman stock condition database, which calculates SAP rating and emissions statistics of CYC properties. Typical savings sourced from Energy Saving Trust website

Appendix C

Abbreviations

BERR	Department for Business Enterprise and Regulatory Reform
BAU	business as usual
CAMG	Corporate Asset Management Group
CAPMOG	Capital Programme Monitoring Group
CCL	Climate change Levy
CMP	carbon management programme
CMT	Corporate Management Team
CO_2	Carbon dioxide
CRAM	Capital Resource Allocation Model (CYC's internal scoring system for capital funding bids)
CRC	Carbon Reduction Commitment
CT	Carbon Trust
CYC	City of York Council
DCFS	Department for Children, Families and Schools
DHP	decent homes programme
DTI	Department for Trade and Industry
GWh	giga watt hours: 1 GWh = 1,000,000 kWh
HASS	Housing and Adult Social Services
LA	Local Authority
LCCS	Learning Culture and Childrens' Services
LSP	Local Strategic Partnership
kWh	kilo watt hours
kWp	kilo watts peak (the peak output of a photovoltaic solar array)
MWh	mega watt hours: 1 MWh = 1,000 kWh
NI185	National Indicator 185 (performance indicator against which the council will be assessed)
ppm	parts per million
RES	Reduced Emissions Scenario
SAP	Standard Assessment Procedure (a measure of the energy efficiency of a house or dwelling)
SIP	Strategy and Implementation Plan
TC	tenants' choice