

**Remade South East in partnership with Surrey County Council**



**Waste Market Development Project Delivery for Surrey County Council**



**SURREY RESEARCH PARK**

**February 2009**

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## Executive Summary

### Introduction

This project was established and funded by Surrey County Council to explore how Surrey Technology Centre (and associated buildings), University of Surrey and Royal Surrey County Hospital can work together to optimise their environmental performance and achieve economies of scale in relation to the overall waste generated on the Park

### Project Objectives

Surrey County Council set out to achieve three objectives through the project:

1. To understand the key material streams being produced on the Research Park.
2. To investigate potential joint working across the wider site in relation to the management of commercial waste streams.
3. To design an effective recycling solution for the Research Park, which can also be expanded to include neighbouring organisations.

To complete these objectives, the Council engaged Remade South East to carry out the management of the project.

### Objective 1: Research Key Material Streams

#### Surrey Technology Centre (STC)

Surrey Technology Centre was divided into two areas; managed and unmanaged buildings. This approach was taken because STC management is responsible for organising the waste contract on behalf of the businesses based in managed buildings whereas businesses in unmanaged buildings organise their own waste contracts.

In order to determine whether a higher recycling rate could be achieved a survey was carried out to identify the types and volumes of waste being generated from managed and unmanaged buildings.

#### Managed Buildings

The surveys were undertaken in June 2008 with 57 companies (of a potential of 99 companies) participating giving an overall response rate of 58%. It was identified that Chambers Waste Management was collecting around 0.6 tonnes of waste each week from the companies questioned. From this figure it can be estimated that overall, approximately 1.5 tonnes of waste were being produced by all the businesses based in managed buildings.

Paper and cardboard were identified as waste materials most commonly produced, with food packaging (bottles and sandwich wrappers) also scoring highly. The lack of recycling facilities meant that companies wanting to recycle these materials could only do so by using domestic routes. Some companies indicated that they were frustrated that STC were not providing them with recycling facilities. Around 50% of individuals stated that they expected to recycle the same materials in the work place that they did at home.

These findings indicated that there was a real need to implement a recycling scheme for businesses based in managed buildings. A scheme which focused on segregating and recycling paper and cardboard could help businesses meet their legal responsibilities and could help STC to meet their customers recycling expectations.

## Unmanaged Buildings

The survey for unmanaged buildings was undertaken in July 2008 with 9 companies participating giving an overall response rate of 60% of a possible 15 businesses. The survey identified that the companies questioned were producing around 1.4 tonnes of waste each week. From this figure it can be estimated that potentially 2.5 tonnes of waste were being produced by all the businesses based in unmanaged buildings per week.

Businesses based in unmanaged buildings produced the same types of materials generated by businesses in managed buildings. The big difference was that all the businesses surveyed had a recyclables collection of at least one material. This proved that there were recycling routes available to businesses on the Research Park and that companies who were free to broker their waste collections were willing to recycle as much material as possible.

Each business was asked to identify the companies that collected their general waste and recyclable materials. Five companies collected general waste with Guildford Borough Council (CGB) collecting from 3 businesses. Chambers and SITA collected general waste from 2 businesses each, and Biffa and Grundons collected from 1 business each. Chambers collected recyclables from 5 businesses, GBC from 2 businesses, Grundons and SITA from 1 business each.

## University of Surrey (UOS)

The University was working towards ISO14001 and had systems in place to monitor their waste and recycling generation. In order to gain an indication of the types and volumes of waste generated and details of their waste contractors, the University participated in a telephone interview and supplied Remade with waste and recycling figures for 2007/08.

In total the UOS generated 24 tonnes of waste each week that was sent to landfill, 9.6 tonnes of general waste and 3.2 tonnes of food waste. The University had a very high recycling rate of 46.5% as they were able to segregate and recycle over 11 tonnes of recyclables each week. The University could improve their impressive recycling rate of 46.5% by finding a solution for their food waste. Diverting this material away from landfill could potentially increase their recycling rate to around 60%.

Cardboard represents the highest volume of recyclable material generated estimated at 4.6 tonnes per week. They recycle a large volume of paper which is stored in a separate compactor and collected once a week. All the paper and cardboard segregated on site is collected by Chambers who pay the University a small fee when they empty the compactors. Glass, wood, metal IT equipment, other electrical equipment and fridges are also separated for recycling.

## Royal Surrey County Hospital (RSCH):

To understand the types and volumes of waste produced by the RSCH Remade undertook a waste audit on 19<sup>th</sup> June 2008. The audit identified that the hospital was in the process of tendering their waste contract and were looking to increase the amount of recycling they currently undertook. To accompany the audit the hospital sent Remade waste and recycling figures for 2007/08.

The RSCH generated 8 tonnes of waste per week with 6.7 tonnes going to landfill and 1.4 tonnes being sent for recycling, giving the hospital a recycling rate of 17.3%. The majority of the hospital's recycling tonnage was generated through the collection of confidential paper waste. Collections were made weekly and usually equated approximately 1 tonne. The hospital received weekly cardboard collections free of charge by Guildford Borough Council which generated a weekly figure of around 0.2 tonnes.

The hospital was in the process of introducing a trial green sack collection for mixed recyclables, to separate plastics, glass, and cans from general waste. As this was a trial, the materials were still being sent to landfill but the hospital hoped that if the assessment achieved low levels of contamination, the green sack scheme could be implemented fully when the new waste contract was awarded. The audit also identified the potential to recycle canteen and kitchen waste which could be linked into the UOS.

### **Total Waste Generated on the Surrey Research Park**

In total 36 tonnes of waste materials were taken from the Park each week during the duration of the project, with 23.5 tonnes going to landfill and 12.5 tonnes being recycled. This gave the park an overall recycling rate of 35%, although this figure was not representative of all businesses as the majority of this tonnage was contributed by the University. Businesses based in the unmanaged buildings could have also contributed to the overall recycling rate but as tonnage figures were not centrally recorded their contribution cannot be proven.

Improving the recycling rate further is achievable if recycling collections are increased by the Royal Surrey County Hospital. This may be possible when their new waste contract is awarded and recyclable collections are arranged for more materials. In addition, the introduction of a recycling collection for STC managed buildings will also increase the recycling rate.

### **Objective 2: Joint Working Opportunities**

Each organisation surveyed was at a different stage in their waste management development. The UOS had developed their waste systems to an advanced level and were developing their own environmental management system. The RSCH was at an intermediate stage where they were re-tendering their waste contract to include increased recycling requirements. The STC was at a very early stage of developing sustainable waste management practices and were seeking to improve their environmental track record by investigating the addition of a recycling service into their waste management collections. It was therefore difficult to make direct links between the three organisations and to identify areas for joint working.

The main joint working opportunity involved the establishment of an environmental group for the Park. It was agreed that partner organisations would send regular emails to each other sharing information about new recycling companies they had been working with, existing waste contractors, waste streams they were finding it hard to recycle, forthcoming legislation that may impact on the Park and any other relevant environmental information.

### **Objective 3: Designing an Effective Recycling System**

The project findings indicated that the focus for establishing a recycling system should centre on the STC managed buildings, as the UOS and RSCH had commenced the implementation of their strategies and the unmanaged STC buildings already had effective recycling collections.

Remade put together a proposal for a recycling model for the collection of paper and cardboard which was based on the concept that recycling bins should be placed in each of the six bin store areas with the removal of a general waste bin. It was agreed that the proposal would be taken to Chambers and a trial set up to run from September 2008 to March 2009 to test its implementation. On completion of the trial, STC stated that they would re-tender the waste and recycling contract. Details of the proposal were sent and agreed with Chambers and a launch date of 2<sup>nd</sup> September 2008 set.

In preparation for the launch STC ordered and distributed a number of small bins for each unit (room) within the managed buildings and circulated an email informing them of the launch. Chambers delivered six 1100 litre paper and cardboard recycling bins on 1<sup>st</sup> September and the official launch took place on 2<sup>nd</sup> September when each business was provided with a recycling information poster and the small recycling segregation bin (delivered by hand).

Interim figures suggest that Chambers Waste Management have collected just over 33 tonnes of waste between September 2008 and December 2008, with 25.8 tonnes going to landfill and 7.3 tonnes being sent for recycling. This gives STC managed buildings a recycling rate of 22% which is an excellent achievement considering that the recycling rate before the scheme was implemented was 0%.

## **Conclusions**

Overall the project outcomes were successful with each of the three objectives being met. The key material streams and waste volumes were identified for all partners, an environmental group consisting of the project partners was established and a recycling scheme for businesses based in STC managed buildings was implemented. More could have been achieved with the full participation of the UOS and RSCH as both partners were difficult to engage with throughout the project which made arranging meetings and obtaining necessary information problematic.

The implementation of the recycling collection for managed buildings was very successful and discussions with STC staff and tenants have shown that they have been happy with the progress of the trial. The trial experience will put STC in an excellent position to extend the existing collections to include more paper and cardboard recycling bins in each bin store (reducing the number of general waste bins) and to expand the materials collected when they re-tender the waste and recycling contract in March 2009. The addition of the recycling scheme has also given tenants the opportunity to operate within the 'Duty of Care' regulations and dispose of their commercial recyclable waste at work rather than at home.

## **Recommendations:**

### **STC Managed Buildings**

- Specify that additional capacity for paper and cardboard recycling is provided when the waste and recycling contract is retendered in March 2009
- Specify that additional materials are collected for recycling when (including cans and plastic bottles) when the waste and recycling contract is retendered in March 2009

### **Unmanaged Buildings**

- The results of the recycling scheme for managed buildings should be circulated to unmanaged buildings

### **University of Surrey**

- Continue to investigate recycling options for food waste

### **Royal Surrey County Hospital**

- Work with the UOS to find a recycling solution for food waste

### **Environmental Group**

- Explore collaborative approaches to achieve economies of scale and reduce the carbon footprint of the Park

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# Surrey Research Park

## 1. Introduction

Surrey Research Park is owned and developed by The University of Surrey. It is a 70 acre (28.33 ha) low density development providing a working environment for over 114 companies, employing over 2,500 staff, engaged in a broad spectrum of research, development and design activities. There are three main organisations based on the Park; Surrey Technology Centre (and associated buildings), University of Surrey and Royal Surrey County Hospital.

- ***Surrey Technology Centre (STC)***

STC is responsible for the management of the Technology Centre building and 5 other buildings housing 99 of the 114 businesses based on site. There are an additional 6 buildings housing 15 businesses based on the Research Park that are not managed by STC. These buildings have been purchased from the University and are managed by independent landlords or occupying businesses.

- ***The University of Surrey (UOS)***

The UOS has the largest of its two campuses located on Surrey Research Park. In total the UOS employs over 2,000 staff and over 15,000 students.



Pic 1: Map of Surrey Technology Centre

- ***The Royal Surrey County Hospital (RSCH)***

RSCH provides a wide range of services and are a specialist centre for cancer, Ear, Nose and Throat, Maxillo-Facial and Oral Surgery employing 2,800 staff with around 250,000 outpatients visiting the site each year

Each of the organisations is based in close proximity to each other operating independently but all producing large quantities of waste. The project was commissioned by Surrey county Council to explore how these three organisations could work together to improve their overall environmental performance. .

### 1.1 Project Objectives

Surrey County Council set out to achieve three objectives through the project:

1. To understand the key material streams being produced on the Research Park.
2. To investigate potential joint working across the wider site in relation to the management of commercial waste streams.
3. To design an effective recycling solution for the Research Park which can be expanded to include neighbouring organisations.

To complete these objectives, the Council engaged Remade South East to carry out the management of the project. Remade South East is a not-for-profit regional waste market

development organisation that specialises in delivering projects to stimulate markets for recycled and recyclable materials.

## 1.2 Methodology

### Initial Partner Meeting:

In order to gain commitment to the project, a initial partner meeting was arranged in April 2008. The aim of the meeting was to discuss the project objectives and gain an insight into each partner's current waste management policies and practices. The meeting was chaired by Surrey County Council and attended by Remade South East, Surrey Technology Centre, The University of Surrey and The Royal County Surrey Hospital. The meeting was very positive with each partner indicating that they were keen to participate in the project. The information gained at the meeting was used to design the most appropriate methodologies to engage with the project partners.

### Objective 1 – Researching Key Materials Streams

To understand the key materials streams and volume of waste produced on the Park Remade worked with the three partners individually.

- ***Surrey Technology Centre***

The STC had very little existing data available relating to the amounts and types of waste material generated by their tenants. So to understand the types and volumes of waste generated Remade produced a short questionnaire. The questionnaire was used to undertaken face-to-face surveys of as many tenants as possible. Businesses that were not available to participate in the face-to-face survey were asked to respond via email. A copy of this survey is shown at Appendix A.

- ***The University of Surrey***

The UOS had detailed data management systems maintaining up-to-date records of waste tonnages and volumes. The university agreed to share this information with Remade as part of the project partnership as agreed at the initial partner meeting. The UOS participated in a telephone survey with Remade and sent a spreadsheet detailing waste and recycling tonnages generated during 2007/08.

- ***The Royal Surrey County Hospital***

The RSCH had limited data on waste arisings and volumes and therefore it was necessary for Remade to visit the hospital in June 2008 to undertake a waste audit. The waste audit identified the types of waste produced, current recycling and waste management practices and contractors. Tonnage details of waste and recycling volumes were sent to Remade towards the end of the project to supplement the information gained during the waste audit.

### Objective 2 – Investigating Joint Working

This section of the project focused on identifying areas of joint interest between the three partners where they could work together to improve the environmental performance across the Park. The joint working opportunities were investigated during the initial introductory partner meeting, held in April 2008 and a final partners meeting, held in October 2008.

## **Objective 3 – Designing an Effective Recycling System**

The final part of the project was focussed on the use of the knowledge gained from the previous objectives to design and implement a recycling system. It was identified at the initial partner meeting that Surrey Technology Centre did not have a recycling collection service for tenants. The results from Objective 1 were used to design and implement an appropriate system to increase the environmental performance of the Technology Centre.

## **2. Objective 1: Research Key Material Streams**

### **2.1 Surrey Technology Centre:**

To make the project easier to manage STC was divided into two areas; managed and unmanaged buildings. This approach was taken because STC management is responsible for organising the waste contract on behalf of the businesses based in managed buildings where as businesses in unmanaged buildings organise their own waste contract.

#### **2.1a Waste Management:**

During the initial partner meeting it was ascertained that there was one contractor, Chambers Waste Management, collecting general waste generated by businesses located in managed buildings. Chambers is a local company that operates a waste collection service collecting from businesses based in the north area of Surrey. Although STC had been working with Chambers for a number of years they were unsure what happened to the general waste when collected. STC understood that the materials were taken back to Chambers facility where the recyclable elements were extracted before the residual waste was sent to landfill. At the initial partners meeting some doubt was expressed over the level of recycling achieved this service. Subsequently a meeting was held between Chambers, STC, Surrey County Council and Remade to discuss the level of waste diversion for recycling. It was found that the mixed waste collected from the managed buildings was not being sorted which indicated that the recycling rate for general waste stood at 0%. During the meeting it was also discovered that the contract between Chambers and STC was due to expire in August 2008.

#### **2.1b Business Survey:**

To determine the types and volumes of waste being generated from managed and unmanaged buildings Remade produced a face-to-face questionnaire. A copy of the questionnaire can be found in Appendix A. Businesses were asked questions to identify their current recycling activities, general waste arisings and attitudes towards recycling.

In order to calculate the amount of waste generated on site, the following assumptions were made:

- A small office waste bin holds 40 litres of waste when full
- According to figures from Chambers Waste Management on average an 1100 litre bin of general waste holds 48kg of waste

## 2.2 Managed Buildings

In total there are 99 businesses located in 6 managed buildings. The main Technology Centre building houses 73 businesses and the remaining 29 businesses were located in 5 external buildings. Each building has a communal bin store that houses 1100 litre general waste bins. Remade South East and Surrey County Council conducted the survey of managed buildings on 4<sup>th</sup> June 2008. Before the survey took place STC sent an email to all companies based in managed buildings to advise them of the types of questions that would be asked in preparation for the survey. On the day the survey was conducted each of the businesses who had agreed to take part in the questionnaires within the main Technology Centre was visited. Subsequently each of the businesses based in external buildings were also visited.

Fig: 1. Businesses surveyed in STC managed buildings

|  | <b>Businesses Surveyed</b> | <b>Total businesses based in that area</b> | <b>% Surveyed</b> |
|--|----------------------------|--|-------------------|
| Inside the Technology Centre building  | 50                         | 73   | 68%               |
| Outside the Technology Centre building | 7                          | 15   | 47%               |
| <b>Total</b>                           | <b>57</b>                  | <b>99</b>                                  | <b>58%</b>        |

The survey yielded good results with 57 companies responding in total, 50 came from within the Technology Centre building and 7 from outside the building, giving an overall response rate of 58%.

Fig: 2. Estimated volume of waste produced by surveyed buildings each week

|                       | <b>Bus</b> | <b>Litres produced</b> | <b>1100 litre bins required</b> | <b>Tonnes</b>     |
|-----------------------|------------|------------------------|---------------------------------|-------------------|
| Inside STC building   | 50         | 6670                   | 6.06                            | 0.3 tonnes        |
| Outside STC           | 7          | 6710                   | 6.1                             | 0.3 tonnes        |
|                       |            |                        |                                 |                   |
| <b>Total surveyed</b> | <b>57</b>  | <b>13380</b>           | <b>12</b>                       | <b>0.6 tonnes</b> |

Chambers Waste Management were unable to supply tonnage figures of the waste produced by businesses based in managed buildings. It was therefore necessary for Remade to ask each company to calculate the amount of waste they produced each week by estimating how many small waste bins they had located in their office and how often they were emptied each week (it is estimated that each bin holds around 40 litres of waste when full). The total number of small bins emptied each week was then multiplied by 40 to give the total number of litres produced. To calculate the tonnage the litres were added together and divided by 1100 (the size of the bins located in the communal bin stores) to indicate how many bins the waste would fill. This figure was then divided by the average bin weight of an 1100 litre bin, 48kg, to give an overall tonnage figure from the businesses questioned. In total the businesses indicated that they produced around 0.6 tonnes of waste each week.

The litres of waste produced by businesses located inside and outside the STC building were nearly identical. As the type of business activities being carried out in both the managed and unmanaged buildings were of a similar nature, it is reasonable to conclude that the higher waste figure being generated by business in the unmanaged buildings was largely due to a greater number of employees producing more waste.

Fig: 3: Total estimated volume of waste produced by businesses with managed buildings

|                        | Units     | Average litres produced per business | Total litres  | 1100 litre bins required | Tonnes            |
|------------------------|-----------|--------------------------------------|---------------|--------------------------|-------------------|
| STC building           | 73        | 133                                  | 9,738         | 8.85                     | 0.4 tonnes        |
| Outside STC            | 26        | 959                                  | 24,923        | 22.65                    | 1.1 tonnes        |
| <b>Estimate totals</b> | <b>99</b> | <b>-</b>                             | <b>34,661</b> | <b>31.50</b>             | <b>1.5 tonnes</b> |

The calculations used to estimate the waste produced by the surveyed businesses was then multiplied by the total number of businesses located in managed buildings to give an overall estimate of the waste produced. This tonnage was produced by calculating the average litres produced per business and multiplying that by the number of managed businesses to create the total litres produced. That was divided by 1100 to indicate the number of bins needed to store the waste and then divided by the average bin weight of an 1100 litre bin, 48kg, which gave an overall figure of 1.5 tonnes.

Fig: 4. Materials generated and recycled by businesses surveyed

|  | No of businesses generating recyclable waste | %   | No of businesses recycling | %   |
|--|--|-----|----------------------------|-----|
| Glass  | 1  | 2%  | 0                          | 0%  |
| Paper  | 55   | 96% | 13                         | 24% |
| Cardboard                                      | 44   | 77% | 4                          | 9%  |
| Food packaging (bottles and sandwich wrappers) | 51   | 89% | 1                          | 2%  |
| Plastic bags                                   | 2  | 4%  | 0                          | 0%  |
| Cans   | 10   | 18% | 0                          | 0%  |
| Wood   | 0  | 0%  | 0                          | 0%  |
| IT Equipment                                   | 6  | 11% | 3                          | 50% |
| Cartridges                                     | 32   | 56% | 28                         | 88% |
| Food waste                                     | 1  | 2%  | 0                          | 0%  |
| Fluorescent bulbs                              | 0  | 0%  | 0                          | 0%  |
| Batteries                                      | 0  | 0%  | 0                          | 0%  |

Businesses were asked which materials they generated and which were recycled in order to give a clear indication of the types of material streams and the level of recycling possible. Of a possible 57 businesses located in managed buildings 55 were generating waste paper of these 13 were recycling their paper which was the equivalent of a 24% recycling rate.

Paper and cardboard scored highly with 96% of businesses surveyed generating these materials and 77% of these businesses recycling their paper and card. . This outcome was anticipated because paper and cardboard are the two waste materials most commonly recycled by office -based businesses. The low recycling rate recorded for the other recyclable materials could be attributed to the lack of a recognised recycling route. In addition the businesses that did state they recycled their waste paper and cardboard were doing so through domestic recycling routes as a service was not provided by the landlord or their current waste collection contractor.

Food packaging (bottles and sandwich wrappers) also scored highly with 89% of businesses generating the material. The packaging waste was likely to have been brought from home or generated by the food products bought from a restaurant on site and a local Tesco superstore. The recycling rate for these materials was very low with only one company stating they recycled their food packaging by taking it home and recycling through a kerbside collection.

Printer cartridges (56%) was a high volume waste material generated which had the highest recycling rate (88%), mainly because a voluntary collection scheme was being operated by a member of the reception staff at the Technology Centre. The cartridges collected were being sent to a charity for reuse. The majority of the 28 businesses that recycled their cartridges used this service although a few took advantage of 'take-back' schemes organised by cartridge manufacturers. During the research phase it was pointed out to STC that the voluntary collections could contravene Environment Agency regulations because printer cartridges are classified as hazardous waste and a special license is required to collect and store them. As STC is not licensed for this activity, Remade advised them to contact their local Environment Agency representative to discuss this matter further.

Fig: 5. Businesses surveyed that recycle

|              | <b>Businesses</b> | <b>%</b>    |
|--------------|-------------------|-------------|
| Yes          | 15                | 26%         |
| No           | 42                | 74%         |
|              |                   |             |
| <b>Total</b> | <b>57</b>         | <b>100%</b> |

Fig: 6. Business that use domestic routes to recycle

|              | <b>Businesses</b> | <b>%</b>    |
|--------------|-------------------|-------------|
| Yes          | 13                | 23%         |
| No           | 44                | 77%         |
|              |                   |             |
| <b>Total</b> | <b>57</b>         | <b>100%</b> |

Fig: 7. Routes used to recycle business waste

| <b>Outlets</b> | <b>Businesses</b> |
|----------------|-------------------|
| Tesco          | 5                 |
| Home           | 7                 |
| Sainsbury's    | 1                 |
|                |                   |
| <b>Total</b>   | <b>13</b>         |

In total 15 businesses surveyed stated that they recycle at least one material stream. Two businesses had recyclables collected by a commercial company; one company used a secure shredding service to recycle waste paper and the other had a waste plastic recycling collection from a clinical waste management company. The remaining 13 businesses used domestic routes to dispose of their recyclable waste (shown in figure 6). Seven businesses stated that they took their recyclables home, with 5 using the local bring bank facilities at Tesco and 1 company taking the waste off site and using the bring bank facilities at Sainsbury's (shown in figure 7).

## 2.2a Managed Building Conclusions

Paper and cardboard were identified as waste materials most commonly produced by businesses based in managed buildings. These two materials should be focused on first when implementing a recycling collection scheme. They are easy to segregate from other materials and have strong collection markets that make it easy to find companies willing to collect and recycle. The downturn in the economy has made it difficult for some waste management companies to identify cost effective end markets for waste materials. Revenues generated by recycling companies from selling paper, cardboard, cans, plastic, metal and wood have decreased during the current economic slowdown which has resulted in a reduction in the choice of recycling collections and an increase in the cost of collections. These factors should be considered when searching for a recycling collection operator as a waste collection company that has established and reliable end markets will offer a stable collection service.

The lack of recycling facilities for businesses based in STC managed buildings meant that many of them were using domestic recycling routes to divert recyclable material away from landfill. Although the businesses thought they were doing the right thing this is a big issue because as this practice is illegal with companies being prosecuted if caught. The best way to stop businesses from doing this is for STC to offer a recycling service for paper and cardboard as these were the two main materials businesses were using domestic routes for disposal.

Anecdotal evidence from tenants indicated that there was a sense of frustration that STC were not providing recycling facilities. Many individuals that took part in the survey indicated that they expected to recycle the same materials in the work place that they do at home. This is a problem already identified by STC who were keen to find a solution as they did not want tenants to become dissatisfied with the service they provided.

## 2.3 Unmanaged Buildings

Businesses based in unmanaged buildings operate their waste management independently of STC with each building landlord being responsible for arranging and managing their own waste contracts. To understand how these businesses managed their waste Remade undertook the same survey used to research businesses based in the STC managed buildings.

In total there were 15 businesses located in unmanaged buildings across the STC site. Remade South East and Surrey County Council conducted the survey of unmanaged buildings on 7<sup>th</sup> July 2008. Before the survey took place STC sent an email to all the companies based in unmanaged buildings to prepare them for the survey by advising them of the questions being asked.

Fig: 8. Businesses surveyed in unmanaged buildings

|  |     |
|--|-----|
| Unmanaged businesses surveyed                | 9   |
| Total number of unmanaged businesses on site | 15  |
| Percentage surveyed                          | 60% |

The survey yielded a good response rate with 60% of businesses based in unmanaged buildings taking part in the survey. Some businesses were not receptive to the questionnaire visit and therefore the survey was emailed to the relevant person or conducted over the phone in increase the participation rate

Fig: 9. Estimated volume of waste produced by unmanaged buildings each week

|                           | <b>Bus</b> | <b>Litres produced</b> | <b>1100 litre bins required</b> | <b>Tonnes</b> |
|---------------------------|------------|------------------------|---------------------------------|---------------|
| Unmanaged buildings       | 9          | 31020                  | 28.2                            | 1.4 tonnes    |
| Total on site (estimated) | 15         | 58126                  | 52.9                            | 2.5 tonnes    |

Each company was asked to estimate the amount of waste they produced each week. This was calculated in the same way as the waste data from the unmanaged survey, by asking businesses how many small waste bins they had located in their office and how often they were emptied each week (estimating that a small bin holds around 40 litres of waste when full). The total number of bins emptied each week was multiplied by 40 to give the number of litres produced. To calculate the tonnage the litres were added together and divided by 1100 (the size of the bins located in the communal bin stores) to indicate how many bins the waste would fill. This was then divided by the average bin weight of an 1100 litre bin, 48kg, which gave an overall figure of 1.4 tonnes. This figure was then multiplied up to give a total estimate of 2.5 tonnes of waste generated by businesses based in unmanaged buildings.

Fig: 10. Businesses surveyed that recycle

|              | <b>Bus</b> | <b>%</b>    |
|--------------|------------|-------------|
| Yes          | 9          | 100%        |
| No           | 0          | 0%          |
| <b>Total</b> | <b>9</b>   | <b>100%</b> |

Fig: 11. Business that use domestic routes to recycle

|              | <b>Bus</b> | <b>%</b>    |
|--------------|------------|-------------|
| Yes          | 1          | 11%         |
| No           | 8          | 89%         |
| <b>Total</b> | <b>9</b>   | <b>100%</b> |

All businesses surveyed had a recycling collection for at least one material with only one business using a domestic route to deal with their commercial recyclables. The company using domestic routes disposed of their plastic bottles at the Tesco bring bank.

Fig: 12. Materials generated and recycled by businesses surveyed

|  | <b>No of generating businesses</b> | <b>%</b> | <b>No of recycling businesses</b> | <b>%</b> |
|--|------------------------------------|----------|-----------------------------------|----------|
| Glass  | 3                                  | 33%      | 3                                 | 100%     |
| Paper  | 8                                  | 89%      | 8                                 | 100%     |
| Cardboard                                      | 9                                  | 100%     | 9                                 | 100%     |
| Food packaging (bottles and sandwich wrappers) | 8                                  | 89%      | 8                                 | 100%     |
| Plastic bags                                   | 2                                  | 22%      | 1                                 | 50%      |
| Cans   | 7                                  | 78%      | 7                                 | 100%     |
| Wood   | 1                                  | 11%      | 0                                 | 0%       |
| IT Equipment                                   | 3                                  | 33%      | 2                                 | 67%      |
| Cartridges                                     | 4                                  | 44%      | 4                                 | 100%     |
| Food waste                                     | 5                                  | 56%      | 0                                 | 0%       |
| Fluorescent bulbs                              | 2                                  | 22%      | 2                                 | 100%     |
| Batteries                                      | 2                                  | 22%      | 2                                 | 100%     |

Businesses were asked which materials they generated and which were recycled. The generating percentages are calculated against the total number of businesses surveyed (9) but the recycling percentages are calculated against the number of businesses that generate those materials.

Echoing the managed building survey cardboard (100%), paper (89%) and food packaging (89%) were the most commonly generated materials, but unlike the survey of the managed buildings, each material stream had a 100% recycling rate. Overall the recycling rates for all materials were high with only food waste being generated by a significant number and not being recycled. This proved that there are recycling routes available on the Research Park and businesses that make their own waste decisions were willing to recycle as much material as possible.

The survey did not carry out research on the amount of recyclable waste that was generated by businesses based in unmanaged buildings and therefore there are no recycling tonnage estimates available. This is an area that could be covered if a follow-up survey is undertaken.

**Fig: 13. General waste collection companies**

|              | No       | %           |
|--------------|----------|-------------|
| Biffa        | 1        | 11%         |
| Chambers     | 2        | 22%         |
| Grundons     | 1        | 11%         |
| GBC          | 3        | 33%         |
| SITA         | 2        | 22%         |
|              |          |             |
| <b>Total</b> | <b>9</b> | <b>100%</b> |

**Fig: 14. Recycling collection companies**

|              | No       | %           |
|--------------|----------|-------------|
| Biffa        | 0        | 0%          |
| Chambers     | 5        | 56%         |
| Grundons     | 1        | 11%         |
| GBC          | 2        | 22%         |
| SITA         | 1        | 11%         |
|              |          |             |
| <b>Total</b> | <b>9</b> | <b>100%</b> |

Each business was asked to identify the companies that collected their general waste and recyclable materials. Five companies collected general waste with Guildford Borough Council (GBC) collecting from 3 businesses, Chambers and SITA from 2 businesses each, Biffa and Grundons collecting from 1 business each. Chambers collected recyclables from 5 businesses, GBC from 2 businesses, Grundons and SITA from 1 business each and Biffa did not collect recyclables from any businesses. **These findings highlighted that Chambers Waste Management had the largest market share of recycling collections on the Park.**

### 2.3a Unmanaged Buildings Conclusions

Businesses based in unmanaged buildings seemed to produce the same types of materials generated by businesses in managed buildings but the big difference was that all the businesses surveyed had a recyclables collection of at least one material. This indicates that STC should have no problem in setting up a recycling collection for the managed buildings

The survey used to question businesses in the unmanaged buildings provided limited information as it did not focus on collecting information on the quantity of material being recycled mainly because the same survey was used to question businesses from both managed and unmanaged buildings. This is an area that can be focused upon if further research is undertaken on the Park.

It was noted that Chambers had the largest recycling collection market share even though as they did not offer a recycling service to STC managed buildings. They offered skip collects of mixed recyclables, including paper, cardboard and plastics, from two businesses and an 1100 litre bin collection of mixed paper and cardboard for the other three businesses. However there was a discrepancy with their pricing structure with one company having mixed paper and cardboard collected for £3.70 per 1100 bin emptied and another being charged £11. This is an issue Chambers will need to amend if they are going to continue managing the market share of services on the Park.

## 2.4 University of Surrey (UOS):

Initially it was hoped that the university would participate in a waste audit so Remade could identify the types and volumes of waste generated on the Research Park Campus. After initial discussions it became clear that this would not be necessary as the University was working towards ISO14001 and had systems in place to monitor their waste and recycling generation. The UOS was working with an external consultancy to put together an Environmental Management System (EMS) and was also undertaking its own waste audit. Alongside the EMS, the university was developing a new waste strategy which was likely to involve source separation of waste streams to reduce contamination. It was also likely that the university would be considering options to recycle the food waste produced from the canteens on the site.

After attending the initial project meeting and participating in a telephone questionnaire, the UOS supplied Remade with waste and recycling figures for 2007/08. These figures are detailed below.

Fig: 15. Total waste and recycling produced each week

| Material      | Contractor | Weekly tonnage | %    |
|---------------|------------|----------------|------|
| General waste | Chambers   | 9.6            | 40   |
| Food waste    | Chambers   | 3.2            | 13.5 |
| Recycling     | Various    | 11.2           | 46.5 |
|               |            |                |      |
| <b>Total</b>  |            | 24.0           | 100  |

In total the UOS generated 24 tonnes of waste each week. This waste comprised of 9.6 tonnes of general waste and 3.2 of food waste that was being sent to landfill. The general waste figure is an estimation of materials generated from a number of areas across the campus which were emptied 7 times a week. Two waste compactors were used to store the food waste produced from two canteens located on site and were emptied once a week. All of the university's food waste and general waste was collected by Chambers Waste Management. Overall, a very high recycling rate of 46.5% was achieved as the OUS was able to separate and recycle over 11 tonnes of recyclables each week.

Fig: 16. Recycling figures for 2007/08

| Material             | Contractor       | Weekly tonnage |
|----------------------|------------------|----------------|
| Cardboard            | Chambers         | 4.6            |
| Paper                | Chambers         | 3              |
| Glass                | RJ Harris        | 1.3            |
| Confidential paper   | SITA/Shreddit    | 0.5            |
| Wood                 | Chambers         | 0.1            |
| Metal                | Muddles          | 1.0            |
| IT Equipment         | SIMMS            | 0.5            |
| Electrical Equipment | Computer Salvage | 0.1            |
| Fridges              | EMR (London)     | 0.1            |
|                      |                  |                |
| <b>Total</b>         |                  | <b>11.2</b>    |

The UOS recycled a high number of materials each week using a wide variety of local contractors. Cardboard was generated in the highest volumes totalling 4.6 tonnes per week. This material was collected using six 1100 litre bins located across the campus which were emptied once a week, and also through a compactor which was emptied once a week. The university recycled a large volume of paper which was stored in a separate compactor and collected once a week. All the paper and cardboard separated on site and collected by Chambers Waste Management, who paid the University a small fee when they emptied the compactor.

Glass was another high volume material and the university generated 1.3 tonnes each week. This material was collected by a company called RJ Harris which operates in North Surrey. The University generated around 1 tonne of waste metal each week which mainly consisted of dismantled furniture. This material generated a small amount of income for the UOS and was collected by a company called Muddles. The other materials recycled by UOS were small volume materials that were collected on an ad-hoc basis. Each material was collected when there was sufficient volumes but for the purposes of this report Remade has assumed a weekly tonnage figure.

#### 2.4a University of Surrey Conclusions

The University could improve their impressive recycling rate of 46.5% by finding a solution for their food waste. Diverting this material away from landfill could potentially increase their recycling rate to around 60%. The material is already being separated in two compactors so the main issue would be finding the most economically beneficial and environmentally friendly recycling solution. The UOS is keen to explore the possibility of composting the waste on site by either building their own in-vessel composting system or by producing their own power supply through the use of an Anaerobic Digestion system. Although installing either system on site would be expensive it would reduce waste disposal costs and allow the University to either produce a compost product that could be sold or to generate their own energy supply that could provide power to the campus. The two key factors for achieving a successful solution are:

- Generation of sufficient quantities of food waste to feed either option
- Identification of the best practical technologies that would provide the optimum solution

A third less expensive solution could be to identify a waste collection company that has an existing recycling route for food waste which could collect the food waste directly from the compactors and reprocess the material at a site external to the Research Park. This is an option that could be used in the interim arrangement whilst a decision is being made regarding the treatment of the university's food waste.

There are a number of people at the university who are focusing on waste management and developing environmental best practice across the organisation. There is strong legislative pressure imposed on big publicly funded organisations to make sure they consider the resources they consume and to make appropriate plans to reduce their impact on the environment. This legislative pressure has acted as a strong driver for the UOS, which already has an excellent recycling rate of 46.5% and is focused on improving this further.

In order to highlight the university's role as an exemplar on the Research Park, the list of companies that the UOS use to collect their recyclable waste could be shared with the other tenants on the Park. The UOS is generating sufficient quantities of waste to warrant collections from these companies and other partners on the Park could make use the same services by identifying ways to create economies of scale through collaborative waste contracts and collections.

## 2.5 Royal Surrey County Hospital (RSCH):

In order to understand the types and volumes of waste produced by the RSCH, Remade undertook a waste audit on 19<sup>th</sup> June 2008. The full audit can be found in Appendix B. The audit identified that the hospital was in the process of tendering their waste contract and were looking to increase the amount of recycling they currently undertake. Unfortunately the tendering process had already begun which meant Remade was unable to influence the process. However it was intended that the findings from the waste audit would identify areas for improvement which could be explored with the new waste contractor. To accompany the audit, the hospital sent to Remade some additional waste and recycling figures.

Fig: 17. Total waste and recycling produced each week

| Material      | Contractor | Weekly tonnage | %          |
|---------------|------------|----------------|------------|
| General waste | Chambers   | 6.7            | 82.7       |
| Recycling     | Various    | 1.3            | 17.3       |
|               |            |                |            |
| <b>Total</b>  |            | <b>8</b>       | <b>100</b> |

In total the RSCH generated 8 tonnes of waste per week with 6.7 tonnes going to landfill and 1.4 tonnes sent for recycling, giving the hospital a recycling rate of 17.3%. Although the hospital achieved a high recycling rate the waste audit identified a number of areas that could be improved.

The hospital was in the process of introducing a trial green sack collection for mixed recyclables, to separate plastics, glass, and cans from general waste. The trial was set up to test how staff would react and perform when asked to segregate the materials. As this was a trial the materials were still being sent to landfill but the hospital hoped that if the assessment achieved low levels of contamination it could be implemented properly when the new waste contract was awarded. The audit also identified the potential to recycle canteen and kitchen waste. The hospital was generating high quantities of plastic cups and cans which could be separated through the green sack scheme, and food waste, which could be linked into the UOS research. It was also identified that the hospital was disposing of paper

cups, waste pallets from deliveries, polythene wrap from the pharmacy, unwanted or broken furniture and small waste electronic equipment that could be recycled.

Fig: 18. Materials recycled

| Material           | Contractor    | Weekly tonnage |
|--------------------|---------------|----------------|
| Cardboard          | Guildford BC  | 0.2            |
| Confidential paper | Iron Mountain | 1.1            |
| Printer cartridges | Ad hoc        | Unavailable    |
|                    |               |                |
| <b>Total</b>       |               | <b>1.3</b>     |

The majority of the hospital's recycling tonnage was generated through the collection of confidential paper waste. The material was collected by Iron Mountain, a company that offers a national paper destruction and recycling service. Collections were made weekly and usually amounted to just over 1 tonne. The hospital also had their cardboard collected for free by Guildford Borough Council once a week which resulted in around 0.2 tonnes being diverted from landfill. Unfortunately a weekly tonnage figure was not available for printer cartridges as the relevant paperwork was not provided.

## 2.5a Conclusions

The hospital had implemented a basic recycling collection system that allowed them to achieve a 17.3% recycling rate. However there was the potential to achieve more. The appointment of a new waste collection company should allow them to improve their waste management performance. The hospital already had a system for green sack waste separation established which could be made operational for the diversion of recyclable materials as soon as the new waste management contract is awarded.

There is increasing pressure on RSCH to improve their environmental performance and reduce their carbon footprint. The NHS Sustainable Development Unit produced a report entitled 'The Draft Carbon Reduction Strategy for the NHS in England (2008)' that sets out targets to reduce carbon emissions in all areas, including procurement, travel, building energy use and waste management. Targets include requirements to reduce waste arisings and increase recycling rates. The main issue facing the hospital has been that there is no dedicated resource at the hospital that is responsible for waste management. Currently it is a function that sits with the Site Services Manager and is one of a number of competing responsibilities. In order to meet the requirements from the NHS Sustainable Development Unit, a dedicated Environmental Manager post will be required in order to make sustainable waste management a higher priority.

## 2.6 Total Waste Generated on the Surrey Research Park

Fig. 19: Total waste and recycling generated on the Surrey Research Park per week

|                              | Landfill    | Recycling   | Total       |
|------------------------------|-------------|-------------|-------------|
| STC managed buildings        | 1.5         | 0           | 1.5         |
| STC unmanaged buildings      | 2.5         | N/A         | 2.5         |
| University of Surrey         | 12.8        | 11.2        | 24.0        |
| Royal Surrey County Hospital | 6.7         | 1.3         | 8           |
|                              |             |             |             |
| <b>Total</b>                 | <b>23.5</b> | <b>12.5</b> | <b>36</b>   |
| <b>Percentage</b>            | <b>65%</b>  | <b>35%</b>  | <b>100%</b> |

In total 36 tonnes of waste materials were taken from the site each week with 23.5 tonnes going to landfill and 12.5 tonnes being recycled. This gave the Park an overall recycling rate of 35%, the majority of this tonnage being contributed by the University. Businesses based in unmanaged buildings would have also contributed to the recycling rate but as collection figures were not recorded this figure has not been included in the overall total of tonnage diverted from landfill.

Improving the recycling rate further would be achievable if recycling collections were increased by the Royal Surrey County Hospital. This could be achieved when their new waste contract is awarded and recyclable collections arranged for more materials. The introduction of a recycling collection to STC managed buildings will also increase the overall recycling rate of the Park

### **3. Objective 2: Joint Working Opportunities**

This section of the project focused on identifying areas of joint interest between the three main partners on the Research Park project and demonstrating ways in which they could work together to improve the environmental performance.

Each organisation was at a different stage in their waste management development. The UOS was very advanced and had developed their own environmental management system. The RSCH was at an intermediate stage where they were retendering their waste contract to include increased recycling requirements. The STC was at a very early stage in that they were investigating the addition of a recycling service to their waste management collection scheme for their tenants. It was therefore difficult to identify areas for joint working. Discussions regarding the opportunities for joint working took place during an initial partner meeting held in April 2008 and were reviewed at a final partners meeting held in October 2008.

The main joint working opportunity identified at the first meeting revolved around the large quantities of food waste being generated by the UOS and RSCH. Both organisations stated an interest in working together to create economies of scale which were necessary to justify an investment in the new technology required. Surrey County Council had identified food waste as a priority waste stream that needed development within the county and it was agreed that this joint working opportunity would be investigated though a separately funded project with Surrey County Council taking the lead.

The primary joint working opportunity identified in the final partners meeting was the possible establishment of an environmental group for the Park. The group would be made up of representatives from each partner organisation and would exist to share environmental information and best practice across the Park. It was agreed that the group would be managed by Surrey County Council and initially communicate via email. Partner organisations would send regular emails to each other relating to the following:

- new recycling companies they had been working with
- information on existing waste contractors
- details of waste streams they were finding it hard to recycle
- forthcoming legislation that may impact on the Park
- any other relevant environmental information.

All those present at the final partner meeting agreed that the group would be worthwhile. It is hoped that the forum will prove to be beneficial enough to evolve into a larger face to face meetings that could take place several times during the year.

A third joint working opportunity was identified during the delivery of objective 3 of the project. During the establishment of the recycling trial (detailed in section 4) it was agreed that the details of the trial should be shared with businesses based in unmanaged buildings. Therefore when their current waste management and recycling contracts were due for renewal they could approach the same company used by the STC managed buildings. It was hoped that by combining waste contracts the end result would be a reduction in carbon footprint of the park and improved economies of scale. It was agreed that information regarding the new contractor for the STC managed buildings would be circulated to the unmanaged buildings when the trial was complete.

## 4. Objective 3: Design an Effective Recycling Solution

The final part of the project involved the use the knowledge gained from the previous objectives to design and implement a recycling system that could potentially be expanded across the Research Park.

The project findings indicated that the focus for future activity should centre on the implementation a recycling system for the STC managed buildings. It was found that the UOS and RSCH had already put in place new strategies for increased waste recycling, and the unmanaged STC buildings already had put into in place robust waste management systems which were returning a good recycling rate.

### 4.1 Implementing a Recycling Collection for STC Managed Buildings

Discussions had taken place between STC and Chambers regarding changes to their existing waste management contract. A proposal had been submitted by Chambers to decrease the number of general waste bins located on site and to increase the cost per bin lift. The proposal was due to start at the beginning of September 2008 when the existing waste management contract expired. The existing collection contract (pre September 2008) and the proposed changes to the contact (post September 2009) are shown in figure 20 below.

Fig: 20. Proposed changes to the existing waste contract

|                      | <b>Current<br/>1100 bins<br/>on site</b> | <b>Current<br/>weekly<br/>collections</b> | <b>Current bin<br/>lifts</b> | <b>Proposed<br/>bins<br/>required</b> | <b>Proposed<br/>bin lifts</b> |
|----------------------|--|---|------------------------------|---------------------------------------|-------------------------------|
| Priestly Road        | 1  | 1   | 1                            | 1                                     | 1                             |
| Occum Road           | 5  | 5   | 25                           | 4                                     | 20                            |
| Stirling House       | 3  | 3   | 9                            | 3                                     | 9                             |
| Huxley Road          | 3  | 2   | 6                            | 2                                     | 4                             |
| Fredrick<br>Sanger   | 7  | 3   | 21                           | 4                                     | 12                            |
| Nugent Road          | 2  | 3   | 6                            | 2                                     | 6                             |
|                      |  |   |                              |                                       |                               |
| <b>Total bins</b>    | <b>21</b>                                | <b>17</b>                                 | <b>68</b>                    | <b>16</b>                             | <b>52</b>                     |
| <b>Cost per lift</b> |  |   | <b>£4.94</b>                 |                                       | <b>£6.98</b>                  |
| <b>Cost</b>          |  |   | <b>£335.92</b>               |                                       | <b>£362.96</b>                |

Columns 1 to 3 show collections during July 2008 with twenty one 1100 litre bins being on site, 68 bin lifts per week, a £4.94 charge per bin lift and a weekly waste management charge of £335.92. Columns 4 and 5 show the proposed changes by Chambers with 16 bins being placed on site, 52 proposed bin lifts, a £6.98 charge per bin lift and a weekly waste

management charge of £362.96. Overall this meant that the waste management costs for STC would increase by £27.04 per week.

These proposed changes only covered the collection and disposal of general waste and do not include the implementation of a recycling collection. Further discussions were held with Chambers to find a solution that would include a recycling service. During the discussions it was revealed that Chambers were addressing their price discrepancies and were offering a mixed recycling collection for paper and cardboard at a cost of £5.98 per lift. The findings from objective 1 had already indicated that a recycling scheme should initially focus on collecting these materials. It was therefore agreed that Remade would create an example of how many general waste and recycling bins would be needed to implement a paper and cardboard collection. This proposal is shown in figure 21 below.

Fig: 21. Remade's proposal for general waste and recycling collection

|                      | General waste bins | General waste bin collections | Total waste bin lifts per week | Estimated recycling bins required | Recycling bin collections | Total recycling bin lifts per week |
|----------------------|--------------------|-------------------------------|--------------------------------|-----------------------------------|---------------------------|------------------------------------|
| Priestly Road        | 1                  | 1                             | 1                              | 1                                 | 1                         | 1                                  |
| Occum Road           | 3                  | 3                             | 9                              | 1                                 | 2                         | 2                                  |
| Stirling House       | 2                  | 3                             | 6                              | 1                                 | 2                         | 2                                  |
| Huxley Road          | 1                  | 2                             | 2                              | 1                                 | 2                         | 2                                  |
| Fredrick Sanger      | 4                  | 3                             | 12                             | 1                                 | 2                         | 2                                  |
| Nugent Road          | 1                  | 3                             | 3                              | 1                                 | 2                         | 2                                  |
|                      |                    |                               |                                |                                   |                           |                                    |
| <b>Total bins</b>    | <b>12</b>          | <b>15</b>                     | <b>33</b>                      | <b>6</b>                          | <b>11</b>                 | <b>11</b>                          |
| <b>Cost per lift</b> |                    |                               | <b>£6.98</b>                   |                                   |                           | <b>£5.98</b>                       |
| <b>Cost</b>          |                    |                               | <b>£230.34</b>                 |                                   |                           | <b>£72.00</b>                      |
| <b>Total cost</b>    |                    |                               |                                |                                   |                           | <b>£302.10</b>                     |

Remade proposed that one recycling bin should be placed in each of the bin store areas, with the smallest, Priestly Road, having one collection per week and the others having two collections per week. This meant that each of the bin stores, with the exception of Priestly Road, would have one of their general waste bins removed keeping the number of collections for the remaining bins the same. This proposal showed that there would be 12 general waste bins collected 33 times a week with 6 recycling bins collected 11 times a week. This amounted to a waste and recycling collection cost of £302.10 per week, which is a £30 a week reduction on the STC's existing waste management costs and a £60 reduction on the proposed waste management costs.

Although the proposal would save STC money it was still a conservative estimate as the number of lifts for general waste bins could be reduced further. In theory, when a recycling collection is implemented the amount of material stored in general waste bins reduces. In this case the paper and cardboard that would have been placed in the general waste bins would now go into the recycling bins. As a result the same amount of material would be collected each week overall but would be split between general waste and recycling bins.

A meeting was arranged with STC, Remade and Surrey County Council on 16<sup>th</sup> July 2008 to discuss the findings from the research phase and to explain the recycling proposal (outlined in figure 21). It was agreed that the proposal would be taken to Chambers and a trial set up to run from September 2008 to March 2009 to test its effectiveness. Changes to the number of general waste and recycling bin lifts could be made once the scheme had been trailed. Details of the proposal were agreed with Chambers and a launch date of 2<sup>nd</sup> September 2008 was set.

In preparation for the launch STC ordered a number of small bins for each unit (room) within the managed buildings to help businesses segregate their paper and cardboard. Remade, STC and Surrey County Council worked together to produce publicity material to communicate to businesses the improvements to waste management. An email was circulated to businesses in the last week of August 08 informing them of the launch. Attached to the email was a step by step guide of the recycling process spelling out to businesses what materials could be recycled and the steps involved in the process.



Pic. 2: Email Step by step recycling guide

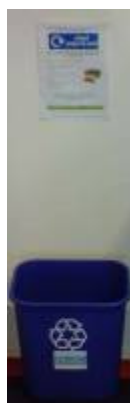


Pic. 3: Recycling information poster

Chambers delivered six 1100 litre paper and cardboard recycling bins on 1<sup>st</sup> September and the official launch took place on 2<sup>nd</sup> September with each business being hand delivered a recycling information poster and the small recycling bin.



Pic. 4 Chambers recycling bin



Pic. 4: Small segregation bin and recycling poster

To assess the initial success of the scheme, a short survey was produced and circulated to businesses at the end of October 2008. The survey asked businesses if they used the recycling service, why they did not use the service, if they found it easy to use and if they had any comments or recommendations. A copy of the survey and results can be found in appendix C and D.

The survey yielded a good response rate, with 31 out of the 99 businesses located in managed buildings returning the survey, this gave a 31.33% response rate. All 31 businesses stated that they made use of the service with only one stating that they found the service difficult to use. Their main concern was that the external recycling bin located in their nearest bin store was always full. Comments from the other responding businesses were very positive although the same issue regarding external bins becoming full quickly was echoed by a number of other businesses. The majority of businesses asked for more than one recycling bin to be placed in each bin store or for more frequent collections. Many businesses also requested collections for more materials including cans, plastics and glass.

When the implementation of the recycling service was agreed, Chambers indicated that they were in the process of purchasing a new collection vehicle that had bin weighing technology. This would allow them to weigh every bin the vehicle collected. Chambers proposed that this vehicle would be used to monitor the weight of general waste and recycling bins collected from STC managed buildings in order to give an accurate estimation of the amount of material collected during the trial.

Unfortunately Chambers had problems sourcing the vehicle which meant that they were only able to give a rough estimation of the material they had collected and recycled. Chambers estimated that the average general waste bin they collect weighs 48kg and the average mixed paper and cardboard bin they collected weighed 35kg. Between September 2008 and December 2008 Chambers reported to have emptied 537 general waste bins and 209 paper and cardboard bins. This equates to the numbers shown in figure 22 below.

Fig. 22: Estimated general waste and recycling collected from STC managed buildings between September 2008 and December 2008

| <b>Sept 08 – Dec 08</b> | <b>Landfill</b> | <b>Recycling</b> | <b>Total</b> |
|-------------------------|-----------------|------------------|--------------|
| STC managed buildings   | 25.8 tonnes     | 7.3 tonnes       | 33.1 tonnes  |
| Recycling rate          | 78%             | 22%              | 100%         |

In total, it is estimated that Chambers Waste Management have collected just over 33 tonnes of waste in four months, with 25.8 tonnes going to landfill and 7.3 tonnes being sent for recycling. This gives STC managed buildings a recycling rate of 22% which is an excellent achievement considering that the recycling rate before the scheme was implemented was 0%. It is hoped that Chambers will have their new vehicle in use by 2009 and that a more accurate figure can be calculated at the end of the trial (March 2009).

Fig. 23: Total waste and recycling generated on the Surrey Research Park per week including the new recycling figures for STC managed buildings

|                              | <b>Landfill</b> | <b>Recycling</b> | <b>Total</b> |
|------------------------------|-----------------|------------------|--------------|
| STC managed buildings        | 1.5             | 0.4              | 1.9          |
| STC unmanaged buildings      | 2.5             | N/A              | 2.5          |
| University of Surrey         | 12.8            | 11.2             | 24.0         |
| Royal Surrey County Hospital | 6.7             | 1.3              | 8            |
|                              |                 |                  |              |
| <b>Total</b>                 | <b>23.5</b>     | <b>12.4</b>      | <b>36.4</b>  |
| <b>Percentage</b>            | <b>65%</b>      | <b>35%</b>       | <b>100%</b>  |

Figure 23 has been calculated to try and indicate how the trial results had affected the overall recycling rate on the Research Park. The figures for managed buildings had been recalculated by dividing the trial tonnage details (listed in figure 23) by the number of weeks that the trial has been taking place (17 weeks). Unfortunately this doesn't affect the overall recycling rate because the estimated amount of waste landfilled is the same as that calculated in figure 3 (section 2.11). Therefore additional material had been added to the recycling total and not subtracted from the landfilled amount. The use of a bin lift weighing device by Chambers will create a more accurate account of the trial's progress.

## 5. Conclusions:

Overall the project outcomes were successful with each of the three objectives being met. The key material streams and waste volumes were identified for all partners, an environmental group consisting of the project partners was established and a recycling scheme for businesses based in STC managed buildings was implemented. More could have been achieved with the full participation of the UOS and RSCH as both partners were difficult to engage with throughout the project which made to arranging meetings and obtaining necessary information problematic. STC was committed to the project and achieved the best outputs mainly owing to their capacity to establish a recycling collection and to the management support within the Centre. This support made it easy for Remade to work with STC as the STC staff were able to understand and appreciate the benefits. The RSCH and UOS staff did not have the same incentive to participate, mainly due to the large size of their organisations and the fact they had already identified their waste management strategies.

The implementation of the recycling collection for managed buildings was very successful and discussions with STC staff and tenants have shown that they have been happy with the progress of the trial. The trial experience will put STC in an excellent position to extend the existing collections to include more paper and cardboard recycling bins in each bin store (reducing the number of general waste bins) and to expand the materials collected when they re-tender the waste and recycling contract in March 2009. By then tenants will be experienced at separating paper and cardboard and therefore adding additional materials like cans and plastic bottles should not cause confusion.. The addition of the recycling scheme has also given tenants the opportunity to operate within the 'Duty of Care' regulations and dispose of their commercial recyclable waste at work rather than at home.

Research undertaken for unmanaged buildings indicated that there are 4 companies offering recycling collections on the Park; Chambers, Grundons, Guildford Borough Council and SITA. Each of these companies could be contacted in March 2009 to tender for the new STC waste and recycling contract.

The recycling levels achieved by businesses located in the unmanaged buildings were high and every business questioned stated that they received a recycling collection. Each business identified the types of waste they were producing and had found companies that could offer a recycling collection. Chambers Waste Management was identified as the collection company that had the highest market share on the Park collecting from the majority of unmanaged businesses surveyed and each of the project partners. Businesses that participated in the survey of unmanaged buildings questioned had differing opinions about Chambers, with some indicating their service was good and other indicating their service was poor. The service they offered on the Park differed from customer to customer with the price and standard of service varying. The company will need to focus on consistency of service delivery in the future to secure their position in the market.

It was difficult to identify areas of joint working within the Park because all the partners were at different stages of implementing their waste strategies. One area that could be explored further is the streamlining of waste companies that service the Park. At the moment there are around 12 companies that collect general waste and recyclables each week. Streamlining could be achieved by project partners trying to achieve uniformity their collection days in order that companies like Chambers can collect from all their clients on site on the same day. There is also the possibility that each of the project partners and the landlords of the unmanaged buildings could join together and tender the Park's waste and recycling collections as a single contract. This would secure best value for their collections by gaining economies of scale. In the short term this may be hard to achieve owing to the number of partners on site and the varying lengths/requirements of their contracts. In the long term this approach could be achieved if the existing contracts are temporarily renewed on a short-term basis in order to accommodate a start date which all companies agree to adhere to.

The UOS and RSCH identified food waste as a priority waste material stream and were seeking to develop processes to deal with this material. Both organisations could work together to investigate technologies that will deliver a long-term and cost-effective solution. An interim solution for these partners could be to identify and work with a local company that offers a collection service for food waste for recycling. This would allow them to improve their recycling rates and test how well their food waste separation systems are working. During the final project partner meeting, Remade passed details of a local company that offers a food collection service on to both organisations and it is hoped that they will explore the possibility of establishing a collection.

## **6. Recommendations:**

### **6.1 STC Managed Buildings**

- Specify that additional capacity for paper and cardboard recycling is provided when the waste and recycling contract is retendered in March 2009
- Specify that additional materials are collected for recycling when (including cans and plastic bottles) when the waste and recycling contract is retendered in March 2009
- Re-circulate recycling publicity to tenants every six months to keep recycling fresh in their minds
- Publicise the achievements of the recycling scheme so tenants are aware they have contributed to an increased recycling rate

- Surrey County Council should provide support to help STC produce a tender specification at the end of the recycling trial in March 2009

### **6.2 STC Unmanaged Buildings**

- The results of the recycling scheme for managed buildings should be circulated to unmanaged buildings

### **6.3 University of Surrey**

- Continue to investigate recycling options for food waste

### **6.4 Royal Surrey County Hospital**

- Work with the UOS to find a recycling solution for food waste

### **6.5 Environmental Group**

- Explore collaborative approaches to achieve economies of scale and reduce the carbon footprint of the Park

## Appendices:

### Appendix A

#### Surrey Technology Centre Survey

| INFORMATION ABOUT YOUR COMPANY  |   |
|---|---|
| Name:   | Company:  |
| Position:   | Telephone Number:   |
| Email address:  | Company Address:  |
| Number of employees:  |   |
| <b>Type of Business</b>   |   |
| Manufacturing   | <input type="checkbox"/> Transport, storage & communication <input type="checkbox"/>                |
| Construction  | <input type="checkbox"/> Finance <input type="checkbox"/>   |
| Retail  | <input type="checkbox"/> Business/computer activities, real estate/renting <input type="checkbox"/> |
| Wholesale   | <input type="checkbox"/> Public administration <input type="checkbox"/>                             |
| Hospitality (hotel, restaurant, café, pub)  | <input type="checkbox"/> Education <input type="checkbox"/>   |
|   | <input type="checkbox"/> Health <input type="checkbox"/>  |
| Other business type (please state)  |   |
| <b>Does your business make its own decisions about waste management or does it come from head office?</b> |   |
| <input type="checkbox"/> Yes (Please give a contact name and number if possible)                          |   |
| <input type="checkbox"/> No   |   |

| MANAGEMENT OF TRADE WASTE  |  |
|--|--|
| Who collects your trade waste?                                     |  |
| <input type="checkbox"/> Commercial waste collector (please state) |  |
| <input type="checkbox"/> Other (please state)                      |  |

| What bins are used for your trade waste, how many do you have, and how often are they collected? |  |
|--|--|
| Waste Bags   | 120 litre wheeled bin<br>(Height: 0.93m, Width: 0.48m, Depth: 0.55m) |
| No. of bags filled per week  | No. of bins  |

|                             |                             |
|-----------------------------|-----------------------------|
| No. of collections per week | No. of collections per week |
|-----------------------------|-----------------------------|

|   |   |
|---|---|
| <b>240 litre wheeled bin</b><br>(Height: 1.07m, Width: 0.59m, Depth: 0.74m) | <b>360 litre wheeled bin</b><br>(Height: 1.09m, Width: 0.60m, Depth: 0.88m)       |
| No. of bins   | No. of bins   |
| No. of collections per week   | No. of collections per week   |
| <b>660 litre wheeled bin</b><br>(Height: 1.19m, Width: 1.22m, Depth: 0.77m) | <b>1100 litre/Euro wheeled bin</b><br>(Height: 1.33m, Width: 1.22m, Depth: 1.07m) |
| No. of bins   | No. of bins   |
| No. of collections per week   | No. of collections per week   |

Other bins/skips (please specify)

|  |  |
|--|--|
| <b>Do you share your bin(s) with any other businesses?</b>   |  |
| <input type="checkbox"/> Yes (please state which businesses) |  |
| <input type="checkbox"/> No                                  |  |

## MANAGEMENT OF RECYCLABLES

**Which of the following materials do you generate?**

**Do you recycle?**

**Who collects your recyclables?**  
 (please state collection company name or recycling method)

| Glass                             | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
|-----------------------------------|--|-----------------|--|--|
| Paper                             | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| Cardboard                         | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| Plastic bottles                   | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| Plastic bags, film, etc           | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| Garden waste                      | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| Wood                              | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| Aluminium cans                    | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| Steel cans                        | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| Food waste                        | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| Fluorescent bulbs                 | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| Batteries                         | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| IT Equipment                      | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| Cartridges                        | <input type="checkbox"/> Yes <input type="checkbox"/> No | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |
| Other (specific to your business) |  | Do you recycle: | <input type="checkbox"/> Yes <input type="checkbox"/> No |  |

|  |  |
|--|--|
|  |  |
|--|--|

Do you use domestic routes to recycle your business waste? (local household recycling centre, bring bank facility or domestic kerbside collection)

- Yes (please state) \_\_\_\_\_
- No

Do you use any local facilities for trade waste recycling?

- Yes (please state) \_\_\_\_\_
- No

Any comments on the above?

\_\_\_\_\_

### Data Protection:

Under the Data Protection Act 1998, you are entitled to access any of the information held about your company and any of the answers you give on this questionnaire. Applications to review your data should be made to Diana Lock, the Chief Executive, contact details below.

Remade South East and its partners may use your details to keep you informed about future products, services or events. If you do not want us to keep you informed, please tick this box.



Thank you for completing this questionnaire. For further information please contact Andrew Kent at the Remade South East Office:

Email: [a.kent@remade-southeast.co.uk](mailto:a.kent@remade-southeast.co.uk)  
Tel: 01732 876619  
Fax: 01732 876611

## Appendix B

### Royal Surrey County Hospital Waste Audit

|   |  |   |  |
|---|--|---|--|
| <b>Royal Surrey County Hospital</b>   | <b>Waste Audit Form</b>  |   |  |
| <b>Date first visit: 19.06.08</b><br><b>Date follow up visit:</b>   | <b>Agency: Remade South East</b>   | <b>Recorder: Diana Lock</b><br><b>Interviewee: Tony Keating – Site Services Manager</b>   |  |
| <b>Recyclable Items</b>   | <b>Details</b>   | <b>Recommendation from audit</b>  | <b>Weights Kg/Quantity</b>                                     |
| <b>Recyclable paper</b> <ul style="list-style-type: none"> <li>• Office/shredded</li> <li>• Newspaper</li> <li>• Envelopes</li> <li>• Light cardboard</li> <li>• Copy paper ream wrappers</li> <li>• Post-it notes</li> </ul> | <p>A blue sack collection of confidential paper waste takes place around the hospital offices.</p> <p>Much ordinary paper waste goes into confidential waste bag.</p> <p>Bags stored in covered area with other types of waste.</p> <p>Contents of bags examined and shows some cross contamination where users have incorrectly used the blue bags.</p> | <p>Establish better education of use of office paper collection system around hospital.</p> <p>Approach current sub-contractor (Iron Mountain) to take the general paper waste separately from confidential waste to reduce cost.</p> <p>Paper for recycling should be stored separately from other waste to prevent contamination.</p> <p>Obtain estimate of weights collected from Iron Mountain.</p> | <p>Confidential waste is 53p per bag (no weight available)</p> |
| <b>Cardboard</b> <ul style="list-style-type: none"> <li>• Brown cardboard boxes</li> </ul>  | <p>Guildford BC collects flat-packed cardboard daily free of charge from a cage storage facility at the back of the hospital.</p>  | <p>Arrangement works wells.</p> <p>Data required from collector on amounts removed</p>  | <p>No weights available</p> <p>1 cage emptied per day</p>      |

|   |   |   |  |
|---|---|---|--|
| <p><b>Mixed recyclables</b></p> <ul style="list-style-type: none"> <li>• Plastics</li> <li>• Aluminium and steel cans</li> <li>• Glass bottles and jars</li> <li>• other</li> </ul> | <p>A green sack system is being introduced to take other recyclable materials such as glass, cans and batteries. This is currently going to landfill but the long-term aim is to send this waste for recycling once staff are trained to use the system properly.</p> <p>Chambers will collect this so there is potential to combine this collection with the commingled collections proposed for the Surrey Technology Centre tenants.</p> | <p>Keep batteries separate from other recyclables as batteries are classed as hazardous waste</p> <p>Talk to Chambers about the potential for commingled collections linked to Surrey Technology Centre waste.</p>  | <p>No data available on weights and volumes</p>    |
| <p><b>Toner cartridges</b></p>  | <p>Collections are done informally around the hospital.</p> <p>The print room produces about 30 cartridges a month which currently go to landfill</p>   | <p>An authorised scheme could raise revenue for the hospital as there are considerable numbers of spent cartridges e.g. from the print room</p>   | <p>No overall data available</p>                   |
| <p><b>Compostable Items</b></p>   | <p><b>Details</b></p>   | <p><b>Recommendation from audit</b></p>   | <p><b>Weights kg/ quantity</b></p>                 |
| <ul style="list-style-type: none"> <li>• Food waste</li> <li>• Fruit, sandwiches etc.</li> <li>• Teabags/coffee grinds</li> <li>• Kitchen waste</li> <li>• Other</li> </ul>         | <p>Black bags are used for general waste.</p> <p>Waste from the kitchens is unsorted and goes straight into general waste skips for landfill.</p> <p>There is potential to separate out plastics cups and cans as well as food waste for compost.</p>   | <p>Install separate containers for waste cans and plastic cups in the staff cafeteria to keep this apart from the food waste.</p> <p>There is no space on site for in-vessel composting but it may be possible to link this waste with the food waste of the University of Surrey (plans are progressing for the installation of a food waste digester at the University)</p> | <p>No data available on kitchen waste arisings</p> |

|  |   |   |  |
|--|---|---|--|
|  |   |   |  |
| <p><b>Compostable paper</b></p> <ul style="list-style-type: none"> <li>• Paper towels</li> <li>• Serviettes, tissues</li> <li>• Non waxy paper food bags and wrappers</li> <li>• Moulded paper products</li> </ul> | <p>Some paper cups are used throughout the hospital and serviettes and paper towels are disposed of in the general waste scheme.</p>  | <p>Separating out paper waste from washrooms could present health and safety issues in a hospital and as such is not recommended unless a risk assessment is carried out first.</p> <p>Paper cups could be separated from staff and visitor drinks dispensers quite easily by providing a separate tube container by the dispenser.</p> | <p>Quantities would need to be estimated from numbers of paper products purchased.</p> <p>A separate discussion is needed with Janet Carr.</p> |
| <b>Garden waste</b>  | Gardeners compost clippings in compost heap on site   | No disposal cost  | No data available  |
| <b>Other materials</b>   | <b>Details</b>  | <b>Recommendations from audit</b>   | <b>Weight kg/amounts</b>   |
| <ul style="list-style-type: none"> <li>• Packaging</li> <li>• Wrappings</li> <li>• Tetrapacks</li> <li>• Yoghurt containers</li> <li>• pallets</li> </ul>  | <p>Pallets – large numbers need disposal but contractors are not interested in take-back schemes</p> <p>Poly wrap – from pharmacy<br/>Plastic bottles – saline solution etc.<br/>Polystyrene and packaging materials such as bubble wrap from goods delivery</p> <p>Furniture – unwanted but usable furniture and medical equipment</p> | <p>Contact pallet companies in Guildford area - check with Frimley Park on their disposal route for pallets</p> <p>Contact Impact Recycling and other plastic recyclers</p> <p>Create link with a local charity furniture recycling organisation and medical equipment charity</p>  | <p>Numbers not known</p> <p>Data not available</p> <p>Data not available</p>   |

|                        |   |  |   |
|------------------------|---|--|---|
|                        | is deposited around the site  |  |   |
| <b>Hazardous waste</b> | <p>Batteries and chemicals collected by Hazchem on ad-hoc basis</p> <p>WEEE - Collected by Guildford BC</p> <p>Large quantities of waste electronics (non-computer) in waste despatch area</p>  | <p>Informal arrangement works well</p> <p>Contact companies dealing with small WEEE - look at purchasing policy to prevent dumping of unwanted but new items</p>   | <p>Data not available</p> <p>Data not available</p> |
| <b>Other issues</b>    | <b>Details</b>  |  |   |
| Waste disposal area    | <p>The waste disposal area has a number of broken bins which can be recycled.</p> <p>The movement of different types of waste using cages could present health issues in terms of the potential to transfer of bacteria from one item to another.</p> | <p>Bin suppliers should be able to provide a take-back service and should be able to guarantee that broken containers are recycled.</p> <p>Better regulation and dedicated use of wires cages around the site.</p> |   |

|   |  |  |  |
|---|--|--|--|
| <p>Overseeing schemes around the hospital</p> | <p>There appears to be insufficient manpower to oversee waste operations and to prevent staff from dumping unauthorised items in the waste disposal bay. Current practices run the risk of cross contamination of materials which could have Health and Safety implications.</p> <p>Staff training schemes for all levels of staff would be helpful in achieving better source separation of waste and to encourage recycling champions to come forward.</p> | <p>It would be greatly beneficial to the smooth running of the hospital waste systems if the hospital management could appoint a dedicated member of staff to oversee waste disposal and recycling practices around the hospital.</p> <p>Introduce a regular repeat training programme for new and existing staff. Appoint recycling champions in each area of the hospital.</p> <p>Review PASA list of recommended waste companies.</p> |  |
| <p>Full waste audit</p>                       | <p>There appears to be a need for more formal waste data management. Interviews with waste collectors should be held to determine what records they keep of weights collected from the hospital.</p>   | <p>Obtain waste data from contractors. If this is not available then a requirement should be made contractually for waste companies to provide suitable data of collections made for audit purposes. This baseline data allows the hospital to establish where subsequent savings can be made.</p> <p>The new waste contract should specify better access to waste data.</p>   |  |

## Appendix C

### Surrey Technology Centre Recycling Survey

Please can you take a couple of minutes to fill in the survey below regarding the paper and cardboard recycling system at the Technology Centre. Click on the squares on the left side to check the answers you would like to give and type any comments in the shaded areas.

Please return to Sophie Riddler: [S.Ridler@surrey.ac.uk](mailto:S.Ridler@surrey.ac.uk)

|   |                             |
|---|-----------------------------|
| Company Name:   |                             |
| Has your business made use of the new paper and cardboard recycling system? |                             |
| <input type="checkbox"/>  | Yes                         |
| <input type="checkbox"/>  | No                          |
| If no, what are your reasons:   |                             |
| <input type="checkbox"/>  | Unaware of the system       |
| <input type="checkbox"/>  | Don't have time             |
| <input type="checkbox"/>  | Don't know what to do       |
| <input type="checkbox"/>  | Other - Please state below: |
|   |                             |
| If yes, do you find it easy to use?   |                             |
| <input type="checkbox"/>  | Yes                         |
| <input type="checkbox"/>  | No                          |
| Do you have any comments or recommendations? - Please state below:          |                             |
|   |                             |

## Appendix D

### Surrey Technology Centre Recycling Survey Results

Has your business made use of the new paper and cardboard recycling system? YES

NO

If no what are your reasons?

If yes, do you find it easy to use? YES

NO

If no what are your reasons?

The blue bin we have in the office is fairly easy to use, just throw the paper in it ;-)...the problems really is the wheelie bins outside and the inconsiderate use of these by other tenants of the STC. More bins would certainly help, or more regular emptying.

#### Comments

We're pretty pleased with the service so far

We are keen to recycle more than just paper ie. Plastic bottles, tins, fluorescent lightbulbs, toner cartridges etc.

Are there going to be any facilities for cans and plastic in the foreseeable future?

It would be great to be able to recycle other things like plastic, glass, tins etc.

We should have recycling offered for plastic and glass as well. Also, the Caper and Berry should be encouraged to sell food and drink in recyclable materials wherever possible and to provide recycling containers on their premises.

I think this is a great idea. Would it be possible to have similar boxes for cans and plastic?

We are keen to recycle more than just paper ie. Plastic bottles, tins, fluorescent lightbulbs, toner cartridges etc.

Great to be recycling – it would be handy to have more than one recycling bin in the office – although we could always organise that ourselves to be fair!

The bin is too small for A4 to pack neatly, or for cardboard of most kinds. The scheme based on just paper and cardboard is rather limited in scope

The recycling bin is often too full for me to add my paper/card

I take the blue bin out to empty it on my way home - I need somewhere to leave it overnight so that I can carry it back up to the office when I return in the morning !

SEP have two rooms – is it possible to get a second recycling bin so that we can have one in each room as we could make use of them.

A bigger bin would be better for us. Is this possible?

I think it is good that there are now recycling facilities. If possible another large paper/cardboard recycling bin outside would be beneficial, as the one we have gets full very quickly particularly as the restaurant has so many boxes.

Bins provided are not always large enough to accommodate volume of material accumulated between collections.

When I went to empty our recycling today the bin outside was overflowing over the floor. It is often too full to empty our small amount of recycling into, so needs to be emptied more frequently. It is a good sign it's being used!

I think it would be good to have larger recycling boxes in the offices themselves. Also, There is a lot of overflowing recycling in the bin store, and I believe that there could be a possibility of getting the rubbish/recycling collected more often.

Could the outside bin be emptied more frequently?