



**DRAFT OFFICER REPORT TO CABINET**  
(SUBJECT TO COMMENTS/ APPROVAL FROM CABINET MEMBER,  
STRATEGIC DIRECTOR ENVIRONMENT & INFRASTRUCTURE, HEAD OF  
FINANCE, HEAD OF LEGAL and excluding confidential annex 4 due to  
commercial sensitivity pending outcome of contract negotiations)

**World Class Waste Solutions**  
**2 February 2010**

**KEY ISSUE/DECISION:**

1. To adopt the World Class Waste Solutions described in Annexes 1 – 3 of this report as the Waste Disposal Authority Action Plan, to negotiate terms with the waste disposal contractor to deliver the solutions and to work in partnership with districts and borough councils and other bodies to achieve targets for household waste volume, recycling and landfill diversion.

**BUSINESS CASE:**

**Imperative and Opportunity**

2. In 1999 the Council entered into a long term integrated waste management contract with SITA UK, to manage waste services and deliver residual waste treatment using Energy from Waste technology.
3. A number of setbacks have occurred around the planning process. This culminated in a High Court decision in March 2009 to quash the planning approval for an EFW facility at Capel. There have also been increasingly difficult legal and financial issues relating to the delivery of EFW facilities within the remaining period of the existing Waste Disposal Project Agreement, which expires in 2024.
4. The financial imperative to divert residual waste from landfill has also increased, landfill tax rates will increase from £48 per tonne this year to £72 per tonne in 2013/14, costing an extra £6m a year.
5. There is also an environmental imperative to reduce greenhouse gases and contribute to carbon reduction and renewable energy targets. Within two years there will only be one remaining landfill facility in Surrey, creating cost, environmental and business continuity risks.
6. Three factors have combined to present a major opportunity for the Council to address the imperatives for change:

- There has been a reduction in household waste nationally (5% in last year) but particularly in Surrey (10% in last year)
- There have been significant increases in recycling rates – up 10% in last year with continuing increases projected
- New technologies have emerged which offer the prospect of lower cost and smaller scale operation

7. In June 2009 the Leader of the Council stated:

*“As a result of the improvements to date, we have an opportunity to remove or reduce our reliance on EFW (energy from waste) Plants in Surrey”*

*“I have asked officers to look at our options as a matter of priority as I want Surrey to set the standards of excellence in this area and I feel confident that this is possible. It is an area of our work in which I think we should be aiming to be world class”*

29<sup>th</sup> June 2009, Leader’s report to Cabinet

**8. This report describes the methodology and outcome of the exercise to identify World Class Waste Solutions (WCWS) and makes recommendations to Cabinet to implement the Solutions by 2013.**

#### **Options Analysis**

9. The Council, as Waste Disposal Authority (WDA), has the following advisory team:

Legal	Simmons and Simmons
Financial	Deloitte
Technical	Mott Macdonald
Environmental / Planning	Enviros.

10. The Waste Management Team, working with advisers and the contractor, have developed clear recommendations to reduce waste and to achieve the Leader’s requirement to increase recycling rates to a 70% “world class” level.

11. An options analysis was then carried out on all potentially deliverable options for residual waste treatment technologies and contractual delivery methods, using relevant advisors’ input. (See Confidential Annex 4)

**12. This exercise identified gasification technology, delivered within the existing waste contract, as most beneficial overall solution, taking into account technology assessment legal risks and financial cost.**

13. It is possible to recommend this diversion solution for residual technology because the operational and landfill cost risk is mitigated by continuing to use existing contracts for treating residual waste in energy from waste facilities in Kent and Slough.

**World Class Waste Solutions Summary**

14. Joint work with advisers and the waste contractor SITA (including the options analysis for residual waste treatment technology) has identified the proposed World Class Waste Solutions for Surrey.

15. The World Class Waste Solutions will:

- Reduce levels of household waste
- Increase recycling rates
- Produce renewable energy from residual waste which cannot be recycled
- Improve operational efficiency, providing cost and carbon benefits.

16. The WCWS will achieve the following outcomes using methods which are described in more detail in Annexes 1-3. A confidential Annex 4 describes the financial effect, legal assessment and risk assessment relating to the Solutions.

	Tonnes
2009/10 volume of household waste	540,000
Reduce and reuse Solutions	(15,000)
	525,000
Recycling Solutions Community Recycling Centres (70%) District and Borough Recycling (60%) New Technologies (7%)	
Total recycling (70%)	(367,500)
Residual waste treatment requirement	157,500
Gasification	(60,000)
Interim Energy from waste	(97,500)
Household waste to landfill (assumes all ash recycled)	Nil

**Are these World Class Waste Solutions?**

17. A three-month web based study of waste strategies throughout the world produced the following conclusions, which will enable Surrey to state confidently that the Waste Solutions recommended in this report are World Class.

18. The research showed that there is not a typical profile for a “world class” region or organisation, however there are similar characteristics. These include:

- Focusing on waste prevention
- Treating waste as a resource and recovering as much value as possible
- Proximate facilities and technologies for treating waste

19. In relation to recycling, the research found that:

- No authority in the top quartile of English authorities are currently achieving 70%, nor do they have recycling targets beyond 70%
- Both Wales and Scotland have a target of reaching at least 70% recycling as nations by 2025

- No other country or region achieve recycling rates beyond 70% except in a small number of very specific locations eg Canberra, Australia, and regions within the Netherlands
  - Scotland, Wales, Australia and Japan are working towards a zero waste to landfill society.
20. Therefore the World Class Waste Solution, once delivered, can claim to be truly “world class” because it includes all of the key characteristics and aims at a 70% recycling level, and if capable of being achieved by 2013

#### **Financial Assessment of WCWS**

21. On 25<sup>th</sup> November 2009, Deloitte reported their financial appraisal to the Head of Finance. This report estimated the financial cost of the World Class Waste Solutions and concluded:
- The WCWS is affordable compared with the financial projections provided by the Head of Finance
  - The WCWS is significantly the lowest cost option for the Council and will save over £200m over the next ten years compared with taking no further action to increase recycling or divert from landfill
  - The WCWS is likely to represent value for money to the UK taxpayer (ie excluding government grants) provided acceptable contractual terms can be negotiated.
22. The evidence that supports the above statements is included in Confidential Annex 4.

#### **Legal Assessment of WCWS**

23. The advice of the Head of Legal is described in Confidential Annex 4.
24. The legal advice concludes that amending the existing WDPA is the recommended method for implementing the WCWS.
25. Heads of terms have been agreed with the contractor, which ensure that there are no material or fundamental obstacles which prevent the prospect of an acceptable outcome for SCC.
26. There are however issues relating to risk allocation, contractual obligations and public procurement which need to be satisfactorily resolved in negotiation with the contractor.

#### **Technical assessment of gasification**

27. Mott Macdonald have provided an assessment of waste treatment technologies which concludes:

“EFW is still the proven technology for residual household waste, however there have been rapid developments in Advanced Thermal Treatment (ATT)(includes gasification) over the past three years which offer potential advantages of:

- Economic at lower capacities (and low visual impact)
- Recovery of energy eligible for Renewable Obligation Certificates (earning government grants)
- Immediate combustion of gases avoids production of noxious by-products

28. There are operational risks associated with ATT relating to the need for pre-treatment of waste and a high level of due diligence

29. In addition it is currently unlikely that banks will provide lending for this technology as there is not a history of effective operation, and commissioning tests to ensure effective performance and management of risks will be required.”

30. Mott Macdonald have advised that the risks associated with the specific gasification technology proposed are considered capable of acceptance because:

- The specific technology proposed by the waste contractor (Planet technology developed by Ascot Environmental) incorporates a batch loading system which reduces the complexity (and cost) of the technology by removing the need for pre-treatment and provides a more robust operation.
- Two plants are successfully in operation (in Iceland and Scotland) and the plant in Scotland has been tested on residual waste delivered from Surrey. Further inspection and discussion of the specific gasification technology has taken place with the technology providers and experts, providing further assurance to our advisers
- SITA UK will provide funding for the plant (guaranteed by their parent company Suez Environnement), removing the need for bank finance. SITA have signed a contract to develop six plants in the UK on a merchant basis, indicating a high degree of confidence in the technology. A planning permission has already been achieved for the first plant, at Avonmouth, Bristol.
- Detailed negotiations with SITA have commenced to manage the risks associated with operating the plant, and to provide commercial and operational contingency plans in the event of unacceptable performance levels.

31. The above analysis explains why Energy From Waste technology has been recommended as the residual waste treatment technology in the past, but that it is possible for the Council to consider an alternative technology now.

### **Environmental Assessment of WCWS**

32. The World Class Waste Solution provides environmental benefits by:

- Reducing emissions of greenhouse gases
- Reduced visual and traffic impact

- Providing renewable energy
- Continuous environmental improvement

### **Reducing emissions of greenhouse gases**

33. The main green house gases associated with waste management activities are carbon dioxide and methane, the latter being about 20 times more potent than carbon dioxide in its green house effect.
34. Implementing the WCWS will result in a significant reduction in green house gases entering the atmosphere. This will be achieved firstly by:
- Reducing the amount of waste that is produced in the first place thus avoiding all the emissions associated with the production, use and disposal of that product.
  - By recycling more waste we will reduce the need to create materials from scratch. For example every tonne of aluminium can that is recycled saves about 11 tonnes of carbon dioxide compared with creating an aluminium can from aluminium ore.
  - By recovering energy from the materials that cannot be recycled an equivalent amount of energy is displaced that would have been created from non-renewable fossil fuels. Use of fossil fuels is one of the main causes of green house gas emissions.
35. Reduction in green house gas emissions will be through the avoidance of landfill. Decomposition of biodegradable waste in landfill creates methane gas, which cannot all be captured and escapes into the atmosphere.

### **Reduced visual and traffic impact**

36. The buildings and equipment associated with the anaerobic digestion plant and gasification plant will be of a much smaller size than a traditional energy from waste incinerator. This means that they can be designed sympathetically to fit within a hi-tec ecopark environment resulting in a reduced visual impact.
37. By processing waste on the Charlton Lane site instead of bulking and transporting it to other places for treatment there will be fewer vehicle movements associated with the site. This is because of the intended scale of the facilities there will be a reduction in volume through the treatment processes.
38. The WCWS also involves improvements to intermediate delivery points such as Slyfield in Guildford. These will reduce vehicle mileage and reduce congestion and queuing times, improving efficiency and decreasing emissions from vehicles. For example, a refuse collection vehicle emits over 1 kg of carbon per kilometre when fully loaded, 0.67kg when empty. A idle vehicle emits 5kg per kilometre.

### **Providing renewable energy**

39. The anaerobic digestion plant and gasifier would provide enough electricity to power about 10,000 homes. Further benefits would be gained if an outlet could be found for the waste heat from the processes. Both processes are likely to qualify for a renewable energy incentive under the governments Renewable

Obligations Certificates (ROC) scheme, currently valued at over £40 per megawatt-hour.

**Continuous environmental improvement**

40. The proposed innovation centre located within the eco park will house organisations and businesses that will be engaged in finding new ways of dealing with wastes that are currently difficult to recycle or reuse. For example compact discs or plastic packaging. Their aim will be to encourage even greater levels of recycling or reuse with associated environmental benefits.

**Project Plan for delivery of World Class Waste Solution**

41. Subject to Cabinet approval a comprehensive project plan would be put into action involving:

- Contractual negotiation
- Procurement
- Consultation
- Planning activity
- Joint projects and strategy development with Waste Collection Authorities
- Construction and operational implementation

42. High level project plan is included below:

	2009		2010												2011	2012	2013		
	11	12	1	2	3	4	5	6	7	8	9	10	11	12					
Governance		◆		◆	Cabinet Decision														
AD Development		AD Proposal		Commence procurement										Planning application submitted			Planning application complete	Construction complete	
IVC Development				Planning application determination				Planning application completion									Construction completion		
MRF Development		MRF Proposal		Proposal development										Planning application submitted			Planning application complete	Construct complete	
ACT Development		Tech/ planning fatal flaw ass't	Planning application dev't											Planning application submitted			Planning application complete	Construct complete	
LEGAL																		Contract close	
FINANCIAL																		Contract close	
TECHNICAL			Technology ass't complete Tech 'tree' updated											Validation of planning application					
PLANNING														Validation of planning application			Validation of planning conditions		
Surrey Waste Partnership							Process for update of JMWS / Action Plan							WDA Action plan updated					

**RECOMMENDATIONS:**

1. To adopt the World Class Waste Solutions described in Annexes 1 – 3 of this report as the Waste Disposal Authority Action Plan
2. To delegate to Cabinet Member (Environment), in consultation with Strategic Director (Environment and Infrastructure), Head of Legal and Head of Finance, approval of amended terms to the Waste Disposal Project Agreement and the necessary approvals to deliver new services and infrastructure by 2013
3. To delegate to Cabinet Member (Environment) authority to work with the Surrey Waste Partnership to develop a new Joint Municipal Waste Management Strategy for Surrey by 30<sup>th</sup> June 2010

**REASONS FOR RECOMMENDATIONS:**

The recommendations will enable delivery of World Class Waste Solutions for Surrey by 2013 in a manner which meets legal requirements, represents value for money and is affordable to the County Council.

**WHAT HAPPENS NEXT:**

The recommendations are implemented if approved by Cabinet

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**Lead / Contact Officer:** Ian Boast, Head of Waste Management, 0208 541 9479

**Consulted:** Leader of Council  
Cabinet Member  
Environment and Economy Select Committee

**Background papers:** Presentation to Member Seminar 17<sup>th</sup> December 2009  
Environment and Economy Select Committee report

List of Annexes to this report

1. Reduce and Reuse Solution
2. Recycle Solutions

Solution 1: Community Recycling Centres

Solution 2: Green waste

Solution 3: Food waste

Solution 4: Dry Recyclables

3. Eco Park

4. Confidential: Financial and legal assessment

## **Annex 1: Reduce and Reuse Solution**

### **Rationale**

1. Research carried out by the county council in 2009 found that there was no typical profile of a world class waste authority. However, this work did identify a set of common characteristics and activities that define world class, which include the need to focus attention on preventing waste from being created.
2. From a local authority perspective, waste prevention means reducing the amount of waste that needs to be collected and treated by Surrey's authorities. This includes:
  - Waste materials not being produced at all
  - Materials being dealt with by residents themselves
  - Materials formally disposed of being reused
  - Waste being dealt with by the private rather than public sector waste management industry.
3. There are clear environmental benefits associated with making less products, making products with fewer natural resources and reducing the amount of waste that needs to be transported and treated. There are also significant cost savings to the county council associated with this.

### **Progress to Date**

4. In 2008/9, the amount of municipal waste generated in Surrey fell by nearly 10% to 568,000 tonnes. This compares favourably with the national picture, where arisings have fallen by around 4%. This reduction is the highest of any county council in England.

### **Issues**

5. The amount of waste produced in Surrey is dependent on a large number of factors that the county council may or may not be able to influence e.g. the development of internet shopping. Further, the impact of specific waste reduction initiatives can be difficult to measure against a backdrop of other variables.
6. Resources and efforts in this area therefore need to be focused on:
  - Issues that the county council has the ability to control and influence
  - Areas of work that can demonstrate a measurable impact on the amount of waste produced.

### **Review of Options**

7. A review aimed at identifying a world class waste reduction and reuse programme was carried out in conjunction with WRAP (Waste and Resources Action Programme) and the BREW (Business Resource Efficiency and Waste) Centre for Local Authorities who advise local authorities on waste issues on behalf of government. This included a review of the National Waste Strategy 2007, which encourages local authorities to use their role as local community

leaders to achieve a more integrated approach to resources and waste in their area.

8. Surrey's Joint Municipal Waste Management Strategy highlights the need to work with multiple audiences in the county:
  - Some waste produced by other sectors of the community is collected by Surrey's district and borough councils and is therefore classed as municipal
  - Waste can illegally enter the municipal waste stream via bring sites, kerbside collections and the County Council's Community Recycling Centres
  - Schools are a key partner in terms of operation and education.
9. There are environmental and financial drivers for working with targeted audiences, which are:
  - Residents
  - Businesses
  - Schools
  - Community groups
  - Public sector partners
10. Whilst the impact of work with some of these audiences on waste behaviours can be difficult to quantify, they are nevertheless key components of a world class waste reduction and reuse programme. A business case for the overall programme was therefore created with a strong positive return on investment, with specific work areas contributing to an overall waste reduction of 15,000 tonnes per year.

### **Approach**

11. The world class waste solution is to identify a work programme that fulfils the following criteria:
  - Potential for significant tonnage reduction
  - Ability to influence
  - Ability to measure
  - Targeted to specific audiences
  - Strong return on investment.
12. A programme of 17 projects has been developed that meet the above criteria.
13. Detailed project plans have been developed. The plans will be reported annually as part of the WDA Action Plan, constantly monitored and revised as appropriate, dependent on outcomes and new sector developments.

### **Work Programme**

14. The programme comprises the following projects aimed at the audiences identified above.

Residents

15. Five priority projects for residents have been identified targeting potential tonnage reduction and ability to influence behaviours.
  1. Food waste reduction, Love Food Hate Waste campaign
  2. Green waste reduction via home composting
  3. Reuse of bulky items such as furniture and white goods
  4. Reusable nappies
  5. Junk mail reduction

Businesses

16. In his report 'Standing Up for Surrey' (June 2009), the Leader of the County Council indicated that we would consider ways in which we can support the business community. In line with this, our work with businesses will focus on:
  - Education to ensure legal compliance
  - Support to improve their environmental credentials
  - Bottom line savings.
17. Business projects are:
  6. Creation of an interactive tool that provides businesses with their legislative responsibilities
  7. Creation of online tools to help businesses reduce the amount of waste they produce
  8. Creation of new recycling options for businesses
  9. Delivery of an awareness campaign to promote these tools to the business community.

Schools and Young People

18. Schools in Surrey produce an estimated 5,500 tonnes of waste per year, some of which is collected by Surrey's district and borough councils. There is therefore significant waste reduction potential that can lead to cost savings for both the schools themselves and the county council.
19. It is widely recognised that children can be strong advocates of behaviour change at home, thereby impacting on the amount of waste produced by residents.
20. Project areas for schools are:
  10. Creation of teaching resources
  11. Provision of operational advice and support
  12. Working with other services to provide a joined up sustainability offering to Surrey schools.
21. Work is currently taking place to identify measurable cost savings associated with our work with schools. Any additional spend on a schools programme will be dependent on this business case.

Community Groups

- 22. Bottom up or community led behaviour change initiatives can complement council led initiatives and have been shown to be successful in other authorities.
- 23. Project areas for community groups are:
  - 13. Creation of a self sustaining network that enables community groups to exchange ideas and knowledge
  - 14. Creation of case studies and how to guides for different activities
  - 15. Provision of small grants to support these activities.
- 24. It is anticipated that work with community groups will deliver a reduction in municipal waste of around 100 tonnes per year by 2012/13. Best practice research has also shown that community groups can have a wider behaviour change role that is more difficult to quantify.

Public Sector Partners

- 25. The Corporate Area Assessment methodology makes it increasingly important for statutory bodies to work together and share expertise. Waste collected from these bodies by district and borough councils is classified as municipal waste, which means that there is also a financial incentive for this engagement.
- 26. Current project work is focused on the NHS in Surrey. Project areas are:
  - 16. Creation of Recycle Zones in Surrey's acute hospitals
  - 17. Piloting waste reduction and recycling initiatives at a number of Community Hospitals
- 27. Work is currently taking place to identify measurable cost savings associated with our work with the NHS and other public sector partners.
- 28. Best practice identified during our work with the NHS will be shared with other partners as appropriate.

Return on Investment

- 29. The reduction potential of work with each of these audiences can be found in the table below:

Project	Waste Reduction (tonnes per year)		
	2010/11	2011/12	2012/13
1 Food waste reduction	3588	5382	7176
2 Green waste	1560	2436	3278
3 Bulky waste reuse	1000	1500	2000
4 Nappies	220	394	586
5 Junk Mail	68	128	184
6-9 Work with businesses	1000	1500	2000
10-12 Work with Schools and young people	TBC	TBC	TBC
13-15 Work with community groups	25	60	100
16-17 Work with public sector partners	TBC	TBC	TBC
Total	7461+	11,400+	15,324+

30. The waste reduction and reuse budget has been supplemented with an additional £1m over the life of this council, giving a total budget of £1.9m over the period. Since 2007/8 around £200,000 has been secured from external sources to support this work programme and grant monies will continue to be sought.
- 31. The return on investment associated with this work programme is over £1.5m through to 2012/13.**

## Annex 2. Recycle Solution

### Solution 1: Community Recycling Centres

1. Surrey County Council's recycling contractor SITA operates fifteen Community Recycling Centres (CRCs, formerly known as Civic Amenity Sites). The Centres are responsible for 27% of total household waste.
2. Progressive development of the sites and increased staffing levels from 2007 have seen recycling levels at the sites increase to 65% in Quarter 1 2009/10. The WCWS will achieve a recycling level in excess of 70% within 4 years by:
  - Providing two new sites to replace limited facilities in Bagshot and Tandridge areas, and improving facilities at three existing sites (Witley, Woking, and Leatherhead) (already approved and included in capital programme)
  - Preventing illegal trade use of CRCs by operating a Van Permit Scheme from early 2010 (already approved and included in waste revenue budget).
  - Further improving recycling performance based on analysis of detailed recycling data systems, by targeting additional staffing at areas of comparatively low performance. (Revenue cost £100,000 per annum)
  - Extending opening hours where planning conditions permit to provide extended opening during summer periods when usage is highest. This will enable improved service to customers who will be assisted in segregating waste more effectively. (Revenue cost £160,000 per annum)

### Solution 2: Green waste

3. The preferred method of treating green waste is composting at home, however in many Surrey households this is either not possible, or undesirable for the resident.
4. Currently green waste is transported to CRCs or, increasingly, collected from properties as part of a subscription based service. 80,000 tonnes of green waste are treated in this way and disposed of at composting facilities outside Surrey (Kent and Buckinghamshire)
5. The WCWS proposes:
  - Promoting home composting by subsidised composters and improved community engagement (see Annex 1)
  - Ensuring 100% green waste recycling at CRCs by improved facilities and staffing levels (see Recycling Solution 1 above)
  - Extending subscription collection scheme (no taxpayer subsidy) to deliver increased efficiency and resident incentive to comply (no additional cost)

- Building 80,000 in-vessel composting (IVC) capacity in Surrey, to reduce costs and deliver carbon benefits by provision of more proximate location(s). The location of IVC in Surrey is yet to be determined. (Capital and operating cost of IVC is built into the projected waste contract costs)

**Solution 3: Food waste**

6. There are over 100,000 tonnes of food in Surrey's household waste. Biodegradable waste in landfill produces greenhouse gases over 20 times more harmful to the environment than carbon.
7. The preferred method of dealing with food waste is to avoid its purchase, or to dispose of at home using devices such as green johannas. However there will be a significant volume of food waste in any event.
8. The WCWS for food waste recommends segregated food waste collection followed by treatment using Anaerobic Digestion Technology.
9. Evidence has shown that segregated food waste collections improve performance in three ways:
  - Reduce the volume of waste by exposing the level of food wasted
  - Divert food from harmful landfill to recycling solutions
  - Increase recycling of other products by reducing contamination and enabling complementary systems to be developed
10. Successful trials in three Surrey districts have been superseded by district and borough wide segregated food waste collection services. Segregated collection of food waste increases collection costs incurred by district and borough councils (as Waste Collection Authorities (WCAs)), but reduces landfill disposal costs incurred by the County Council as Waste Disposal Authority (WDA). Therefore all WCAs have been offered a consistent level financial support as an incentive to develop food waste collections.
11. At the time of writing this report six (out of eleven) WCAs have commenced or are committed to food waste collection, two further WCAs are in an advanced stage of consideration and three have the subject under consideration.
12. All WCAs who have commenced food waste collection are reporting recycling rates in the region of 53 to over 60%. All WCAs will need to be collecting food waste by 2013 for a 70% recycling rate to be achieved.
13. The WCWS will represent the most advanced food waste collection and treatment system in the country.
14. An additional £2m has been allocated in the capital programme, and a total £1.36m p.a. in the revenue budget over the next three years, to assist WCAs in implementing segregated food waste collection.
15. Anaerobic Digestion (AD) is the most appropriate technology for food waste. AD is an organic technology which breaks down food waste in the absence of air to produce two by-products

- A compost material which can be used on agricultural land
  - A biogas which can be used to generate electricity or to power vehicles
16. A 40,000 tonne AD facility is recommended, to be based at an Eco Park (see annex 3). The capital cost and revenue costs of AD have been built into the projected cost of the waste contract.
17. A 40,000 tonne AD facility will save over 17,000 tonnes of carbon each year compared to landfill – this is the equivalent of taking over seven thousand cars off the road.

#### **Solution 4: Dry recyclables**

18. “Dry recyclables” is the collective term for non-organic materials which can be recycled, these currently include glass, metals, paper and card and some plastics.
19. WCAs operate facilities where the public can recycle materials and offer a varying range of recycling collection services. Consequently a range of recycling performance from 25% to over 50% is currently achieved, and service costs also vary.
20. Extensive analysis and discussion with WCAs has reached the following conclusions:
- It is beneficial to identify the optimal overall solution taking into account collection costs, processing costs, and income received for recyclables.
  - There is no one system which is most effective for the whole of Surrey although benefits could be achieved by more effective joint operations – horizontally i.e. between WCAs and vertically i.e. between WCAs and the County Council.
  - Several WCAs are contractually committed to an existing method of collection (co-mingled or mixed collection) for which processing facilities already exist in Surrey.
  - WCAs who provide kerbside collection systems could increase the overall value of their operations by utilising proximate and appropriately scaled processing facilities which are not currently available in Surrey, and achieving higher values from high quality, high volume joint contracts.
21. The WCWS for dry recyclables involves the development of improved bulking, sorting and baling facilities at key locations in Surrey, based on existing transfer stations at
- Slyfield, Guildford
  - Earlswood, Redhill.
  - Charlton Lane, Shepperton
  - And possibly Epsom and Leatherhead, dependent on local demand.
22. The precise configuration and scale of the facilities would be the product of joint business cases produced with WCAs based on each location and the

development of a contract framework in negotiation with the Council's waste contractor, SITA.

23. Capital and revenue cost estimates have been built into the projected contract cost which will be adjusted according to the strength of the business cases, but costs will not be incurred without supporting evidence of strong economic returns to the Surrey taxpayer.
24. The development of facilities would have major carbon benefits which would derive from shorter journeys and waiting times, and the effect of increased recycling levels avoiding the carbon cost of new manufacture

## Annex 3 – Eco Park

### Background

1. A key element of the World Class Waste Solution is an Eco Park, which will be the first of its kind in the country. It will incorporate a range of waste treatment technologies, an innovation centre to research and develop new technologies and an education centre open to all.
2. By taking this approach, Surrey will be a world leader in dealing with waste. It will reduce the carbon impact and cost less than previous solutions, making it the best value option for the taxpayer.
3. Gasification and anaerobic digestion plants at the Eco Park will create renewable energy in the form of electricity and heat, which will offset carbon emissions from power generation from traditional fossil fuels.
4. This annex will outline the components of the Eco Park.

### Location and planning considerations

5. The proposed location is the existing waste management facility at Charlton Lane, Shepperton, which has been in waste management use for many years. The M3 is to the west, whilst a railway line and housing are to the east. The existing entrance for all traffic is from the south.
6. Currently on the site is a newly redeveloped community recycling centre (CRC), which is the largest, busiest and collects the highest tonnage of all 15 CRC. Currently, Charlton Lane also contains a Waste Transfer Station (WTS), Material Recycling Facility (MRF), and external bulking bays.
7. The site is in the Waste Local Plan 2008 as a named site and in addition to its current use is also defined as suitable for composting and thermal treatment.
8. It is located in the green belt. Policy CW6 refers to development in the Green Belt and any development at Charlton Lane would need to meet the key development criteria and demonstrate very special circumstances in accordance with that policy. The land to the east of the site is not included in the allocation although the Surrey Waste Plan (SWP) accepts that the boundaries are not definitive.
9. A site assessment exercise conducted by Enviros, planning consultants to the WDA, identified Charlton Lane as the most appropriate site of all sites defined as suitable for major waste facilities in the Surrey Waste Plan.
10. The development of the Eco Park will enable a reduction in traffic movements associated with the site as a result of the scale and on site processing. The environmental impact associated with traffic movements and air quality will be major considerations in site layout and design.
11. Planning considerations, including consultation with the County Planning Authority and local residents and stakeholders will commence immediately once approval from the Cabinet is achieved.

## Technologies and facilities

### Materials Recovery Facility (MRF)

12. The MRF is a specialised plant that receives, separates and prepares recyclable materials for marketing to end-user manufacturers. The proposed for the site will be a new, state of the art MRF that will be able to accept dry recyclables (eg, paper, plastic, metal) collected from the kerbside by the district and borough councils. The capacity and specification of the facility will be dependent upon discussions with Waste Collection Authorities.

### Anaerobic Digestion Facility

13. Anaerobic digestion is a natural treatment by which food waste is broken down in the absence of oxygen, producing gases, which can be converted into energy and a compost material with agricultural applications.

14. The anaerobic digestion facility will treat 40,000 tonnes of Surrey's food waste. This capacity was calculated based on evidence from trials, which identified approximately 40% of the 100,000 tonnes of food waste in the Surrey household waste stream can be accessed through separate kerbside collections.

15. The development of anaerobic digestion technology is complementary to the food waste reduction programme referred to in Annex 1 and treats waste from the collection schemes referred to in Annex 2. The council is already working with the district and borough councils on separate food collections, which should be operating throughout the county by the time the facility is operational.

### Gasification facility

16. In a gasification facility, waste is heated to produce a gas, which can then be burned cleanly at high temperatures to provide energy in a similar way to natural gas. Gasification plants can operate economically on a much smaller scale than traditional energy from waste plants.

17. Gasification facility will treat 60,000 tonnes of Surrey's residual household waste.

18. Previously gasification technology has not been considered appropriate as more residual capacity was required and gasification technologies were not assessed as robust. However two factors enable the technology to now be proposed.

- Due to the reduction in waste volumes and a large increase in recycling it is now a technology that can be considered.
- The specific technology proposed (Planet Technology, developed by Ascot Environmental) overcomes traditional technical weaknesses by operating a front end batch-feed process

### Innovation Centre, Visitor and Education Centre

19. The Visitor and Education centre will be situated at the front of the Eco Park providing a attractive frontage to the site. It will have a dual purpose as an education centre and as a meeting venue for groups from the wider community.

20. The Innovation centre will provide units for research and development into new technologies and new methods for reusing and recycling waste materials.

Eco Park principles

21. A key element of creating a world-class waste solution in Surrey is to reduce the environmental impact of our waste operations. This includes:

- Co-location of facilities
- Reduced traffic movements
- Reduced carbon impact
- Support for new waste technologies

22. The Eco Park development will be sensitively developed, creating a cohesive site that sits well within its location within the green belt. This sensitivity to the environment is created by developing an efficient layout on site, which minimises the extent of buildings, whilst creating a practical site layout for efficient traffic management and site operations

23. Extensive planting will be used for landscaping and to enhance biodiversity on site. Two attenuation ponds are proposed to deal efficiently with water on the site, whilst also adding to the opportunities for biodiversity on site. Planting to these ponds can bring in additional species, whilst also creating a pleasant visual setting for the Visitor centre and Innovation pods.

24. Building orientation has been considered to ensure that the buildings are as energy efficient as possible, with photovoltaic cells being used where appropriate. The Eco Park will not only produce energy but also be self sufficient for electricity and heat, as all waste heat will service the Eco Park.

25. The new technologies will achieve cost and carbon efficiencies. The AD and gasification facilities alone will save 50,000 tonnes of carbon per annum compared with landfill which is equal to taking 21,000 cars off Surrey roads.