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Date: 8th January 2020

Dear Sir/Madam,

A meeting of the **Cabinet** will be held in the **Sirhowy Room, Penallta House, Tredomen, Ystrad Mynach** on **Wednesday, 15th January, 2020** at **10.30 am** to consider the matters contained in the following agenda. You are welcome to use Welsh at the meeting, a minimum notice period of 3 working days is required should you wish to do so. A simultaneous translation will be provided if requested.

All Committee meetings are open to the Press and Public, observers and participants are asked to conduct themselves with respect and consideration for others. Please note that failure to do so will result in you being asked to leave the meeting and you may be escorted from the premises.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'CHARRY'.

Christina HARRY
INTERIM CHIEF EXECUTIVE

A G E N D A

1 To receive apologies for absence.

2 Declarations of Interest.

Councillors and Officers are reminded of their personal responsibility to declare any personal and/or prejudicial interest(s) in respect of any item of business on the agenda in accordance with the Local Government Act 2000, the Council's Constitution and the Code of Conduct for both Councillors and Officers.

A greener place Man gwyrddach



Pages

To approve and sign the following minutes: -

3 Cabinet held on 11th December 2019. 1 - 4

To note the Cabinet Forward Work Programme.

4 Cabinet Forward Work Programme 5 - 6

To receive and consider the following reports on which executive decisions are required: -

5 Waste and Recycling Collection Systems. 7 - 134

6 Valleys Task Force Crowdfunding Partnership Proposal. 135 - 142

7 Caerphilly homes - #BuildingTogether. 143 - 166

Circulation:

Councillors C.J. Cuss, N. George, C.J. Gordon, Mrs B. A. Jones, P.A. Marsden, S. Morgan, L. Phipps and Mrs E. Stenner,

And Appropriate Officers.

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Agenda Item 3



CABINET

MINUTES OF THE MEETING HELD AT PENALLTA HOUSE, TREDOMEN ON WEDNESDAY, 11TH DECEMBER 2019 AT 10.30 A.M.

PRESENT:

Councillor P. Marsden - Chair

Councillors:

C. Cuss (Social Services and Well Being), N. George (Neighbourhood Services), C.J. Gordon (Corporate Services), S. Morgan (Economy, Infrastructure and Sustainability), L. Phipps (Homes and Places) and E. Stenner (Environment and Public Protection).

Together with:

C. Harry (Interim Chief Executive), R. Edmunds (Corporate Director – Education and Corporate Services), D. Street (Corporate Director – Social Services and Housing) and M.S. Williams (Interim Corporate Director – Communities).

Also in Attendance:

S. O'Donnell (Principal Council Tax & Non-Domestic Rate Officer), S. Harris (Interim Head of Business Improvement Services and Acting S151 Officer), R. Tranter (Head of Legal Services and Monitoring Officer) and C. Evans (Committee Services Officer).

1. APOLOGIES FOR ABSENCE

Apologies for absence were received from Mrs B. Jones (Finance, Performance and Governance).

2. DECLARATIONS OF INTEREST

There were no declarations of interest received at the commencement or during the course of the meeting.

3. CABINET – 27TH NOVEMBER 2019

RESOLVED that the minutes of the meeting held on 27th November 2019 were approved as a correct record.

MATTERS ON WHICH EXECUTIVE DECISIONS WERE REQUIRED

4. COUNCIL TAX BASE 2020-2021

The report sought Cabinet agreement for the proposed calculation of the Council Tax Base for 2020/21.

The report provided the details of the Council Tax Base for 2020/21 for tax setting purposes and the collection percentage to be applied.

Cabinet were advised that the Local Government Finance Act 1992 and the Local Authorities (Calculation of Council Tax Base) (Wales) Regulations 1995 as amended set out the rules for the calculation of the Council Tax base. This is the amount required by the Local Government Finance Act 1992 to be used in the calculation of the Council Tax. The Council Tax base for discounted chargeable dwellings expressed as Band D equivalents has been calculated at 62,101.79 for 2020/21. This figure is used by Welsh Government as part of the process for calculating the Revenue Support Grant. The in-year collection rate for Council Tax has been maintained around 97% over the past few years; this has been achieved against the backdrop of reducing budgets and staffing levels. The Authority actively pursues all Council Tax arrears which results in the collection rate of 97% being regularly exceeded over time. This generates a Council Tax surplus at the end of the financial year; for 2018/19 the Council Tax surplus was £1.41m. It was noted that the surplus is used to support the Authority's base budget.

Officers explained that the collection rate is regularly exceeded over time and it is proposed that the budgeted collection rate be maintained at 97.50% for 2020/21. The Council Tax base for 2020/21 is 62,101.79 x 97.50%, which equates to 60,549.25. Members were referred to paragraph 5.5. in the report that lists the Community Council areas within the Borough with the associated figures for Band D properties. Officers advised that increases in Band D equivalents can result in a reduced Revenue Support Grant when the final settlement announcement is made later this financial year.

Cabinet thanked the Officers for the report and discussion ensued.

A Member, in noting the Community Council's Tax Base in 5.5 of the report, sought clarification on the rationale and the differences between Community Council areas. Officers explained that the Council Tax base reflects the number of Band D equivalent properties per Community Council area. Further clarification was sought around the figures allocated for Gelligaer and it was noted that this Community Council area includes Gelligaer, Hengoed, Cefn Hengoed, Penpedairheol, Ystrad Mynach and Tir-y-Berth.

A Member queried the collection rate on Council Tax arrears and whether the target is consistent. Officers explained that the collection rate of 97.5% is in line with other Welsh Local Authorities. . It was noted that the authority is very proactive in recovering debts, in particular over a 3 year term, in which many arrears are recovered.

Discussions took place around the implications to the Revenue Support Grant (RSG) should there be an increase in the Council Tax percentage. Officers explained that whilst an increase in Council Tax revenue would reduce the RSG, the additional monies from Council Tax would exceed this reduction.

Members queried the Attachment of Earnings process and its effectiveness for recovering arrears. Officers explained that this process is effective and it is the first course of action we would look to use after obtaining a Liability Order at Court.

Following consideration and discussion, it was moved and seconded that the recommendation in the report be approved. By a show of hands this was unanimously agreed.

RESOLVED that for the reasons contained in the Officer's report: -

- (i) the Council Tax collection rate is maintained at 97.50% for 2020/21;
- (ii) the Council Tax Base for the year 2020/21 be 60,549.25, with the Council Tax Base for each Community Council area as outlined in Paragraph 5.5.

5. CABINET FORWARD WORK PROGRAMME – TO NOTE

Cabinet were provided with the Cabinet Forward Work Programme, which detailed the scheduled reports from 11th December 2019 to 10th June 2020. Members were reminded that the Cabinet Forward Work Programme is a working document and therefore subject to change.

A Member requested that the responsible Cabinet Member be changed for Corporate Volunteering. Officers agreed to update this accordingly.

Following consideration and discussion, it was moved and seconded that the Forward Work Programme be noted. By a show of hands this was unanimously agreed.

RESOLVED that subject to the aforementioned amendment, the Cabinet Forward Work Programme be noted.

The meeting closed at 10.42am.

Approved and signed as a correct record subject to any corrections made at the meeting held on 15th January 2019.

CHAIR

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Forward Work Programme - Cabinet

Date	Title	Key Issues	Author	Cabinet Member
15/01/20 10:30	Affordable Housing New Build	For Cabinet to note the progress on a number of new builds and refurbishment projects, and to seek Cabinet approval to appropriate the land at Ty Darren, Risca and the transfer of associated funds to Caerphilly Homes.	Couzens, Shaun; Williams, Mark;	Cllr. Phipps, Lisa
15/01/20 10:30	Waste and Recycling Collection Systems	To advise Cabinet of the findings of the Regeneration and Environment Scrutiny Waste Review Working Group and to seek Cabinet approval for recommendations relating to the Authority's waste and recycling services.	Hartshorn, Robert	Cllr. George, Nigel
15/01/20 10:30	VTF Civic Crowdfunding Proposal	To agree a partnership funding arrangement with Welsh Government and a number of neighbouring local authorities including Merthyr Tydfil, Neath Port Talbot, Torfaen, Bridgend and Blaenau Gwent to support the development of a crowdfunding platform aimed at delivering community and civic led projects.	Kyte, Rhian	Cllr. Morgan, Sean
29/01/20 10:30	To determine a specific discretionary rate relief scheme in respect of Welsh Government (WG) 2019/20 Grant Funding	To agree proposals for distribution of the funding	Carpenter, John	Cllr. Stenner, Eluned
29/01/20 10:45	Proposed Use of Reserves	To consider proposals for the use of reserves.	Harris, Stephen R	Cllr. Stenner, Eluned
29/01/20 11:00	Corporate Volunteering	To consider our options for the establishment of a Corporate Volunteering Scheme on a Directorate or Whole Organisation basis.	Peters, Kathryn; Street, Dave;	Cllr. Gordon, Colin J
29/01/20 11:15	Community Sport - Regional agenda	To consider future delivery options for community sport on a regional (pan "Gwent") basis.	Lougher, Jared	Cllr. George, Nigel

12/02/20 10:30	Heads of the Valleys Masterplan	The report is seeking the view of members prior to its presentation to Cabinet, where Cabinet will be asked to endorse the Draft Masterplan as the basis for a public consultation exercise.	Kyte, Rhian	Cllr. Stenner, Eluned
12/02/20 10:30	Land adjacent to Transcend, Ystrad Mynach	To consider options for the sale of land.	Williams, Mark	Cllr. Phipps, Lisa
12/02/20 10:30	ERDF 4.4 Funding opportunities - The Lawn Industrial Estate, Rhymney and Ty Du, Nelson	This report outlines the opportunities for the council to enhance the development at Ty Ddu, Neslon with further industrial units	Kyte, Rhian	Cllr. Morgan, Sean
12/02/20 10:30	Caerphilly LA FSM Strategy	Consider a coordinated approach to accelerating the progress of this group of learners	Warren, Paul	Cllr. Jones, Barbara
26/02/20 10:30	Directorate Performance Assessments (17) Consultation & Engagement Framework	To discuss and approve the new Directorate Performance Assessments and service planning framework.	Roberts, Ros	Cllr. Stenner, Eluned
26/02/20 10:30		Part of #TeamCaerphilly Action Plan	Lancaster, Hayley	Cllr. Stenner, Eluned
11/03/20 10:30	EAS Business Plan	To approve the EAS Business Plan for 20-21	Cole, Keri	Cllr. Jones, Barbara
11/03/20 10:30	Caerphilly County Borough Council's Strategic Equality Plan 2020-2024	To seek approval of the Strategic Equality Plan 2020-2024 to be formally adopted as Council Policy.	Cullinane, Anwen	Cllr. Stenner, Eluned
11/03/20 10:30	Integrated Transport Unit with RCT CBC/ CCBC	Consideration of a collaborative approach to the delivery of Integrated Transport Unit services.	Lloyd, Marcus	Cllr. Morgan, Sean
25/03/20 10:30	(16) Community Asset Transfer Policy to be finalised and approved by Cabinet	Strategic Plan - Development of a policy and options to deliver a framework for Community Asset Transfer	Peters, Kathryn; Broadhurst, Timothy	Cllr. Stenner, Eluned
10/06/20 10:30	#Team Caerphilly -Transformation Strategy - 6 Monthly Update		Peters, Kathryn	Cllr. Stenner, Eluned



CABINET – 15TH JANUARY 2020

SUBJECT: WASTE AND RECYCLING COLLECTION SYSTEMS

REPORT BY: INTERIM CORPORATE DIRECTOR, COMMUNITIES

1. PURPOSE OF REPORT

- 1.1 To advise Cabinet of the findings of the Regeneration and Environment Scrutiny Waste Review Working Group and to seek Cabinet approval for recommendations relating to the Authority's waste and recycling services.

2. SUMMARY

- 2.1 The Authority has been actively engaged in Welsh Government's Collaborative Change Programme (CCP) since 2015. A series of reviews have been undertaken by Waste Resources Action Programme (WRAP) and their appointed consultants on a key range on waste management services including kerbside collection services, household waste recycling centre provision and waste transfer station/depot infrastructure.
- 2.2 In 2018 Regeneration and Environment Scrutiny Committee established a cross party Waste Review Working Group to make recommendations regarding the future of waste and recycling services in the county borough. The Working Group findings were reported to the meeting of Regeneration and Environment Scrutiny Committee on 12th February 2019 when the Committee made a number of recommendations to Cabinet. The Committee's recommendations to Cabinet regarding waste collection and recycling systems have been developed further and Cabinet approval is now sought for the Recommendations in section 3 below.

3. RECOMMENDATIONS

- 3.1 Cabinet are asked to approve the following recommendations:
1. That the current kerbside collection system for co-mingled (mixed) materials be retained (subject to continuous satisfactory performance attainment and market sustainability)
 2. That officers bring forward a further report detailing education and enforcement solutions in order to improve the quality of materials and increase participation in recycling services.

3. That the frequency of residual waste collections is reviewed in the light of actual and projected recycling performance following implementation of the Working Group's recommendations noting that there would be a lead-in time to any changes and having regard to the requirement to meet the statutory recycling target of 70% in 2024/2025.
4. That, subject to agreement of a Memorandum of Understanding, the Authority's responsibility for the treatment of dry recyclables be delegated to Rhondda Cynon Taff County Borough Council under Section 101 of the Local Government Act 1972 and section 19 of the Local Government Act 2000 with effect from 1st April 2020 for a period of 10 years.
5. That the Interim Corporate Director for Communities is authorised to enter into a Memorandum of Understanding regarding the treatment of dry recyclables with Rhondda Cynon Taff County Borough Council subject to consultation with the Cabinet Member for Neighbourhood Services, Head of Legal Services and Monitoring Officer, and the Section 151 Officer.

4. REASONS FOR THE RECOMMENDATIONS

- 4.1 To ensure that the Authority continues to deliver a waste and recycling service that meets the needs and aspirations of our residents whilst continuing to attain the ever more stringent statutory recycling targets.

5. THE REPORT

- 5.1 The Authority has been actively engaged in Welsh Government's Collaborative Change Programme (CCP) since 2015. A series of reviews have been undertaken by Waste Resources Action Programme (WRAP) and their appointed consultants on a key range of waste management services including kerbside collection services, household waste recycling centre provision and waste transfer station/depot infrastructure. These reviews culminated in a series of reports which have informed a cost benefit analysis process undertaken by consultants appointed by WRAP which are attached at Appendices 1 to 3.
- 5.2 On March 27th 2018, the Regeneration and Environment Scrutiny Committee agreed to establish a cross party working group of members to discuss and review the initial findings of the CCP. In total, 12 site visits and meetings of the group were held. The Working Group findings were reported to the Regeneration and Environment Scrutiny Committee on 12th February 2019. The Committee also made recommendations to Cabinet in relation to Household Waste Recycling Centres, but this report presents the Working Group's consideration and findings in relation to waste and recycling collection services only, these are:
 1. That the current kerbside collection system for co-mingled (mixed) materials be retained (subject to continuous satisfactory performance attainment and market sustainability)
 2. Officers develop education and enforcement solutions in order to improve the quality of materials and increase participation in recycling services.
 3. That the frequency of residual waste collections is reviewed in the light of

actual and projected recycling performance following implementation of the Working Group’s recommendations noting that there would be a lead-in time to any changes and having regard to the requirement to meet the statutory recycling target of 70% in 2024/2025.

4. To review and update Waste Transfer arrangements in the light of any changes to collection systems.
5. Officers to explore the feasibility of developing a working arrangement to take advantage of RCT County Borough Council’s ‘state of the art’ treatment facility.

5.3 The Council’s current waste service collection profile is detailed below in Table 1:

Table 1

Service	Frequency	Containers Used	Materials Collected
Dry Recycling	Weekly	240l wheeled bin (approx. 70% of households) Kerbside boxes (to approx. 25% households) Single use sacks (approx. 5% of households)	<ul style="list-style-type: none"> • Glass • Cans • Plastic Bottles • Mixed Plastic • Paper • Card
Food Waste	Weekly	5 Litre Internal Caddy 23Litre Kerbside Caddy	<ul style="list-style-type: none"> • All Food Waste
Garden Waste	Weekly	Reusable Sack	<ul style="list-style-type: none"> • All Garden Waste
Residual Waste (Refuse)	Fortnightly	240l wheeled bin (approx. 98% of households) Plastic sacks	<ul style="list-style-type: none"> • Residual Waste

5.4 All households receive a weekly co-mingled dry recycling collection. The authority currently uses a fleet of 9 standard Refuse Collection Vehicles (RCVs) to provide this service along with a smaller tipper vehicle to collect from areas of restricted access. The dry recycling vehicles offload at the authority’s bulking station prior to material being sent for sorting to a Materials Recycling Facility (MRF). Currently, the Authority has a contract with Newport Paper until April 2020 (with the option to extend until July 2020) and materials are processed in a facility in Warwickshire operated by Pure Recycling Limited. There are risks associated with the current service. These largely relate to the volatility of the market and the quality of the materials being presented by the householder.

5.5 In recent years the Authority has implemented many measures to improve the quality of recycling including the distribution of leaflets, door-stepping campaigns and a programme of warning stickers and bin removals. If the current collection system is to be retained these measures, alongside further enforcement solutions would need to

be explored. There is an associated risk to the short-term processing contract that is in place and longer term cost effective solution will also need to be considered.

- 5.6 Through the Waste (Wales) Measure 2010, the Welsh Government made the recycling targets statutory for 2012-13 and beyond, giving itself the option to levy financial penalties against councils that fail to achieve them. The statutory recycling target is weight-based and has increased gradually over time. The target was 58% since the start of 2015-16, but increased to 64% in 2019-20, and will increase to 70% in 2024/25. In 2018/19 the Council's recycling and composting performance was 65%.
- 5.7 Welsh Government is considering increasing the recycling target to 80% in 2034-35 subject to consultation. Welsh Government's collection Blueprint sets out their recommended service profile for the collection of waste from households, including the following central policies:
- Weekly separate collection of dry recyclables via 'kerbside sort' with material being collected separately in boxes and/or in reusable sacks, with two or more boxes provided per household, and recyclables being sorted into separate compartments on the collection vehicle by the collection staff
 - Weekly separate collection of food waste
 - The use of modern, lightweight, multi-compartment vehicles for a single pass collection of dry recyclables and food waste; and
 - Fortnightly collection of residual waste, with reduced residual waste capacity, and 'no side waste' policies are enforced.
- 5.8 The Blueprint relies on the collection of recyclables that are presented part-segregated by residents. The material is then further sorted by operatives at the point of collection. The 'co-mingled' recycling service currently operated by the Council is not Blueprint compliant, although other key principles have been adopted i.e. weekly separate food waste collection and fortnightly residual waste collection with a no side waste policy. Welsh Government believe that, if applied optimally, its collections Blueprint offers the most cost-effective overall means of collecting waste from households.
- 5.9 Identifying the number of Local Authorities in Wales adopting collection methods that conform to Welsh Government's collection Blueprint is difficult. This is because there are a number of elements to the collection Blueprint which all local authorities in Wales have adopted to some extent. In terms of dry recycling, it is understood that 15 local authorities operate a multi-stream (i.e. kerbside sort) dry recycling collection service. In 2018/19 Caerphilly's recycling performance was 65%, 6th out of the 22 local authorities. 16 local authorities did not achieve Welsh Government's recycling target of 64% in 2018/19.
- 5.10 As detailed in Appendix 1, 3 from an initial 7 options of service delivery were taken forward and modelled in more detail:
- **Existing CCBC** range of collection services and recycling;
 - **WG Blueprint.** Kerbside sort Dry recycling/food collected weekly by a Resource Recovery Vehicle (RRV). Residual waste and garden waste collected fortnightly by refuse collection vehicles;
 - **Multistream.** Twin pack 1 – Fibres/Plastic & Cans. Twin Pack 2 – Food/Glass. Garden waste collected fortnightly in RCVs.

- 5.11 WRAP undertook a comprehensive modelling exercise using their Kerbside Analysis Tool (KAT). The results from the analysis were as follows:

Table 2

Revenue Expenditure	CCBC Existing	WG Blueprint with an extra Loader	Multistream
Annual Capital - Vehicles	633,919	700,067	799,289
Containers	118,582	202,592	301,958
Operating costs	2,572,000	3,305,249	3,313,662
Supervision	370,644	370,644	370,644
Overhead	447,877	447,877	447,877
Restricted Access Collections	303,959	331,448	330,782
Spare Vehicles	244,874	265,604	289,020
Total collection	4,691,855	5,623,481	5,853,232
Bulking Costs	235,000	610,000	610,000
Treatment – Dry	1,520,140	-878,841	-720,651
Treatment – Organic	478,084	478,084	478,084
Disposal – Residual	1,664,932	1,792,201	1,737,019
Income – Trade	-813,000	-813,000	-813,000
Costs - Trade	37,000	37,000	37,000
Total	7,814,011	6,848,925	7,181,685
Variance from CCBC Existing	0	-965,085	-632,326

- 5.12 The existing service provision had the lowest collection costs by almost £1 Million. However, due to the gate fees for the Material Recycling Facility (MRF) and associated haulage it had the highest treatment costs (in excess of £1.5Million). In comparison, the WG Blueprint and Multistream collection systems have an income of £878,841 and £720,651 respectively from the sale of separately collected dry recyclate. However, this is based on assumptions on market prices and concerns have been raised as to whether this income will be realised. Overall therefore the WRAP modelling indicated that the revenue cost for the WG Blueprint collection system (with a driver and 2 operatives) was £965k less than the existing CCBC collection system. The revenue cost of the Multistream collection system was modelled to be £632k less than the existing CCBC collection system.
- 5.13 Any changes to the current waste and recycling collection service or infrastructure would require the procurement of:

- New bespoke vehicles
- The purchase of new container systems
- The development of a new waste transfer station and depot facilities.

The modelled costs of the 3 options were updated using 2017 figures for presentation to the Scrutiny Working Group together with the capital and revenue costs of change and these are summarised in Table 3 below with further detail included within Table 4 in the Financial Implications section of this report.

Table 4

	CCBC Existing	WG Blueprint with an extra Loader	Multistream
Annual Revenue	£10,662,000	£9,014,000	£9,243,000
Operating Expenditure			
Cost of Change – Annual Revenue	0	£500,000 plus £100k if 3 weekly collections are introduced.	£500,000 plus £100k if 3 weekly collections are introduced.
Cost of Change – One-off Capital	£500,000	£9,460,000	£8,390,000

- 5.14 The Scrutiny Working Group had concerns over many of the key assumptions that were made as part of the modelling exercise, specifically as they are crucial to the achievement of the projected savings from changing collection methods. The modelling assumes the net yield of recyclable material would be the same but the Working Group believed that participation would reduce through customer resistance (as public satisfaction levels with the current dry recycling service are very high). There were also concerns surrounding whether the overall levels of income being projected in the model could be achieved.
- 5.15 The modelling undertaken by WRAP indicates that the Authority can only meet the 2024/2025 statutory recycling target of 70% by moving to the collections Blueprint and three weekly refuse collections. However, the Council's current recycling performance and the quality of our recycling is better than that assumed in the modelling. The Working Group therefore recommended that the frequency of residual waste collections is reviewed in light of the actual and projected recycling performance following implementation of the Working Group's recommendations. The Working Group also noted that there would be a lead-in time to any changes in collection system and that the timing of the review has regard to that and the requirement to meet the statutory recycling target of 70% in 2024/2025 given that recycling yield would be expected to increase with reduced residual waste collection frequency.
- 5.16 As part of the review, the Working Group visited a number of neighbouring Authorities who operate a Blueprint source separated system. To this end the Waste Review Group went to Blaenau Gwent, Newport, and Merthyr Tydfil Councils to observe their collection services. What was evident to the group was that source separated collection systems are not as efficient or effective as Caerphilly's collection regime.
- 5.17 The compartmentalised vehicles used by these Authorities have limited capacity for storage and it is common practice that such vehicles have to return to a tipping depot to offload at least two to three times a day. If Caerphilly CBC operated such a segregated system, particularly given the size of the County Borough in comparison to most of our neighbouring Councils, it would mean even more return trips to offload. These capacity issues at the Blueprint Councils result in a collection service whereby only 500-700 properties are serviced per day. In comparison Caerphilly CBC collection vehicles are averaging between 1100 and 1500 properties a day. A source separated system would require at least double the fleet of vehicles and potentially longer working days for operatives.
- 5.18 In August 2019 a Waste Service Review reporting to the Team Caerphilly Board was

initiated. Whilst this review is not specifically looking at waste collection systems, the performance, efficiency and resourcing of the service, and ensuring that it is customer focussed are all within scope.

5.19 **Improving Participation in Household Recycling**

As stated above, the Scrutiny Waste Review working Group identified that if the current collection system is to be retained then existing processes to educate and inform residents regarding participation would need to continue alongside additional enforcement solutions. The Scrutiny Committee have therefore recommended that officers develop education and enforcement solutions in order to improve the quality of materials and increase participation in recycling services.

5.20 It is therefore proposed that, should Cabinet approve the retention of the current collection system a new education and enforcement process is introduced to further encourage recycling participation and to reduce contamination of recycling. It is envisaged that the enforcement process would involve a series of escalating interventions ranging from informal to formal. A further report detailing the process can be brought forward for Cabinet's consideration.

5.21 **Materials Recycling Facility**

Rhondda Cynon Taff (RCT) County Borough Council is developing a materials recycling facility only 5 miles from our northern boundary at Llwydcoed. RCT Council has a similar demographic profile to Caerphilly and collects recyclable materials in a co-mingled (mixed) manner too, albeit that the RCT system uses bags rather than wheeled bins. The facility is able to mechanically sort a whole range of recyclable materials using the latest equipment and has sufficient capacity to receive recycling from Caerphilly Council; therefore the possibility of collaboration has been explored.

5.22 The arrangements being explored with RCT to treat the Authority's dry recycling would cost less than current contracts due to reduced haulage costs and the long term nature of the partnership envisaged. This would also be beneficial from a sustainability perspective with much shorter haulage distances for collected materials and retaining public spending and employment within the local area. No significant changes would be required to the Authority's waste transfer infrastructure although the Authority's current Waste Transfer Station (WTS) will require investment to extend life and futureproof. Some CCBC recycling collection vehicles could direct deliver to the RCT operated facility. It is therefore proposed that the treatment and disposal of dry recyclables element of the Authority's waste collection duty (Section 45, Environmental Protection Act 1990) is delegated to RCTCBC under Section 101 of the Local Government Act 1972 and section 19 of the Local Government Act 2000 with effect from 1st April 2020 for a period of 10 years. It is proposed that this delegation is subject to agreement of a Memorandum of Understanding to address details including financial matters, performance, contingencies, disposal of residual waste, and variations etc.

5.23 **Conclusion**

The WRAP modelling indicated that the Authority can only meet the 2024/2025 statutory recycling target of 70% by moving to the collections Blueprint and three weekly refuse collections. However, the Council's current recycling performance and the quality of recycling is better than that assumed in the modelling. The Waste Review Working Group considered there would be an impact upon the participation of residents in the service if the current co-mingled recycling collection system were to change and also had concerns over key assumptions crucial to the achievement of modelled savings from changing collection methods. The Working Group were of the view that the £965k saving noted in the report by moving to blue print is not likely,

given the need to double the fleet size potentially and introduce longer working day operations and assumptions in relation to recycling income generated in the blueprint model.

- 5.24 The Working Group accepted that some savings could be made, but the Council should not change methods despite this saving, for other reasons/factors (risk to participation and recycling targets), given the ability to achieve 70% recycling using present collection methods. The Working Group therefore recommended no changes to existing collections systems or frequency and that education and enforcement solutions are developed in order to improve the quality of materials and increase participation in recycling services. The frequency of residual waste collections should be reviewed in light of the actual and projected recycling performance in future years.

6. ASSUMPTIONS

- 6.1 In order to undertake the modelling there were a series of key assumptions that were made by WRAP namely:

- Net yield would be the same for both systems (i.e.: there would be no public resistance to a recycling collection system change).
- Estimated waste transfer station costs were used. These were superseded by more detailed figures in the Cost Benefit Analysis work
- A change to either the Welsh Government Blueprint or Multi-stream collection system would require new waste transfer station infrastructure to deal with separated recycling streams (e.g. separation equipment for plastic and cabs, balers etc.)
- Recycling yield would increase with reduced residual waste frequency
- A range of material values were modelled. Material prices are key as any change to kerbside sort or multi stream collections means that the income from sale of materials is important to offset the additional collection costs. Values used in the modelling reflect the status of the markets in 2015 when the modelling was undertaken. The Council's MRF arrangements have since changed with the gate fee reducing. This fee is subject to quarterly review and predicted to increase due to the fluctuating nature of the market for materials.

7. LINKS TO RELEVANT COUNCIL POLICIES

- 7.1 The Community and Leisure Services Divisional Service Plan contains service specific objectives to meet a range of statutory and non-statutory targets, The plan also outlines the divisions contribution to the Authority's medium term financial strategy.
- 7.2 Towards Zero Waste One Wales: One Planet 2010, is the overarching Waste Strategy for Wales which sets out Welsh Government's long term framework for resource efficiency and waste management including high level statutory recycling targets and outcomes. In 2011, the strategy was supplemented with a series of sector plans including the municipal waste sector plan which outlined the Welsh Government's recommended service profile for the collection of waste from households. (i.e. the collection Blueprint, this being Welsh Government's preferred service model).

7.3 **Corporate Plan 2018-2023.**

Waste and recycling services are an essential element of the Authority's infrastructure and as such supports achievement of the Corporate Well-being Objectives, which are:

Objective 1 - Improve education opportunities for all

Objective 2 - Enabling employment

Objective 3 - Address the availability, condition and sustainability of homes throughout the county borough and provide advice, assistance or support to help improve people's well-being

Objective 4 - Promote a modern, integrated and sustainable transport system that increases opportunity, promotes prosperity and minimises the adverse impacts on the environment

Objective 5 - Creating a county borough that supports a healthy lifestyle in accordance with the sustainable Development Principle within the Wellbeing of Future Generations (Wales) Act 2015

Objective 6 - Support citizens to remain independent and improve their well-being

8. WELL-BEING OF FUTURE GENERATIONS

8.1 The delivery of sustainable waste management services supports the following Well-being Goals:-

- A resilient Wales
- A healthier Wales
- A more equal Wales
- A Wales of cohesive communities
- A globally responsible Wales

8.2 The delivery of a sustainable waste management service to the public is consistent with the five ways of working as defined within the sustainable development principle in the Act. The five ways of working of the sustainable development principle, listed in the Act are:

- Long Term – The Waste Review reflects the fact that the Authority is taking a longer term view of its waste and recycling services, with the aim of delivering services that meet the needs of residents and achieve current and future statutory recycling targets.
- Prevention – the Waste Review has had a focus on promoting recycling and preventing recyclable material being disposed of in residual waste streams as far as practicable.
- Integration – the waste and recycling service has a contribution to make across a number of Well-being Goals.
- Collaboration – the Authority has collaborated with Welsh Government's Collaborative Change Programme to analyse future service requirements and

is seeking to develop further operational partnerships with other Local Authorities in Wales.

- Involvement – the Waste Review Working Group consisted of a cross party group of Members, with geographical spread across the county borough.

9. EQUALITIES IMPLICATIONS

- 9.1 An EIA screening has been completed in accordance with the Council's Strategic Equality Plan and supplementary guidance. No potential for unlawful discrimination and/or low level or minor negative impact has been identified; therefore a full EIA has not been carried out.

10. FINANCIAL IMPLICATIONS

- 10.1 At the start of the review (2015) and as part of the CCP work that has been undertaken (see Appendix 1, CBA Report), WRAP undertook a comprehensive modelling exercise using their Kerbside Analysis Tool (KAT). which is an excel based spreadsheet tool which allows users to make projections of kerbside collection infrastructure and associated standardised costs by applying default and user-defined values to key parameters. The projected costs are standardised in order to fairly assess the differences between options. However, it is important to note that KAT modelling is relative and based on current service; if efficiency savings could be made in current services, then they would also be able to be made on all the options considered. Therefore it is the cost difference that is the relevant output of the modelling exercise rather than absolute numbers.
- 10.2 The results from the KAT analysis in the table at Table 2 above show the revenue cost for the core options modelled based on 2015 data. The Welsh Government Blueprint option, with an extra Loader (i.e. 2 Loaders) was modelled as approximately £965,000 less cost than the CCBC existing service and approximately £330,000 lower than the Multistream collection system.
- 10.3 The existing CCBC service provision had the lowest collection costs by circa, £1 million. However, due to the gate fees for the Material Recycling Facility (MRF) and associated haulage it had the highest treatment costs (in excess of £1.5Million). In comparison, the WG Blueprint and Multistream options had income of £878,841 and £720,651 respectively from the sale of separately collected dry recycle. However, this is based on assumptions on market prices and concerns have been raised as to whether this income will be realised.
- 10.4 Incomes in the Multistream option were lower than those in the WG Blueprint option, this is largely due to the reduced income realised from the sales of mixed paper and card compared to the sale of separately collected paper and card in the WG Blueprint option.
- 10.5 The modelled costs of the 3 options have been reworked using 2017 figures and these are presented together with the revenue and capital costs of change in Table 4 below. There are further financial risks associated with the achievement of income due to the volatility of markets. Additionally the modelling assumed that there would be no change in yield or public behaviour. If this assumption, was incorrect and public participation and yield decreased as a result of service change there is a significant risk that recycling targets may not be reached and financial penalties could be imposed (at £200 per tonne).

- 10.6 There are also financial risks associated with retaining our current collection methods largely due to the short term contract that we have in place, the volatility of markets and the importance and reliance on the public to present high quality materials for collection. Our current system does not fully satisfy the collection Blueprint and therefore may not attract Welsh Government funding.
- 10.7 The revenue and capital costs for each option along with any key assumptions are summarised in Table 4 below (please note that the costs were calculated in 2017 and are likely to have increased).

TABLE 4

<p><u>OPTION SCENARIOS</u></p>	<p><u>MODELLED ANNUAL REVENUE COSTS (includes collection and treatment)</u></p>	<p><u>REVENUE COSTS OF CHANGE / PHASED CHANGE</u></p>	<p><u>CAPITAL COSTS OF CHANGE</u></p>	<p><u>ASSUMPTIONS/CAVEATS/RISKS</u></p>
<p><u>EXISTING CCBC</u> The Existing CCBC range of collection services and recycling/disposal sites</p>	<p>£10,662,000</p>		<p>Infrastructure - £500,000</p>	<p>Current Waste Transfer Station (WTS) would require investment to extend life and future proof. Our existing services are enabling the Authority to attain (and exceed) the government recycling targets. However, there also financial risks associated with our current collection methods largely due to: - the short term contract we have in place - the volatility of markets for recyclable materials -the importance and reliance on the public to present high quality materials for collection -the current system does not fit in with the blueprint template and thus may not attract Government funding</p>
<p><u>WG BLUEPRINT (+ EXTRA LOADER)</u> No 3 weekly collections Without Bryn Quarry post sort</p>	<p>£9,014,000</p>	<p>£500,000 * * estimated for additional revenue costs to support the initial rollout of a new recycling service. £100k additional costs if 3 weekly collections are introduced at a later stage.</p>	<p>Vehicles – £3,120,000 Containers – £780,000 HWRCs - £3,350,000 WTS - £2,210,000</p>	<p>This model assumes that the participation rates will stay the same. However, If it does decrease this could put us at risk of fines as experienced by some practicing “blueprint” Councils. Funding from Welsh Government is fully committed up until 2021 and there is no indication as to what if any capital funding would be available after this date but it based on previous support it could be circa £6.75million The market for recyclable materials is notoriously volatile and subject to regular and extreme fluctuations. This means a regular income would not be guaranteed (as highlighted in the report). The transfer station/HWRC costs outlined could prove to be</p>

				too low.
<p><u>MULTISTREAM</u></p> <p>No 3 weekly collections Without Bryn Quarry post sort</p>	£9,243,000	<p>£500,000*</p> <p>* estimated for additional revenue costs to support the initial rollout of a new recycling service.</p> <p>£100k additional costs if 3 weekly collections are introduced at a later stage.</p>	<p>Vehicles – £2,280,000</p> <p>Containers – £640,000</p> <p>HWRCs - £3,350,000</p> <p>WTS - £2,120,000</p>	<p>Infrastructure – the cost of a new waste transfer station and the rationalising of the HWRCs is assumed the same for both change options.</p> <p>Lower vehicle costs as re-allocation of 9 existing twin-pack vehicles.</p> <p>Waste Transfer Station - lower costs as less Forklifts required.</p> <p>Officers believe that the Waste Transfer Station estimate used is too low, but more detailed work would be required to clarify this. As this system is not fully blueprint compliant it is unlikely to attract Welsh Government funding. This model assumes that the participation rates will stay the same. However, if it does decrease this could put us at risk of non achievement of targets and associated fines. The market for recyclable materials is notoriously volatile and subject to regular and extreme fluctuations. This means a regular income would not be guaranteed (as highlighted in the report).</p>

- 10.8 Welsh Government has allocated capital funding to the Collaborative Change Programme which has been increased to £12 million a year until 2021. We are advised that the budget is fully committed over the next 2 years as Welsh Government is supporting a number of Local Authorities moving towards the Collections Blueprint. This funding is being used to meet capital cost associated with change such as vehicles, waste/recycling containers, waste transfer and household waste recycling infrastructure.
- 10.9 It is understood that in supporting Local Authorities through the Collaborative Change Programme Welsh Government are funding approximately 75% of capital costs. As an indication, the modelled capital costs of scenarios 4 and 5 (both full Collections Blueprint) in the cost benefit analysis at Appendix 1 are approximately £9 million pounds at 2017 figures. There is no indication as to what, if any, capital funding would be available beyond 2021, but at current levels of support the Authority might expect approximately £6.75 million of capital funding from WG to move to the Collections Blueprint which would require a capital contribution from the Authority of circa £2.5m.
- 10.10 The arrangements being explored with RCT to treat the Authority's dry recycling would cost less than the existing contract with Newport Paper due to the reduction in haulage costs.

11. PERSONNEL IMPLICATIONS

- 11.1 There are no personnel implications arising from the recommendations in this report.

12. CONSULTATIONS

- 12.1 The report has been sent to the consultees listed below and all consultations responses have been incorporated in the report.

13. STATUTORY POWER

- 13.1 Local Government Act 1972, Environmental Protection Act 1990, and the Local Government Act 2000.

14. URGENCY

- 14.1 This decision is not urgent and therefore may be subject to the "call-in" procedure.

Author: Rob Hartshorn, Head of Public Protection, Community & Leisure Services

Consultees: Councillor Nigel George, Cabinet Member for Neighbourhood Services
Cllr. D.T. Davies – Chair of Environment & Sustainability Scrutiny Committee
Cllr. A. Hussey - Vice Chair of Environment & Sustainability Scrutiny
Mark S. Williams, Interim Corporate Director of Communities
Hayley Jones, Waste Strategy and Operations Manager
Rhodri Lloyd, Principal Waste Management Officer

Rob Tranter, Head of Legal Services and Monitoring Officer
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Officer
Ian Evans, Procurement and Information Manager
Anwen Cullinane – Senior Policy Officer – Equalities and Welsh Language
Mike Eedy, Finance Manager
Shaun Watkins, HR Manager

Background Papers: Report to Regeneration and Environment Scrutiny Committee, “Waste Review Working Group”, 12th February 2019.

Appendices:

- APPENDIX 1:** Cost Benefit Analysis Report (WRAP Nov 2018)
- APPENDIX 2:** The All Wales Local Authority Information on Types of Collection Service (November 2018)
- APPENDIX 3:** Caerphilly KAT (Collections) Modelling Results (December 2015)
- APPENDIX 4:** All Wales Recycling Performance Data (2018/19)

Draft Report

Caerphilly County Borough Council CBA Report

A report detailing the outcomes of the Cost Benefit Analysis modelling for Caerphilly County Borough Council's Waste future waste and recycling options.

Project code: CCP100-056

Research date: May – December 2017

Date: February 2018

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Written by: Emma Tilbrook, Mark Cordle and Alex Davies



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Executive summary

In 2017, Eunomia Research & Consulting Ltd (Eunomia) were commissioned by the WRAP Cymru to undertake a Cost Benefit Analysis (CBA) of the future options for Caerphilly County Borough Council (CCBC) to deliver their waste and recycling services.

The role of the CBA tool within the Welsh Government Business Planning Toolkit (BPT) is to support authorities in making balanced and sustainable decisions regarding the future of their waste and recycling services. To do this, the CBA compares the performance of each future scenario across four areas:

- Cost of service delivery;
- Performance of the service;
- Environmental impact of the service; and
- Employment generated by the service.

The CBA modelling undertaken as part of this project was carried out in two phases:

Phase A – Five initial scenarios were modelled, with each of the scenarios assuming that Full Moon was to be used as the depot and WTS for waste and recycling collections. In scenarios 3, 4 and 5 this meant the closure of Full Moon as an HWRC. Following a meeting in July 2017, it was agreed that the closure of Full Moon HWRC was not politically or operationally acceptable and that modelling should be updated to reflect the depot and WTS being located in Trehir. Additionally, as the initial 5 scenarios did not offer CCBC savings significant enough to warrant change, Eunomia were also asked to explore how additional modelled savings could be generated from the detailed outputs provided as part of previous collections modelling work undertaken by WRAP and HWRC and depot analysis carried out by Resource Futures. The detailed results of Phase A modelling can be found in Section 2.0 of this report.

Phase B - Within Phase B, 4 additional scenarios were modelled, taking into account the movement of the waste and recycling transfer station (WTS) to Trehir (from Full Moon) and also focussing on the impact of changing recycling collection systems. Within all of these scenarios the HWRC, WTS and commercial waste options remained the same, allowing the impact of changing the recycling service to be isolated. Scenarios 1 and 3 used the blueprint recycling service as a basis for operations and Scenario 2 and 4 the multi-stream recycling service. Scenarios 3 and 4, then overlay two further changes:

- Bryn Quarry no longer used to post-sort HWRC waste
- Black bag ban introduced to increase recycling from HWRCs

These scenarios were then modelled with two weekly refuse collections (as current) or three weekly refuse collections.

The detailed results of Phase B modelling can be found in Section 3.0 of this report.

Cost of Service Delivery

The annualised Phase B scenario costs (compared to the baseline 2016/2017 budget) are summarised in Table 1.

Table 1: Annualised Phase B Scenario costs (compared to the baseline)

Scenario	Two Weekly Refuse Collections (as current)	Three Weekly Refuse Collections
1	- £1.134m	-£1.285m
2	-£905k	-£966k
3	-£1.648m	-£1.862m
4	-£1.419m	-£1.608m

All scenarios modelled generate savings for CCBC against the baseline position, with blueprint recycling services generating larger savings than the equivalent multi-stream option in all cases. This is largely driven by the income received for the collected materials within the market place, offsetting additional vehicle and staffing costs in this option.

It is recognised that material revenues are subject to fluctuation. Sensitivities were run on material revenues as part of the original WRAP collections options modelling, ensuring that fluctuations in material revenues did not significantly change the order or magnitude of savings modelled. The processing cost paid for the current dry recycling stream is a significant cost in the baseline and therefore the main source of savings when switching to the blueprint or multi-stream recycling collection system.

The savings provided for three weekly collections within Table 1 are lower than those normally associated with a move to a more restricted refuse service, however, all of the three weekly scenarios also include the cost of the provision of a weekly Absorbent Hygiene Products (AHP) service. This service costs approximately £300k per annum and has thus reduced the potential savings from this change in the amount shown in Table 1.

In addition to the savings provided in Table 1, it is also likely that if CCBC was to move to the Welsh Government's Collections Blueprint, capital funding may be available to support this transition. When applied to Scenario 3 with three weekly collections, this could save CCBC £2.177m per annum, against current service costs (when an assumption of £2m of capital funding is applied).

Performance of the Service

In analysing CCBC's current recycling performance in more detail, with the aim of understanding if any further increases in performance could be made, we have made two adjustments to the current baseline position:

1. We have included a baseline MRF reject rate 25%, reflecting reported issues with the current co-mingled material. This has an approx. 1.5% impact on baseline recycling rates.
2. Where Bryn Quarry is used, the reported recycling rate of 77% has been replaced by the maximum estimate of 42% in the baseline and 30% in options 1 and 2. With increasing pressure on the wider industry to produce high quality outputs, there is a risk that the contribution of the sorting undertaken by Bryn Quarry is reduced, which has been accounted for in the Phase B modelling. This adjustment has resulted in a 4% reduction in the baseline position.

Although this adjustment to baseline position represents a worst case scenario for CCBC, it is important that this risk is taken into account as part of any assessment of a future 'no change' baseline scenario.

A summary of the modelled recycling performance for each future Scenario can be found in Table 2.

Table 2 – Phase B Scenarios Recycling Rate Performance

Scenario	B/L	1	2	3	4
Recycling Rate – Fortnightly Residual Waste	62%	65%	65%	67%	67%
Recycling Rate – Three Weekly Residual Waste	-	68%	68%	70%	70%
<i>NB: AHP Recycling (rather than disposal) under 3W collections could increase recycling rate by further 1%</i>					

Based upon the more conservative baseline position used in Phase B, in all scenarios CCBC still meet the 2019/2020 target of 64%. However, as within Phase A the modelling demonstrates that 2024/2025 statutory recycling targets of 70% can only be met by moving to three weekly refuse collections.

The potential annualised financial liability to CCBC of the 2024/2025 recycling targets not being met are provided in Table 7.

Table 3 – Phase B Scenarios - Potential Rate Fines

Scenario	B/L	1	2	3	4
Fortnightly Residual Waste	£1.7m	£1m	£1m	£650k	£650k
Three Weekly Residual Waste	£1.7m	£430k	£430k	-	-

Environmental Impact of the Service

The environmental impact of each scenario has been calculated using details from various life-cycle studies and takes into account the details of materials collected, the fate of this material (recycling, refuse, organic treatment etc.) and also emissions for collection and onward transportation of material. As Phase B focuses on a point in time, Table 4 draws upon the results from a point at which all proposed changes to the service have been made. Changes would then be incremental over time following any significant changes in the approach to the way waste and recycling is collected and reprocessed/disposed of.

Table 4 – Environmental Saving of Each Scenario Expressed as Tonnes per CO₂ Equivalent Compared to Baseline

Scenario	No Three Weekly	With Three Weekly
Scenario 1	-9,270	-10,148
Scenario 2	-10,856	-11,922
Scenario 3	-14,793	-15,670
Scenario 4	-16,379	-17,443

Unsurprisingly, all of the scenarios perform better when three weekly collections are introduced.

Employment Generated by the Service

To support CCBC meeting the requirements of the Well-being of Future Generations Act (2015) and improve the employment opportunities through the delivery of waste and recycling services within Caerphilly, the employment generated within each Phase B Scenario has been analysed.

Table 19 shows the maximum amount of people employed within each Phase B following rollout of the new service.

Table 5 – Employment Generated Following Rollout of Services – 2021/2022 Used as Reference Year

Scenario	No Three Weekly	With Three Weekly
Baseline	269	269
Scenario 1	291	291
Scenario 2	273	274
Scenario 3	283	286
Scenario 4	267	268

It is clear in Table 19 that the highest levels of employment are highest from the Collections Blueprint scenarios (1 and 3), this largely driven by the greater number of vehicles and crew require to deliver these services.

Conclusion

In conclusion all scenarios modelled will allow CCBC to make significant savings on their baseline budget position. However, the decision to make such substantial changes to the way in which services are delivered is not purely financial, other issues such as operational and delivery risks need to be considered. With the right planning and support (potentially funded via the WRAP CCP programme), most of these risks can however be largely controlled and/or mitigated.

CCBC do however, need to be cognisant of risks outside of their control such as the risk of fines from Welsh Government and the ever changing materials reprocessing markets, all of which will have an impact on the medium to long term sustainability of a 'do nothing' approach.

In terms of next steps, we would recommend that CCBC undertake a full analysis of the risks associated with all scenarios, examining the potential impact of those both inside and outside of the authority's control, allowing a balanced approach to be taken to the opportunities for the future development of the authority's waste services.

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Acknowledgements

A report detailing the outcomes of the Cost Benefit Analysis modelling for Caerphilly County Borough Council’s Waste future waste and recycling options.

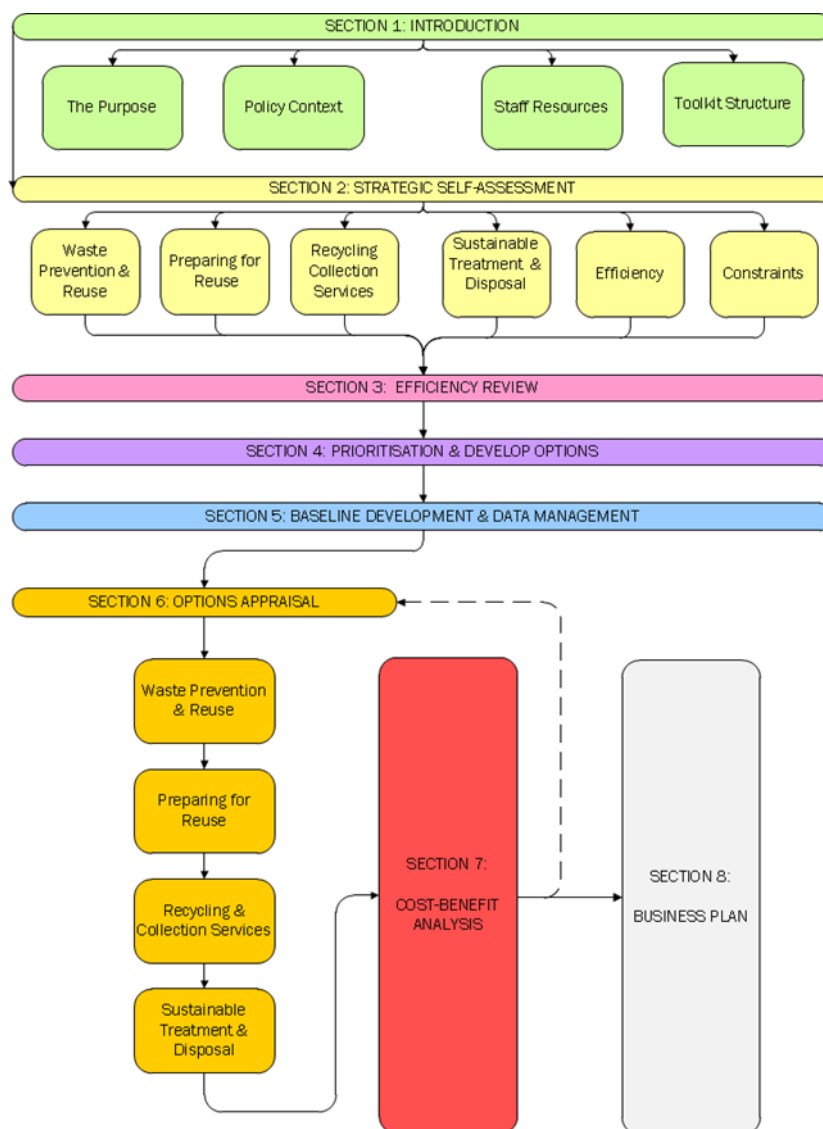
1.0 Introduction

In 2017, Eunomia Research & Consulting Ltd (Eunomia) were commissioned by the WRAP Cymru to undertake a Cost Benefit Analysis (CBA) of the future options for Caerphilly County Borough Council (CCBC) to deliver their waste and recycling services.

1.1 The Business Planning Toolkit

The Business Planning Toolkit (BPT) was developed to provide Welsh authorities with a consistent method for analysing existing service performance, alongside the impacts of potential service changes. The intention is that the outputs of the toolkit will enable authorities to develop a fully costed business plan. This business plan will set out a clear, long-term path to sustainably meet both the authority's statutory 70% recycling target by 2024/25 (as well as interim statutory targets), and the non-mandatory targets associated with waste prevention and re-use, preparation for re-use and sustainable treatment and disposal set out in the Municipal Sector Plan¹. The overall structure of the Business Planning Toolkit can be seen in Figure 1.

Figure 1 - Business Planning Toolkit Process



¹ Welsh Assembly Government (2011) Municipal Sector Plan - Part 1: Collections Blueprint, March 2011, http://wales.gov.uk/topics/environmentcountryside/epq/waste_recycling/publication/municipalsectorplan/?lang=en

Throughout 2015 and 2016, CCBC has received significant support from the WRAP Collaborative Change Programme (CCP) to undertake Section 6 of the BPT process. As part of this work WRAP have commissioned options appraisals for the following recycling and collection services:

- Kerbside waste and recycling collections;
- HWRC operations; and
- Trade waste and recycling collections.

This project uses the outputs of these Section 6 commissions and additional analysis, to deliver Section 7 of the BPT process, the Cost Benefit Analysis (CBA).

1.2 Section 7 - The CBA

As shown in the BPT process in Figure 1, the CBA is designed bring together the baseline position and the outputs of options appraisal modelling for the four main BPT elements.

- Prevention and Re-use;
- Preparation for Re-use;
- Recycling and Collection Services (including all options appraisals commissioned by WRAP); and
- Sustainable Treatment & Disposal.

These elements reflect the waste hierarchy and the structure of the WG Municipal Sector Plan:

As part of the CBA, up to six scenarios (the baseline and up to five alternative scenarios) can be compared. Within the CBA process a scenario is defined as a combination of development options for each of the BPT elements.

Information was collated and analysed from the following reports and utilised within the CBA modelling:

Waste and Recycling Collections

- KAT Modelling results including Further analysis, December 2015, WRAP

Depot, WTS and HWRCs

- HWRC review for Caerphilly County Borough Council, November 2016, Resource Futures
- A Review of Caerphilly County Borough Council Waste Transfer Stations and Household Waste Recycling Centres, July 2017, Resource Futures

Commercial Waste

- Data from the June 2017 commercial waste analysis carried out by Amec Foster Wheeler

The CBA modelling undertaken for Caerphilly County Borough Council (CCBC) was carried out in two phases:

Phase A: Five initial scenarios were modelled and these have been detailed in Table 6. Each of these scenarios assumed that Full Moon was to be used as the WTS for waste and recycling collections. In scenarios 3, 4 and 5 this meant the closure of Full Moon as an HWRC. Following a meeting in July 2017, it was agreed that the closure of Full Moon HWRC was not politically or operationally acceptable and that modelling should be updated to

reflect the WTS being located in Trehir. Additionally, as the initial 5 scenarios did not offer CCBC savings significant enough to warrant change, Eunomia were also asked to explore how additional modelled savings could be generated from the detailed outputs provided as part of previous collections modelling work undertaken by WRAP and HWRC and WTS analysis carried out by Resource Futures.

Within Phase A and Phase B scenarios, the following definitions apply:

Multi-Stream – Recycling collections are made using two split bodied RCVs on a weekly basis. The first RCV will collect food waste in one compartment and glass in the other compartment. In the second RCV paper and card will be collected in one compartment and plastic and cans in the other compartment. Residents will present their paper, card, plastics and cans in two re-useable sacks, glass will be presented in kerbside recycling box and food waste in a caddy.

Blueprint Collections - Recycling collections are made using a modern Resource Recovery Vehicles (RRV) on a weekly basis. The RRV will collect all material paper, card, glass and food waste in separate compartments, with plastics and cans being mixed for separation upon return to the WTS. Residents will present their paper, card, plastics, cans and glass in three kerbside recycling boxes and food waste in a caddy.

Table 6 - Summary of Phase A CBA Scenarios

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Kerbside Refuse and Recycling Services	<ul style="list-style-type: none"> • No change in recycling or garden waste service • Policy enforcement work commencing April 2018 	<ul style="list-style-type: none"> • No change in recycling or garden waste service • Policy enforcement work commencing April 2018 • Three weekly refuse collections commencing April 2023 	<ul style="list-style-type: none"> • Policy enforcement work commencing April 2018 • Multi stream recycling service commencing October 2019 • Three weekly refuse collections commencing April 2023 	<ul style="list-style-type: none"> • Policy enforcement work commencing April 2018 • Collections Blueprint recycling service commencing October 2019 • Three weekly refuse collections commencing April 2023 	<ul style="list-style-type: none"> • Policy enforcement work commencing April 2018 • Collections Blueprint recycling service commencing October 2023 • Three weekly refuse collections commencing April 2023
HWRCs	<ul style="list-style-type: none"> • No change to the current service • Pre-Sort Materials at HWRC in 2018/19 • Upgrade Full Moon HWRC and WTS to be complete October 2019 	<ul style="list-style-type: none"> • Pre-Sort Materials at HWRC in 2018/19 • Upgrade Full Moon HWRC and WTS to be complete October 2019 • Expansion of Aberbargoed HWRC to be complete July 2019 • Expansion of Trehir HWRC to be complete July 2020 	<ul style="list-style-type: none"> • Pre-Sort Materials at HWRC in 2018/19 • Expansion of Penmaen HWRC to be complete October 2018 • Close Full Moon in April 2019 • Expansion of Aberbargoed HWRC to be complete July 2019 • Expansion of Trehir HWRC to be complete October 2021 	<ul style="list-style-type: none"> • Pre-Sort Materials at HWRC in 2018/19 • Expansion of Penmaen HWRC to be complete October 2018 • Close Full Moon in April 2019 • Expansion of Aberbargoed HWRC to be complete July 2019 • Expansion of Trehir HWRC to be complete October 2021 	<ul style="list-style-type: none"> • Pre-Sort Materials at HWRC in 2018/19 • Improvement work to Full Moon • Expansion of Aberbargoed HWRC to be complete October 2020 • Expansion of Trehir HWRC to be complete October 2021 • Expansion of Penmaen HWRC to be complete October 2021 • Close Full Moon in October 2022
Commercial	<ul style="list-style-type: none"> • No change to the current service 	<ul style="list-style-type: none"> • No change to the current service 	<ul style="list-style-type: none"> • New service commencing April 2019 	<ul style="list-style-type: none"> • New service commencing April 2019 	<ul style="list-style-type: none"> • New service commencing April 2019

Phase B: Within Phase B, 4 additional scenarios were modelled, taking into account the movement of the WTS to Trehir and also focussing on the impact of changing recycling collection systems. Within all of these scenarios the HWRC, WTS and commercial waste options remained the same, allowing the impact of changing the recycling service to be isolated. Within these scenarios, the multi-stream and blueprint recycling services were taken from Phase A for additional analysis. Scenarios 1 and 2 take the analysis carried out within Phase A and use Trehir as the new waste and recycling waste transfer station (WTS). Scenarios 3 and 4, then overlay two further changes:

- Bryn Quarry no longer used to post-sort HWRC waste
- Black bag ban introduced to increase recycling from HWRCs

Table 7 - Summary of Phase B CBA Scenarios

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Kerbside Refuse and Recycling Services	Collections Blueprint Recycling Three weekly refuse introduced in 2023	Multi Stream Recycling Three weekly refuse introduced in 2023	Collections Blueprint Recycling Three weekly refuse introduced in 2023	Multi Stream Recycling Three weekly refuse introduced in 2023
HWRCs and Depots	<ul style="list-style-type: none"> • Upgrade Full Moon HWRC to Super HWRC • Expansion of Penallta and Aberbargoed HWRC • Rhymney and Penmaen to close • New HWRC at Trehir • New WTS at Trehir 			
			Bryn Quarry no longer used to sort HWRC waste Black bag ban introduced to increase recycling from sites	
Commercial	<ul style="list-style-type: none"> • New commercial waste service commencing April 2019 			

Table 8 provides a summary of the outputs provided by the CBA for each scenario.

Table 8 - CBA Scenario Outputs

CBA Output	Description
Cost of Service Delivery	The comparative cost to CCBC of delivering different future service scenarios
Performance of the Service	The comparative recycling performance of different future service scenarios and their contribution to the achievement of the statutory targets as set out in the Welsh Government Strategy ' <i>Towards Zero Waste</i> '.
Environmental Impact of the Service	The comparative environmental impact of different future service scenarios, as expressed in tonnes of CO ₂ . Environmental costs expressed as £s are also taken into account.
Employment Generated by the Service	The comparative number of people employed as a direct result of the future service scenario.

Within the CBA, environmental cost results are reflected both in terms of CO₂ equivalent and monetised using unit environmental damage cost calculations. These are then combined with the financial cost analysis to generate a net financial and environmental cost for each scenario. The performance and employment generated by each scenario against the Welsh Government 'Towards Zero Waste' targets is also calculated. Financial costs are presented in net present value (NPV) terms for ease of comparison with existing medium term financial plans, but annual budget data can also be extracted in terms of annual capital and revenue costs.

2.0 Phase A CBA Modelling Results

2.1 Cost of Service Delivery

2.1.1 Revenue Costs

In calculating the cost of service delivery, we have transposed the costs of the scenarios and aligned this with the 2016/2017 budget. By doing this, we can relate savings and costs associated with the service to CCBC's budget lines.

Figure 2 to Figure 6 illustrate the financial costs of the baseline and Phase A Scenarios 1 to 5 broken down by budget area; a detailed breakdown of these costs can be found in Appendix C.

Figure 2 - Baseline Financial Costs 2016/2017 to 2029/2031

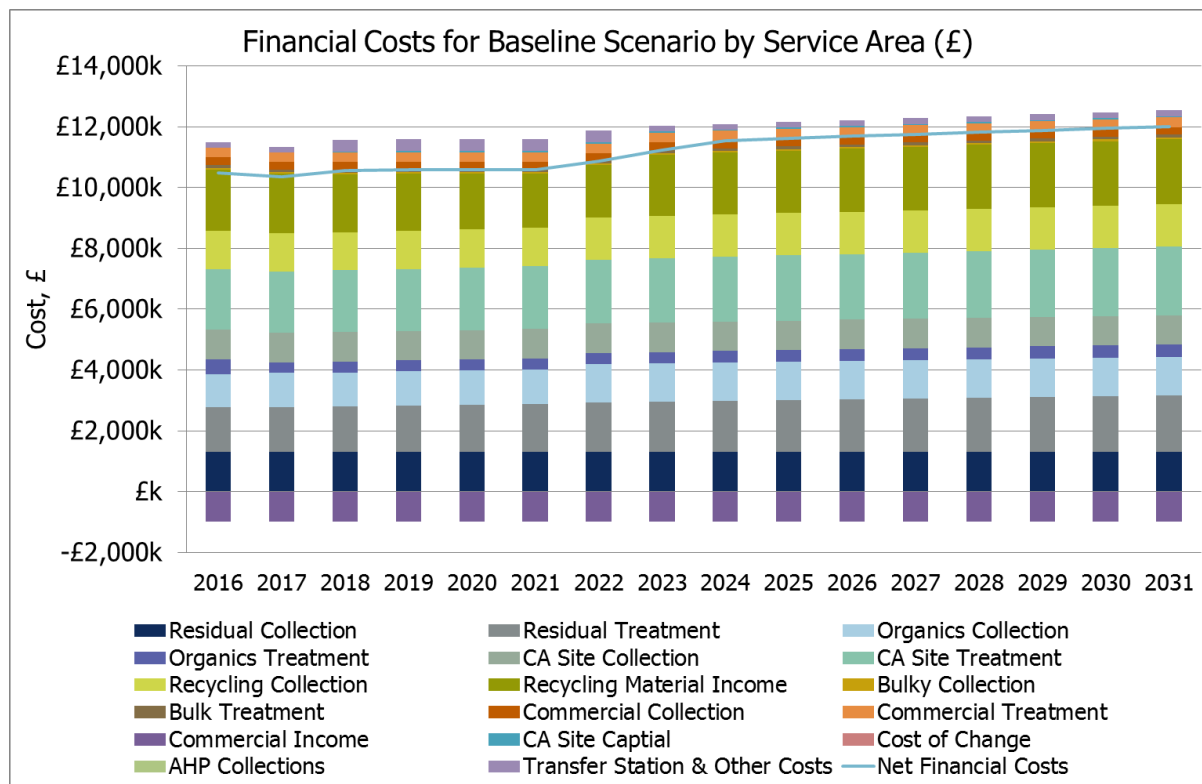


Figure 3 – Phase A Scenario 1 Financial Costs 2016/2017 to 2029/2031

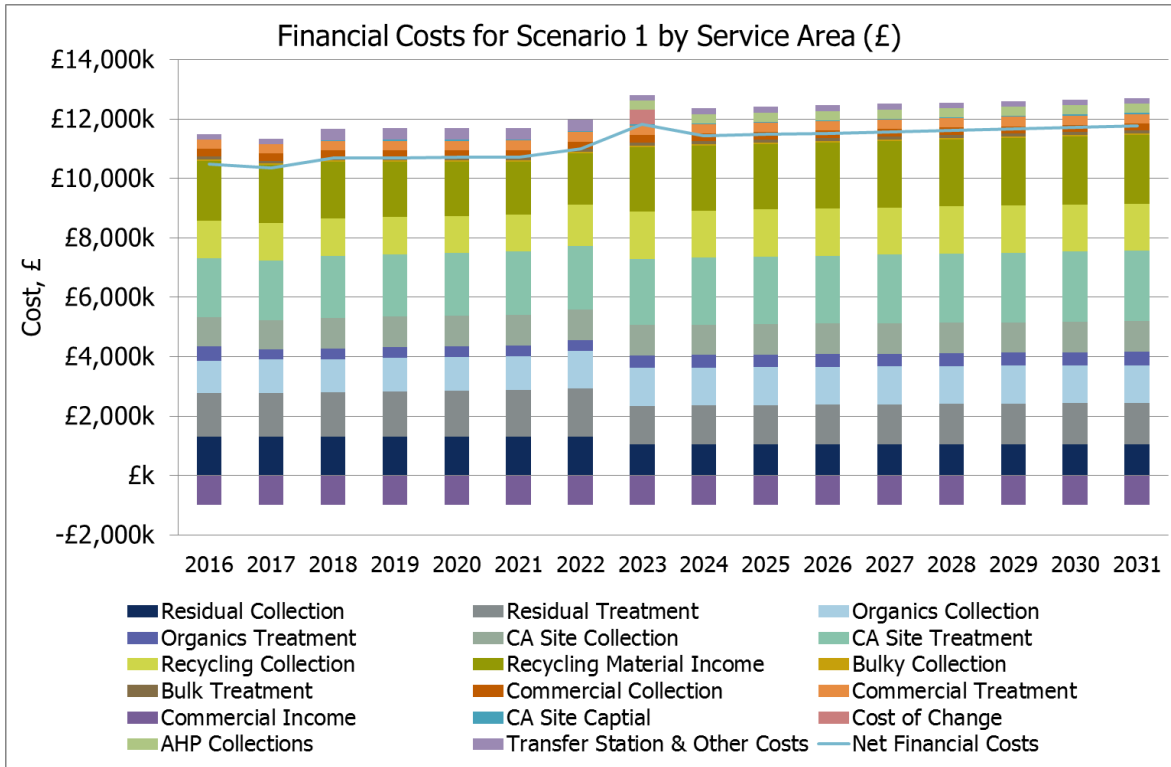


Figure 4 - Phase A Scenario 2 Financial Costs 2016/2017 to 2029/2031

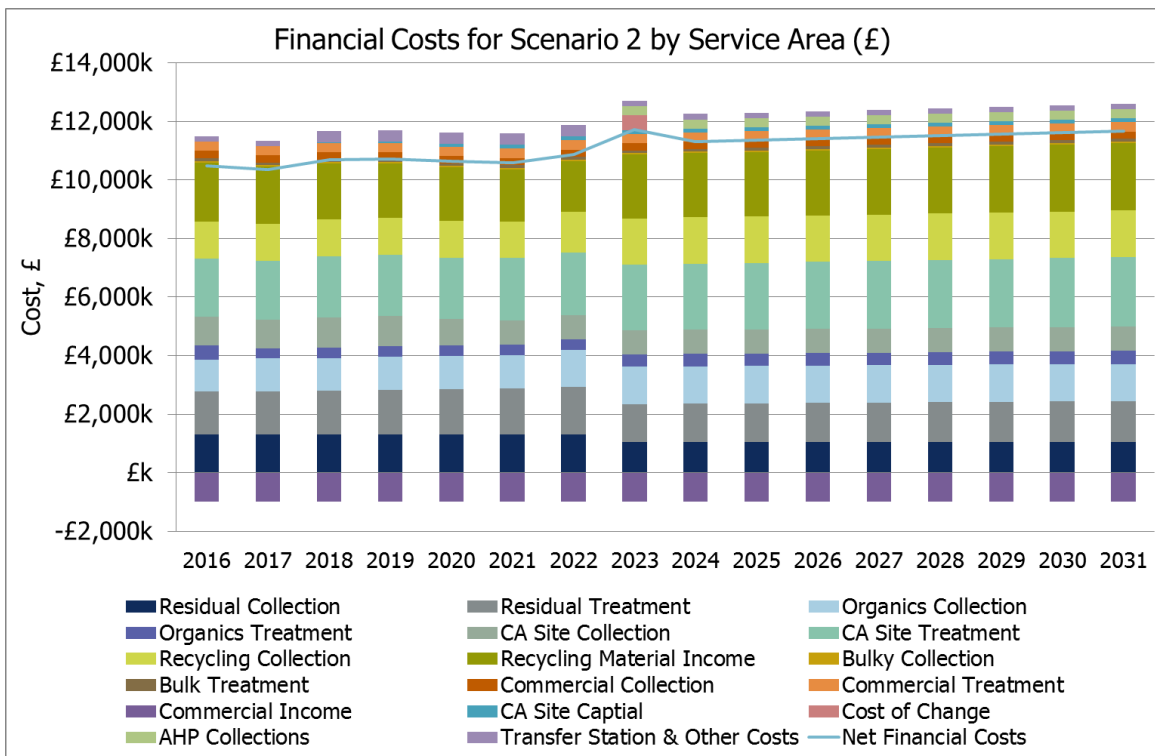


Figure 5 – Phase A Scenario 3 Financial Costs 2016/2017 to 2029/2031

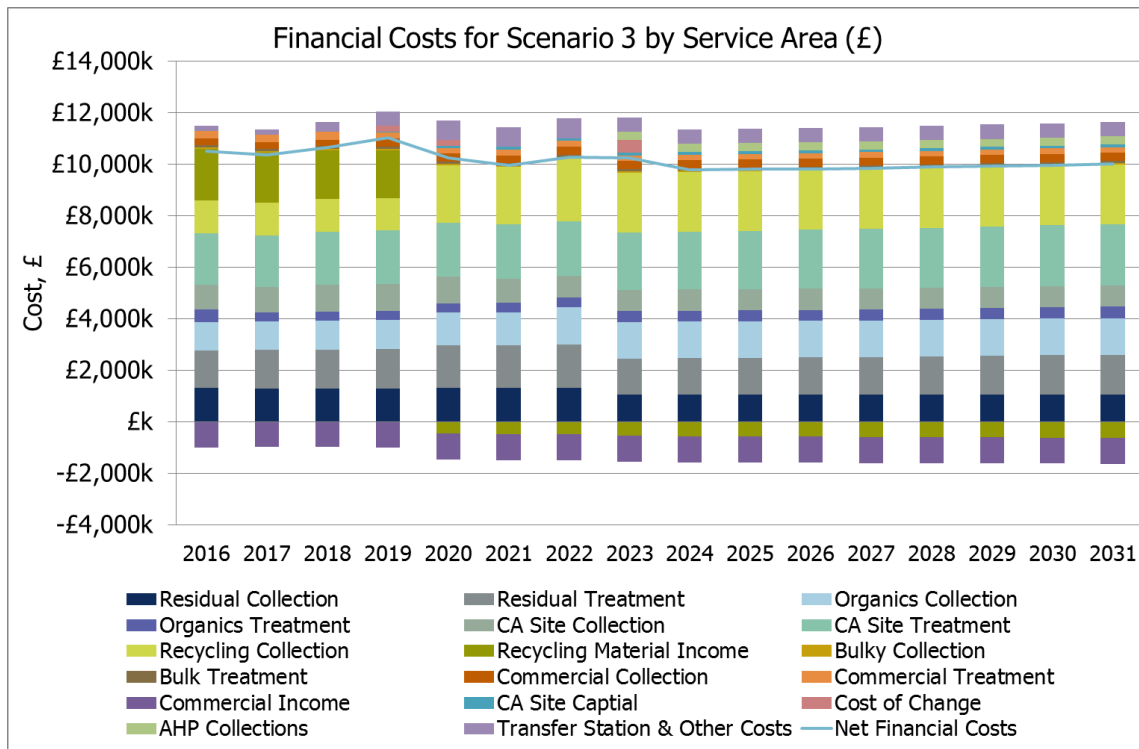


Figure 6 – Phase A Scenario 4 Financial Costs 2016/2017 to 2029/2031

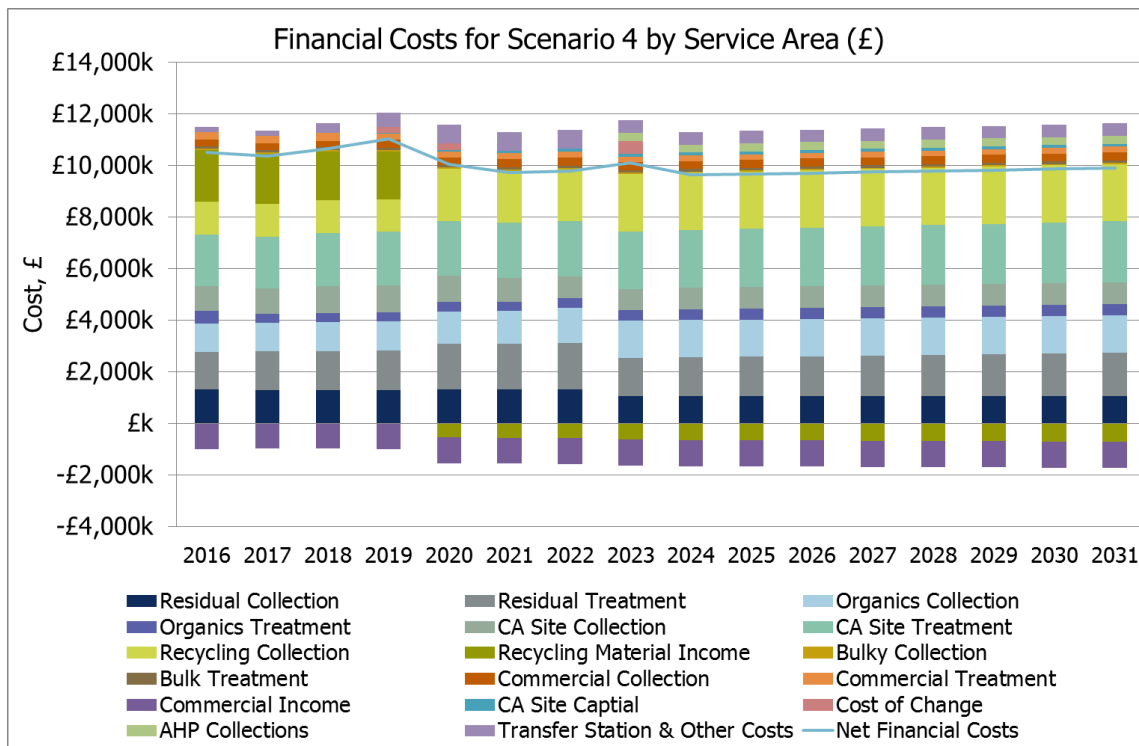


Figure 7 – Phase A Scenario 5 Financial Costs 2016/2017 to 2029/2031

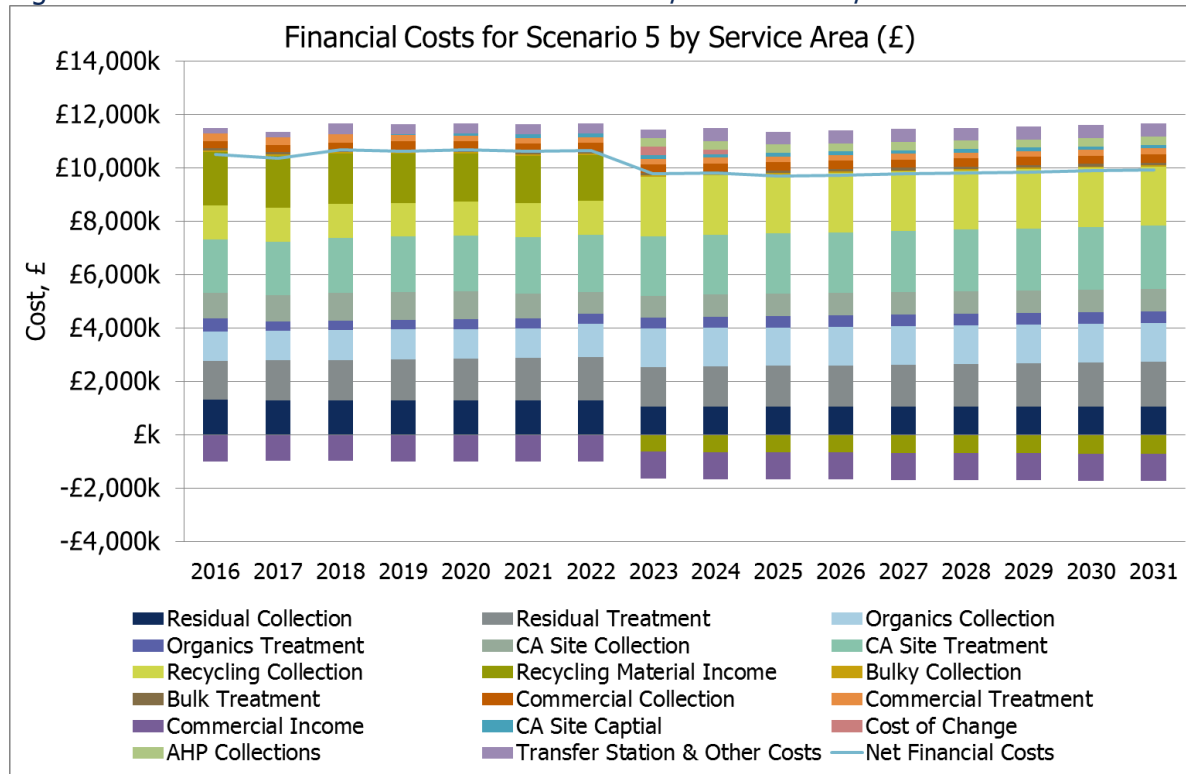


Figure 8 compares the net financial cost of each Phase A scenario over 15 years between 2016/17 to 2031/32.

Figure 8 - Comparison Net Financial Costs over Time

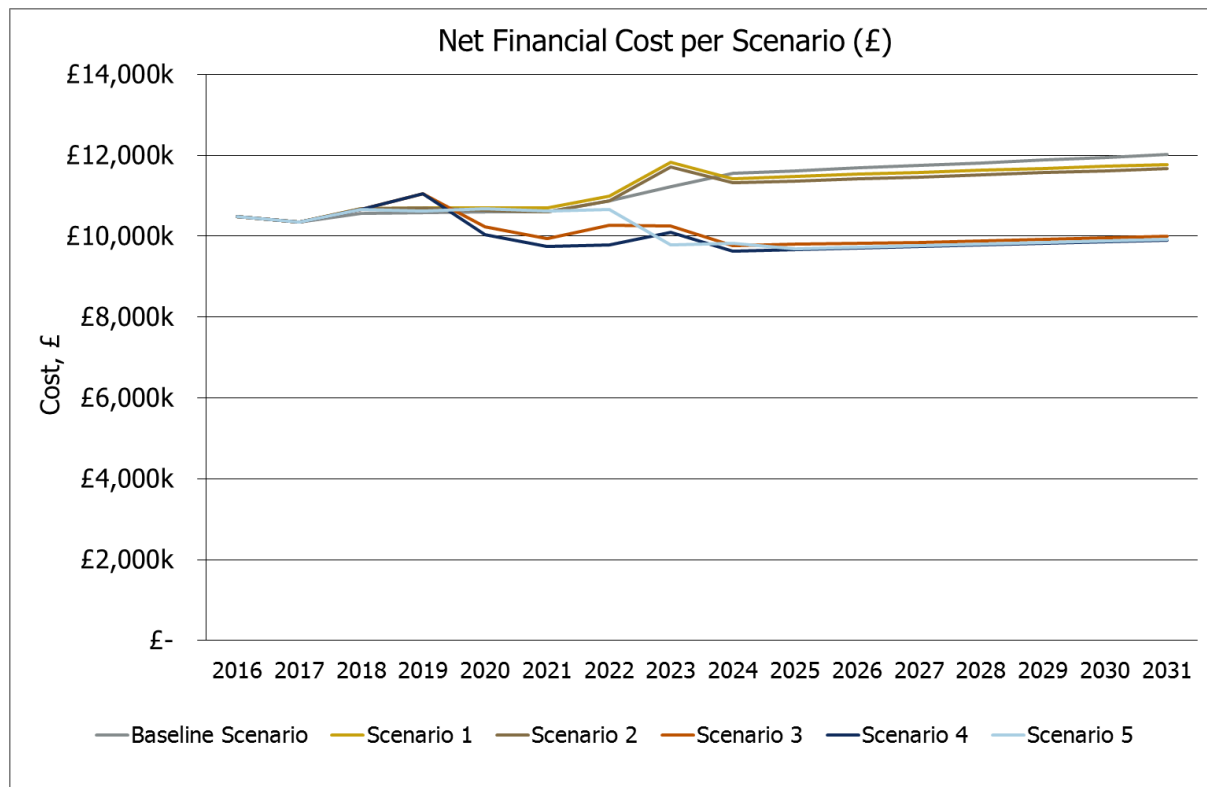


Figure 8 shows that the overall service cost for the baseline is similar to that of Scenario 1 and 2. The baseline has increased from £10.49m in 2016 to £12.02m by 2030/2031, with Scenario 1 and 2 increasing to £11.72m and £11.61m respectively. The main reason for the increase is the housing growth and associated increase in waste arisings. Within Scenario 1 and 2, following the introduction of 3 weekly refuse collection in 2024/2025, the cost of the service falls below that of the baseline.

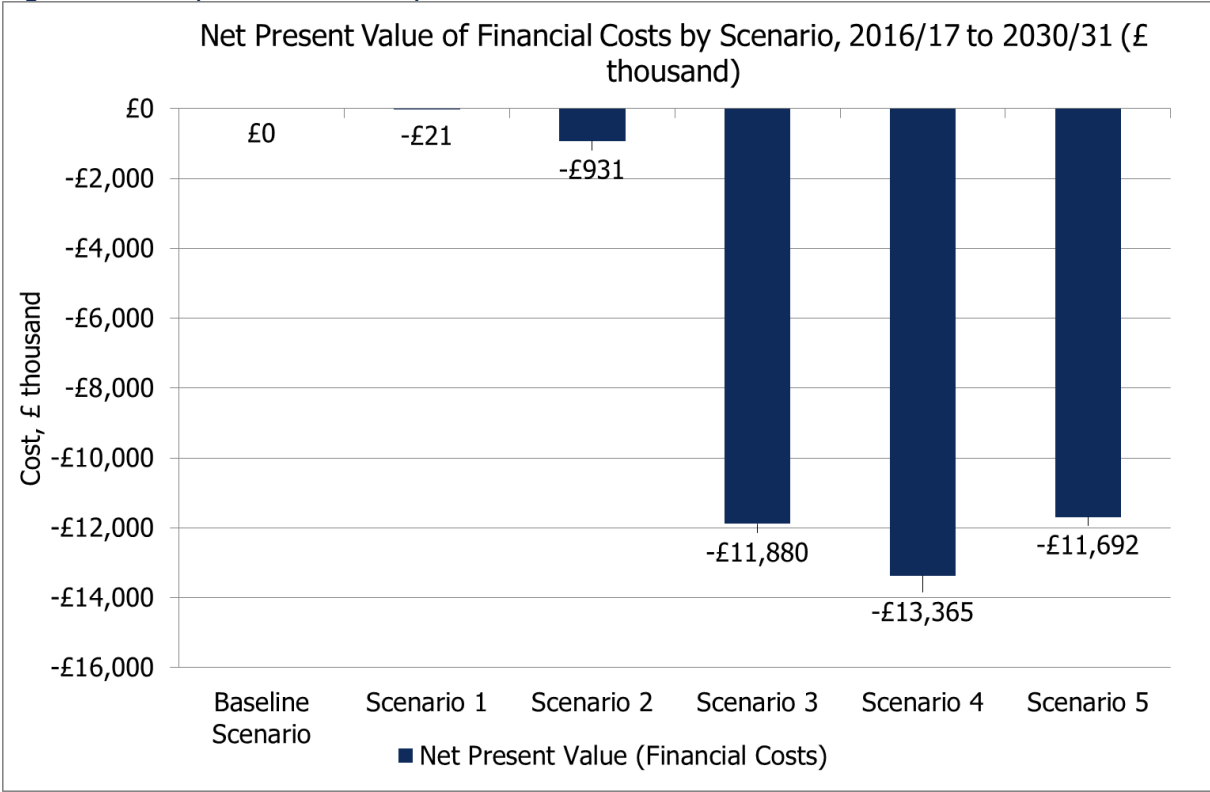
Scenarios 3, 4 and 5 all have relatively similar annual costs price, with £100k between the higher and lower scenarios.

Amongst the scenarios, Scenario 4 has the lowest long term financial cost in 2031 at £9.9m per annum. However, the cost of this option does not come down below the other scenarios until 2020, following the rollout of the new recycling service. Annual costs reduce further in 2023 with the modelled roll out of three weekly refuse collections.

Welsh Government provide an annual grant to CCBC which covers a large proportion of the waste grant budget (£3.13 million in 2016/17), with CCBC providing the remaining funds. As this grant is provided by Welsh Government, CCBC has no control over the amount of money allocated to them. Therefore, if the grant was to be reduced (as has happened over previous years) or not increased in line with the expansion of the recycling services, CCBC would need to contribute further funds to make up this shortfall. The grant has not been included within the output budget lines

Alongside providing year on year costs, the CBA also analyses the comparative NPV of each scenario.

Figure 9 - Comparison of NPV by Scenario



As Figure 9 shows, the comparative NPV of Scenario 1 and 2, remains very similar to the baseline with only small savings being made. The NPV of Scenarios 3, 4 and 5 are very similar, with service costs ranging between £11.7m (Scenario 5) and £13.4m (Scenario 4). Over the 15 years, Scenario 4 offers the lowest NPV. Although the service costs associated with Scenario 5 are very similar to Scenario 4 when the services have been rolled out, it does not provide an NPV as low as Scenario 4, this is due to the delay in introducing the new recycling service.

2.1.2 Capital Costs

In order to develop the waste services and implement the service changes described in the scenarios in Table 6, CCBC will be required to invest capital expenditure into the service. This capital expense will cover the cost of new vehicles, development works for HWRCs and WTSs, and costs of implementing the service change.

Table 9 - Capital costs required for each Scenario between 2017/18 and 2023/24

Scenario	Vehicles	HWRC	Depot & WTS	Containers	Cost of Change	Total
Scenario 1	£0	£0.71m	£0	£0	£0	£0.71m
Scenario 2	£0	£2.00m	£0.43m	£0.64m	£0.5m	£3.59m
Scenario 3	£2.80m	£2.00m	£1.97m	£0.64m	£1.0m	£8.48m
Scenario 4	£3.42m	£2.00m	£1.89m	£0.78m	£1.0m	£9.14m
Scenario 5	£3.42m	£2.00m	£1.89m	£0.78m	£0.5m	£8.63m

Table 9 shows the level of capital required between 2017/18 and 2023/24 to implement each scenario. A breakdown is provided for each scenario of how the capital costs are made up; kerbside vehicles, HWRC, Depot & WTS, containers and cost of implementing the change in service.

The total cost of vehicles includes the vehicles required when making the switch to fortnightly collections, as well as the additional vehicles required when making the switch to three-weekly collections. The cost of vehicles for switching to Fortnightly collections is £2.2m for Scenario 3, and £ 3.1m for Scenario 4. The extra capital required when moving to three-weekly collections is £530k and £300k for scenario 3 and 4 respectively. As scenario 5 goes straight to three weekly in 2023/24 the full cost of the vehicles come in this year.

In Scenario 3 & 4 the cost of implementing the change is higher, as these scenarios require two change in service. First in 2018/19 for kerbside recycling, and the second in 2023/24 for three weekly refuse.

In Scenario 3, the cost of purchasing new split bodied RCVs has been offset by the vehicles which have already been purchased by CCBC in order to operate the separate collection of food and garden waste. Although the purpose of the vehicles will change, the current vehicles are suitable to be used in Scenario 3, therefore, the capital has been adjusted to purchase only the additional vehicles which are needed.

Full details of the capital costs broken down year by year is provided in Appendix A.

2.2 Performance of the Service

All of the developments included within each of the CBA scenarios have been designed to increase CCBC's recycling performance, supporting the authority in meeting the Welsh Government targets of a 64% recycling rate by 2019/2020 and a 70% recycling rate by

2024/2025. However, due to the different interventions within each scenario, and the timings of these, the overall performance of each scenario does vary.

Figure 10 to Figure 15 illustrate the calculated waste flows for the baseline and Scenarios 1 – 5 and the associated reuse and recycling rates achieved. The baseline recycling rate used within the CBA was 65.7%, inc. IBA, at the time of modelling with was the provisional 2016/2017 recycling rate for the authority. Additional work around this baseline position has been carried out as part of Phase B.

Figure 10 – Phase A Baseline Mass Flows and Recycling Performance

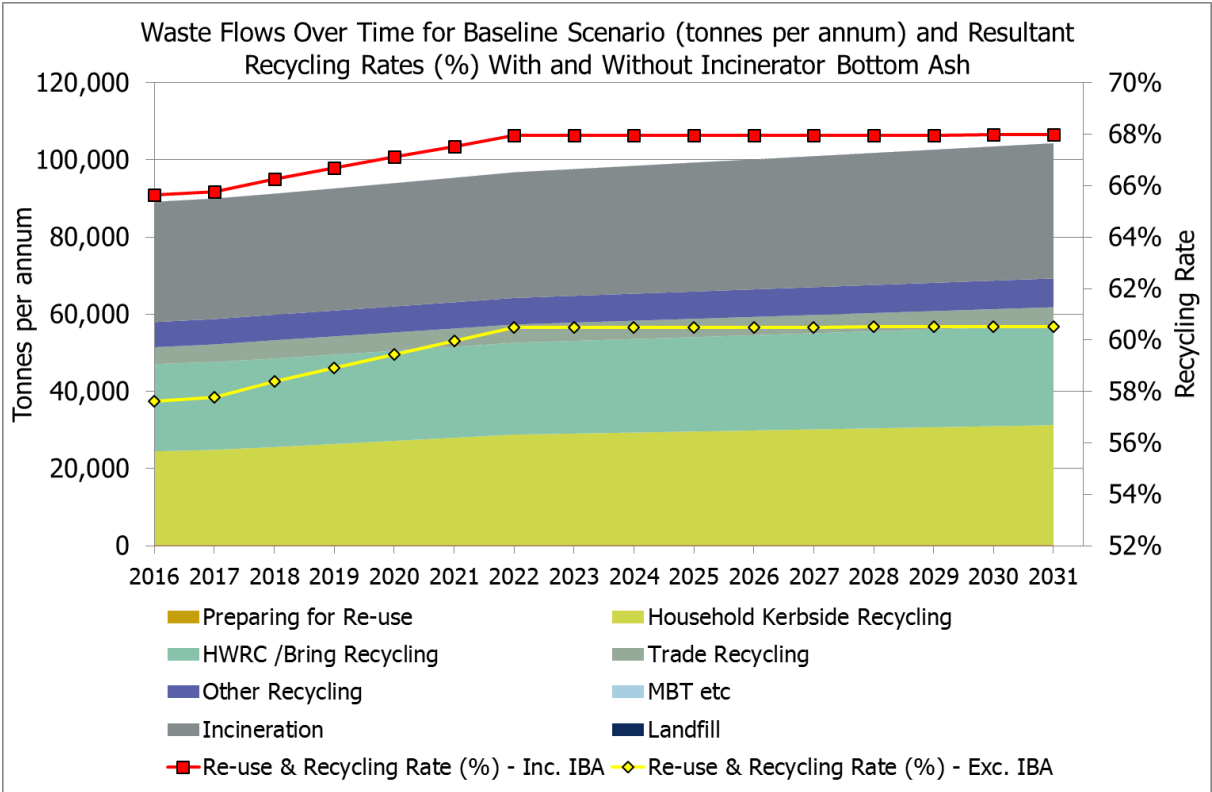


Figure 11 – Phase A Scenario 1 Mass Flows and Recycling Performance

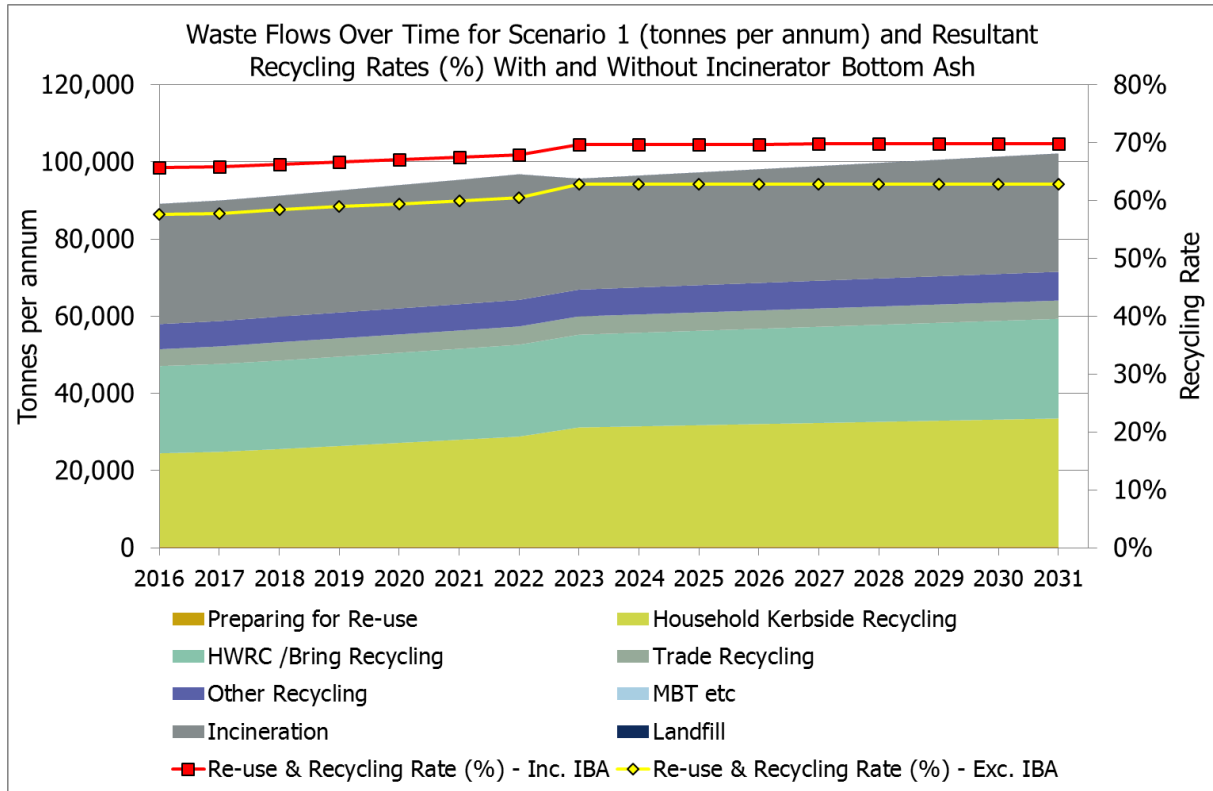


Figure 12 – Phase A Scenario 2 Mass Flows and Recycling Performance

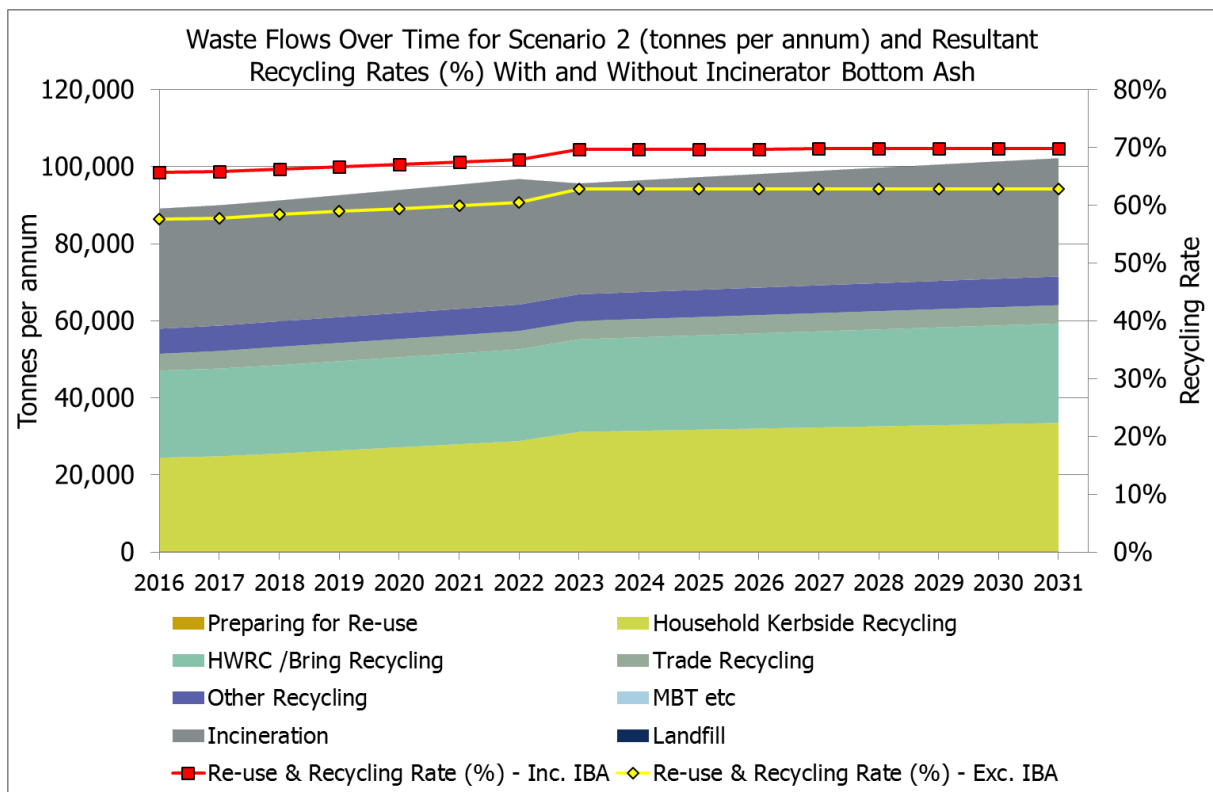


Figure 13 – Phase A Scenario 3 Mass Flows and Recycling Performance

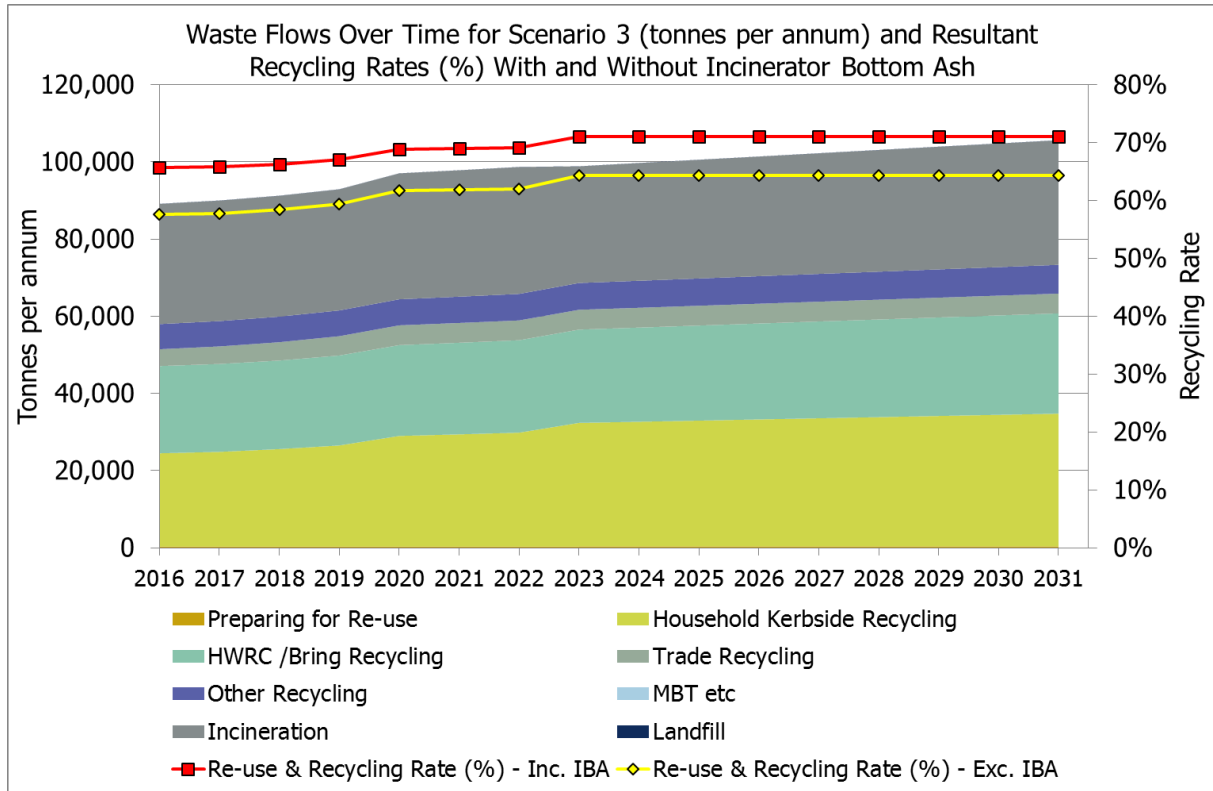


Figure 14 – Phase A Scenario 4 Mass Flows and Recycling Performance

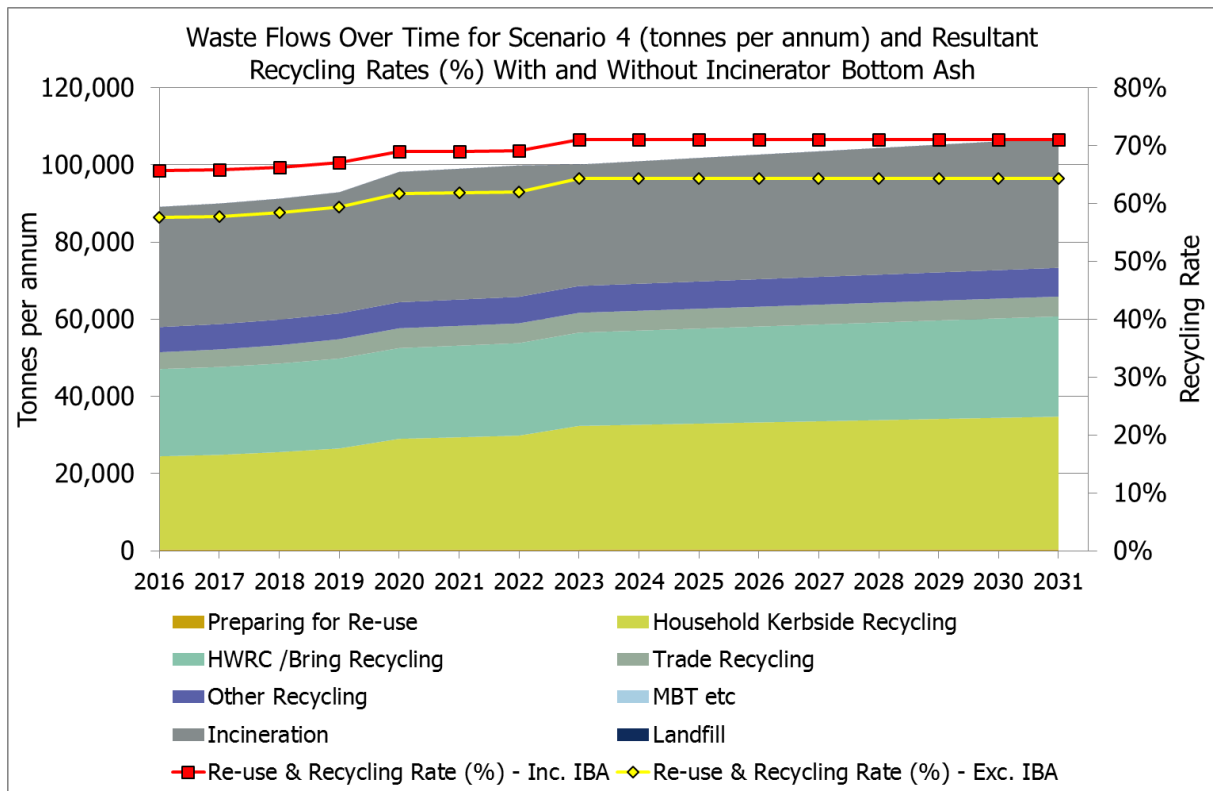
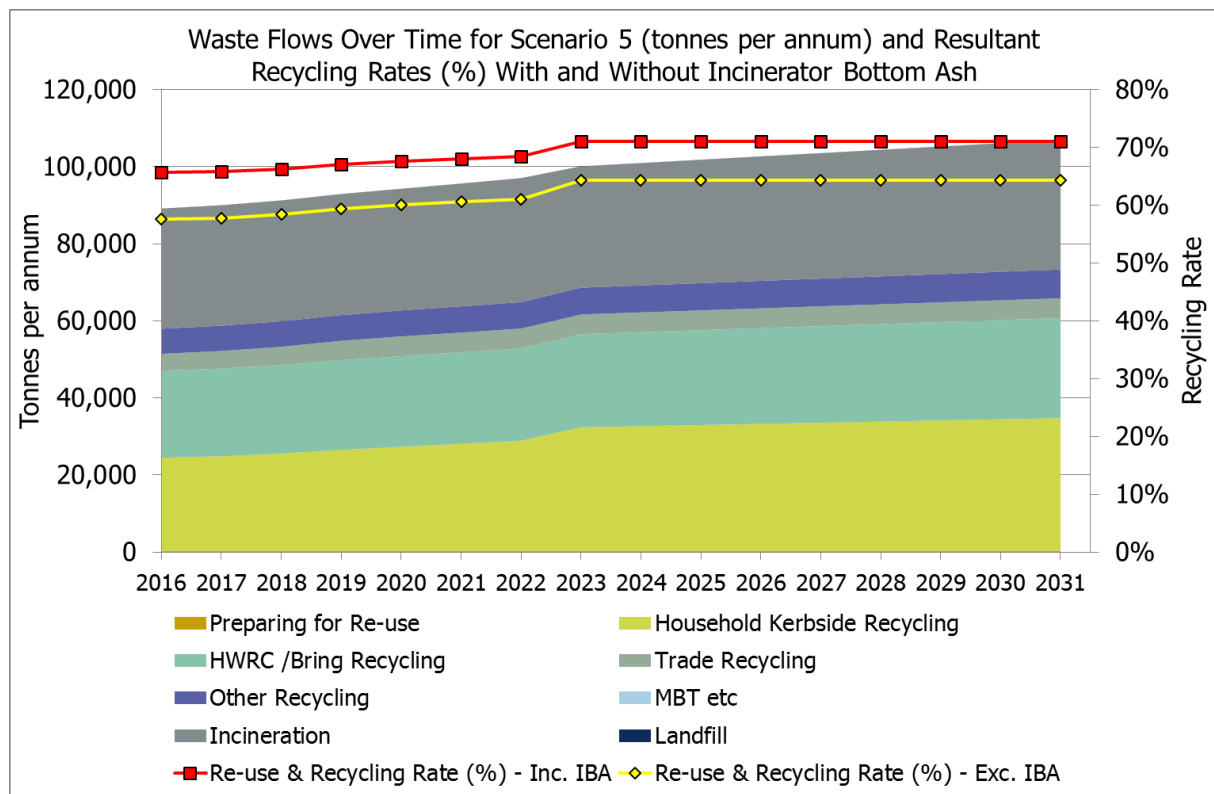


Figure 15 – Phase A Scenario 5 Mass Flows and Recycling Performance



From these figures, we can isolate what factors have the biggest impact on overall recycling performance. In Scenario 1 – 5, the movement of refuse collections to three weekly shows a corresponding increase in performance between 2023 and 2024. Alongside this, in Scenario 3 and 4 the change of recycling collections to multi-stream and collections blueprint, accordingly, between 2020 and 2021 also shows an uplift in recycling performance.

The introduction of three weekly refuse collections in Scenario 1 and 2, during 2023/24 provides an increase in recycling rate from 69% to 70%. In these scenarios the recycling rate stays steady at 70% beyond 2024.

Table 10 compares the modelled recycling performance (inc. IBA) of each scenario to statutory Welsh Government targets. In the target years, where the scenario has met the target the cells are coloured green, where the scenario has failed to meet the target, cells are coloured red.

Table 10 - Comparison of Recycling Performance (including IBA) of Scenarios to Statutory Targets

Year	2017/18	Target Year	Target Year	2029/30
		2019/20	2024/25	
Statutory Target	61.0% ¹	64.0%	70.0%	70.0% ²
Baseline	65.8%	66.7%	67.9%	68.0%
Scenario 1	66.4%	67.3%	70.4%	70.4%
Scenario 2	66.4%	67.3%	70.4%	70.4%
Scenario 3	66.4%	67.8%	71.7%	71.7%
Scenario 4	66.4%	67.8%	71.7%	71.7%
Scenario 5	66.4%	67.3%	71.7%	71.7%

Notes:

1. *2017/18 is not a statutory target year. This target was calculated based on a linear trajectory between statutory targets for 2015/16 and 2019/20.*
2. *There is no target in place for 2029/30. This year is included for reference and assumes no change in the 70% target.*

Although Table 10 demonstrates that CCBC's current waste and recycling service can reach the 2019/20 statutory recycling target of 64%; the recycling rate will fall short of meeting the next statutory target of 70% by 2024/25. It is expected that all other scenarios tested through the CBA model will provide a sufficient uplift in recycling rate to hit both 2019/20 and 2024/25 recycling targets.

Welsh Government are able to impose fines on authorities of £200 per tonne, for every tonne of material under the recycling target the service performs. The CBA model includes an analysis of the potential fines within the output. If CCBC continued with the current service, the CBA would expect potential fines of up to £450,000 to be imposed. It is therefore clear that CCBC's service should be developed in order to avoid missing recycling targets and potentially significant fines.

2.3 Environmental Impact of the Service

The environmental impact of each scenario has been calculated using details from various life-cycle studies and takes into account the details of materials collected, the fate of this material (recycling, refuse, organic treatment etc.) and also emissions for collection and onward transportation of material. Details of the assumptions used to calculate the environmental impacts can be found in the Business Planning Toolkit Guidance Document and in the Technical Annex to the 2011 report produced for WRAP on behalf of the Welsh Government on Kerbside Collection Options for Wales.^{2,3}

Figure 16 shows the change in Greenhouse Gas (GHG) emissions over the CBA period compared to the baseline. Scenario 3 provides the greatest drop in GHG emissions by 2019/20, and again in 2023/24 when the service goes three weekly. Scenarios 4 and 5 eventually provide the same reductions by 2023/24, with a delay in reduction in scenario 5 due to not going three-weekly until 2023/24. Scenario 1 and 2 have a similar kerbside collection service to the baseline, and so limited GHG emission reductions are made under these options.

² *Eunomia (2011) Waste Management Business Plan Toolkit – Guidance Document, written on behalf of the Welsh Government, November 2011.*

³ *Eunomia / Resource Futures / HWC (2011) Kerbside Collection Options: Wales, Final Report to WRAP*

Figure 16 - Change in GHG Emissions over Time Relative to the Baseline for Each Scenario

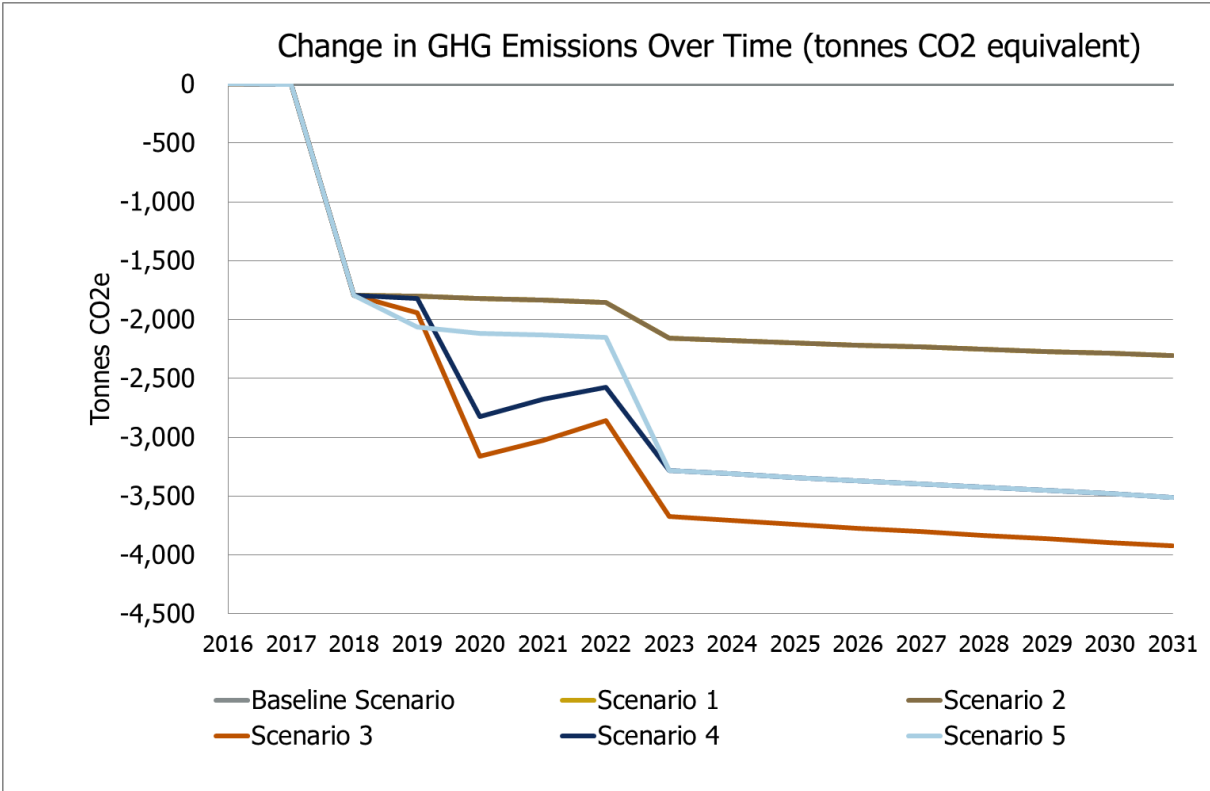
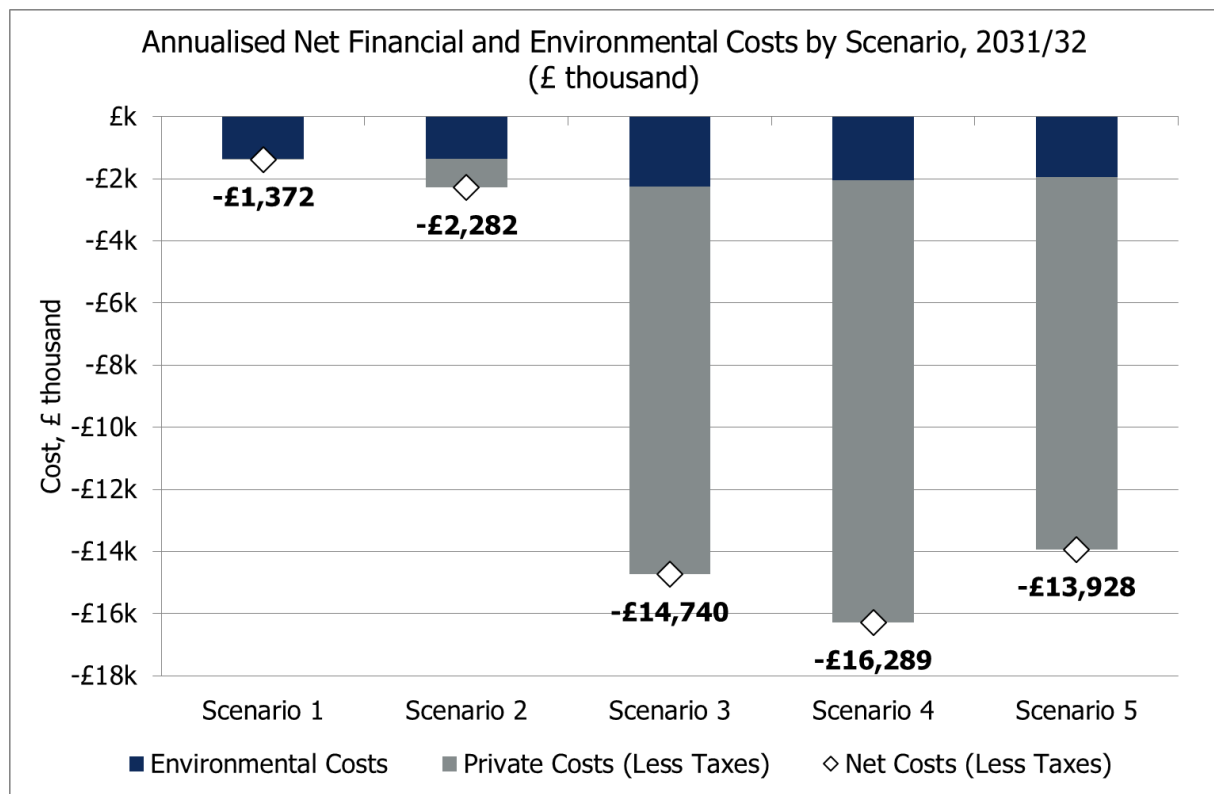


Figure 16 shows how Scenario 3 provides the greatest drop in GHG emissions by 2019/20, and again in 2023/24 when the service goes three weekly. Scenarios 4 and 5 eventually provide the same reductions by 2023/24, with a delay in reduction in scenario 5 due to not going three-weekly until 2023/24. Scenario 1 and 2 have a similar kerbside collection service to the baseline, and so limited GHG emission reductions are made under these options.

Figure 17 compares the combined financial and environmental NPV by scenario (note negative numbers indicate a saving against the baseline).

Figure 17 - Comparison of Combined Financial and Environmental NPV by Scenario, 2016-2030, NPV



2.4 Employment Generated by the Service

To support CCBC meeting the requirements of the Well-being of Future Generations Act (2015) and improve the employment opportunities through the delivery of waste and recycling services within Caerphilly, the employment generated within each Scenario has been analysed.

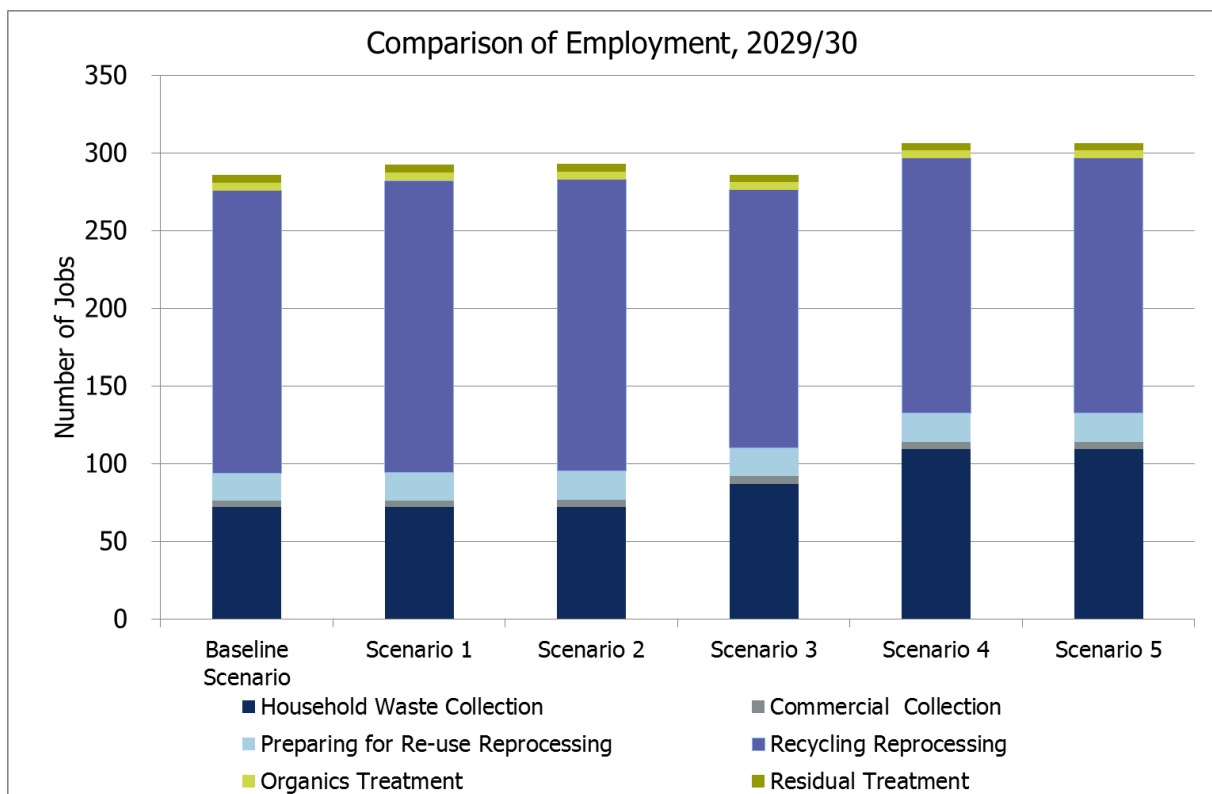
When analysing the employment generated by the delivery of each scenario the following areas have been examined:

- **Household Waste Collections** – The number of people employed in the collection of household waste from the kerbside and the management of this service. These figures are taken from the kerbside collection modelling carried out by WRAP and reflect the kerbside collection options chosen by CCBC.
- **Commercial Waste Collections** – The number of people employed in the collection of trade waste. In Scenarios 3, 4 and 5, where improvements to the commercial service are made, figures have been taken from Amec Foster Wheeler’s modelling work.
- **Operations of HWRCs** – The number of people employed in the transfer station, depot and HWRCs
- **Recycling Reprocessing** - The number of people employed in the reprocessing of dry recycling collected as part of the waste and recycling service. This has been calculated by applying the number of jobs created per 1,000 tonnes of material to the tonnages of material collected. Therefore the number of people employed in this area is linked to the amount of material collected for recycling.

- **Organic Treatment** – The number of people employed in the treatment of organic waste collected as part of the waste and recycling service. As with the dry recycling, this has been calculated by applying the number of jobs created per 1,000 tonnes of material to the tonnages of material collected.
- **Residual Treatment** - The number of people employed in the treatment of residual waste collected as part of the waste and recycling service. As with the dry recycling, and organic treatment, this has been calculated by applying the number of jobs created per 1,000 tonnes of material to the tonnages of material collected.
- **Preparation for Re-Use** - The number of people employed in the treatment of residual waste collected as part of the waste and recycling service. As with the other reprocessing elements, this has been calculated by applying the number of jobs created per 1,000 tonnes of material re-used to the tonnages of material collected.

Figure 18 shows the maximum amount of people employed within each Scenario in 2029/2030.

Figure 18 - The Maximum Amount of People Employed in Each CBA Scenario in 2029/2030



It is clear in Figure 18 that the highest levels of employment are highest from scenarios 4 and 5, the main driver behind this being the increase in employment in association with operating the collections blueprint recycling collections. Household collections within Scenario 4 and 5 employ 109 FTEs, whereas Baseline, Scenario 1 and 3 employ 72 FTEs and Scenario 3 employs 87 FTEs.

Although Scenario 3, 4 and 5 provide less employment through recycling reprocessing, reducing from 174.2 FTE to 161.6 FTEs in Scenario 3 and 159.9 FTEs in Scenario 4 and 5, this is offset by the extra employment provided by collection operations.

3.0 Phase B CBA Modelling Results

As discussed in Section 1.2, following the presentation of the Phase A results of this project in July 2017, Eunomia were asked by CCBC and WRAP carry out additional Phase B CBA modelling work. Key changes between Phase A and Phase B were:

- The movement of the WTS
- from Full Moon to Trehir;
- re-assessment of HWRC strategy to reflect movement of WTS;
- understanding that a change to the kerbside collection service is required, therefore, only multi-stream and collections blueprint options to be analysed; and
- a desire to generate greater savings from service change.

For ease of reference, Table 7 of this report is repeated below.

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Kerbside Refuse and Recycling Services	Collections Blueprint Recycling Three weekly refuse introduced in 2023	Multi Stream Recycling Three weekly refuse introduced in 2023	Collections Blueprint Recycling Three weekly refuse introduced in 2023	Multi Stream Recycling Three weekly refuse introduced in 2023
HWRCs and WTS	<ul style="list-style-type: none"> • Upgrade Full Moon HWRC to Super HWRC • Expansion of Penallta and Aberbargoed HWRC • Rhymney and Penmaen to close • New HWRC at Trehir • New WTS at Trehir 			
			Bryn Quarry no longer used to sort HWRC waste Black bag ban introduced to increase recycling from sites	
Commercial	<ul style="list-style-type: none"> • New commercial waste service commencing April 2019 			

Within Phase B Scenario 1 and 2, the modelling aims to support the authority's understanding of the impact of changing the kerbside recycling service. These changes are then built upon in Scenario 3 and 4, where additional changes have been made to the HWRC service. The rationale behind these further modelled changes is:

- The use of Bryn Quarry to undertake additional post sort at HWRCs is modelled to incur significant cost at £130 per tonne. Therefore, as part of Scenario 3 and 4, this service was removed, reducing cost and also recycling performance. The cost of the staff working at the Rhymney and Penmaen sites was re-allocated to the remaining sites to increase the staff's ability to work with residents to divert more waste to recycling.
- In recognition of challenge increasing recycling at HWRCs within Caerphilly and also the potential additional pressure which could be placed on the service if three weekly collection were to be introduced, residual restrictions including a black bag ban are modelled to be introduced at all sites.

3.1 Cost of Service Delivery
 3.1.1 Revenue Costs

In calculating the cost of service delivery, as with Phase A, we have transposed the costs of the scenarios and aligned this with the 2016/2017 budget. By doing this, we can relate savings and costs associated with the service to CCBC's budget lines. However, within Phase B of the project, it was recognised that to support decision making, additional CBA outputs would be required to more clearly show the modelled savings in each scenario before and after the introduction of three weekly refuse collections. Figure 19 shows the annualised saving attributed to undertaking all of changes within each scenario apart from implementing three weekly refuse collections.

Figure 19 – Annualised Phase B Scenario Costs Compared to Baseline Scenario (No Three Weekly Refuse Collections)

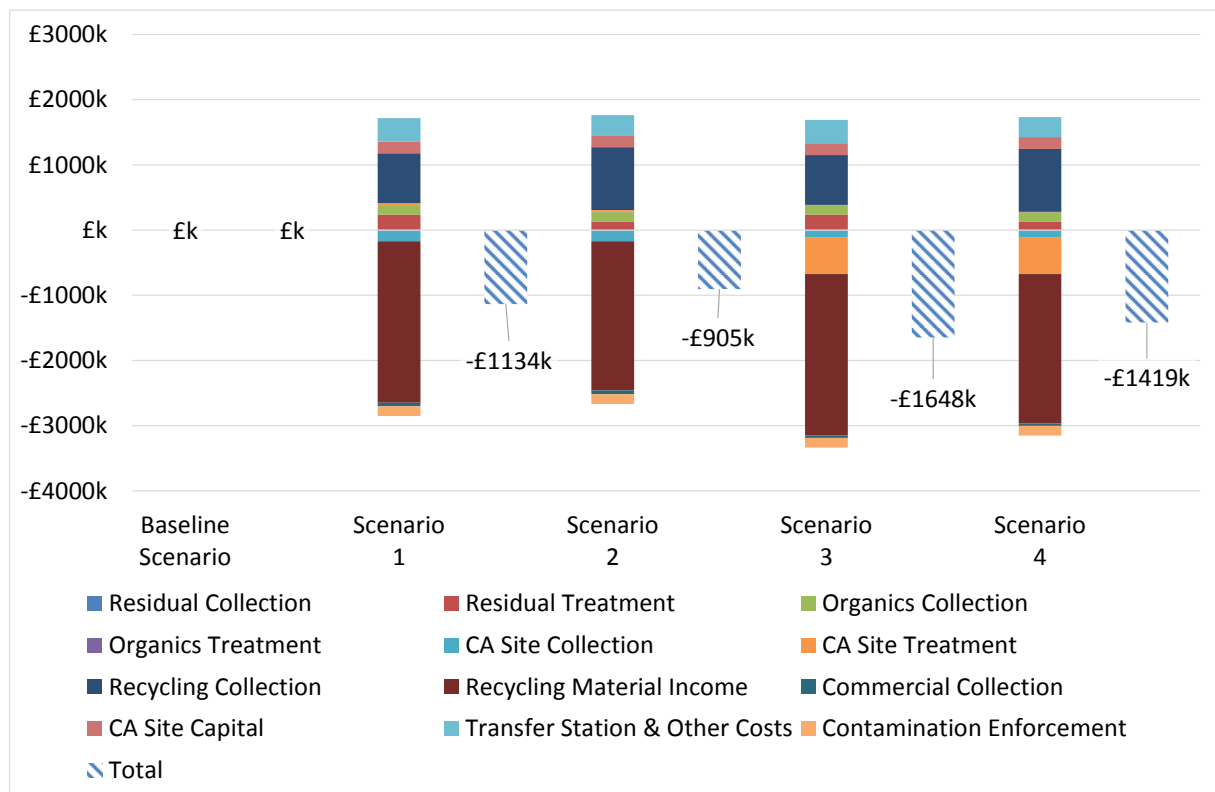


Figure 19 shows net savings of 1.134m from Scenario 1 and £905k from Scenario 2 (the shaded bars) and additional savings of circa. £510k in Scenario 3 and 4 where Bryn Quarry is no longer used and a black bag ban has been introduced.

In all scenarios, the cost of recycling collections increase significantly (by £765k in Scenario 1 and 3 and £963k in Scenario 2 and 4), alongside an increase in transfer station costs due to the requirement for a new transfer station and sorting facility to be built. These additional costs are however, offset by the increase in income from the sale of dry recyclables by between £2.28m (Scenarios 2 & 4) and £2.47m (Scenarios 1 & 3), and by savings from reducing the budget required to address contamination (we modelled a conservative ongoing cost of £200k for this activity in Phase A of project, however this could reach £300k).

The cost differences between the Blueprint and Multi-stream scenarios are shown in Table 12 below. The Multi-stream options have higher annualised vehicle costs and lower recycle

income (due to the lower value of mixed paper and cardboard compared to separated material), outweighing savings in waste transfer station costs and residual disposal.⁴

It is recognised that material revenues are subject to fluctuation. Sensitivities were run on material revenues as part of the original WRAP collections options modelling, ensuring that fluctuations in material revenues did not significantly change the order or magnitude of savings modelled. The processing cost paid for the current dry recycling stream is a significant cost in the baseline and therefore the main source of savings when switching to source-segregated recycling system.

Savings from commercial waste changes are comparatively minor but common across all scenarios:

Table 11: Commercial Cost Differences: Common to All Scenarios (2019/20)

		Service Cost Change	Reason
Commercial Waste Collections	Collections	£59.0k	AFC modelled collection cost increase
	Income	-£18.7k	AFC modelled commercial revenue increase
	Material Revenues	-£74.7k	AFC modelled increase in recyclate tonnages collected
	Food Waste Treatment	£1.7k	AFC modelled increase in food tonnages collected
	Residual Disposal	-£17.7k	Reduction in disposal costs
Total Cost Difference		-£50.4k	

Savings from kerbside services are different between the Blueprint (Sc1 & 3) and the Multistream (Sc2 & 4) scenarios:

Table 12: Kerbside Cost Differences: Blueprint Service (1&3) to Multi-Stream Service (2&4)

		Sc1 & 3	Sc2 & 4	Difference Sc1 - Sc2	Reason for Difference Sc1 – Sc2
Enforcement Cost Differences			-£150k		
Collection Cost Differences	Residual	£5.5k	£5.4k	-£0.1k	Minor change in tipper costs modelled in KAT between options
	Dry Recycling	£765.3k	£963.5k	£198.2k	KAT modelled change
	Food Waste	£39.6k	£47.9k	£8.3k	KAT modelled change
	Garden Waste		£100.5k	-	
	Supervision,	£24.7k	£48.1k	£23.4k	KAT modelled

⁴ In both systems, capture of targeted material is assumed to be the same. However, savings in residual treatment arise due to the fact that more contamination is still assumed to be collected alongside mixed paper and cardboard (so collected residual tonnages are reduced). Additionally, the incineration gate fee is higher at the higher tonnage bands, so this avoids approximately £100/tonne of residual treatment costs. The lower gate fee for mixed fibres takes into account the contamination in the material.

		Sc1 & 3	Sc2 & 4	Difference Sc1 - Sc2	Reason for Difference Sc1 – Sc2
	Overheads, Spares				change
Material Treatment and Revenues	Kerbside recyclate income	£2,477.8k	£2,289.6k	£188.2k	Less recyclate income due predominantly to lower value of mixed fibres
	Residual waste disposal	£233.5k	£116.9k	£-116.6k	Less residual waste collected (due to contamination collected alongside mixed fibres), at a high marginal residual waste gate fee (banding of prices to incinerator)
	Transfer station costs	£332.3k	£260.3k	£-71.9k	Reduced transfer station costs
Total Cost Difference		-£1,077k	-£847k	£229.5k	Net additional cost

Table 13 below shows a breakdown of HWRC savings.

In scenarios 1 & 2, the impact of a potential increase in gate fees at Bryn undermines the savings made from rationalising the network and introducing increased front-end recycling. The net capital and operational impact of rationalising and improving the HWRC network is minor, but it provides important improvements to the service and enables higher recycling captures.

In scenarios 3 & 4, additional staff investment maintains higher recycling captures than in scenarios 1 & 2, and the savings made in avoided disposal costs at Bryn is greater than the costs of residual disposal and treatment of more HRWC recycling streams.

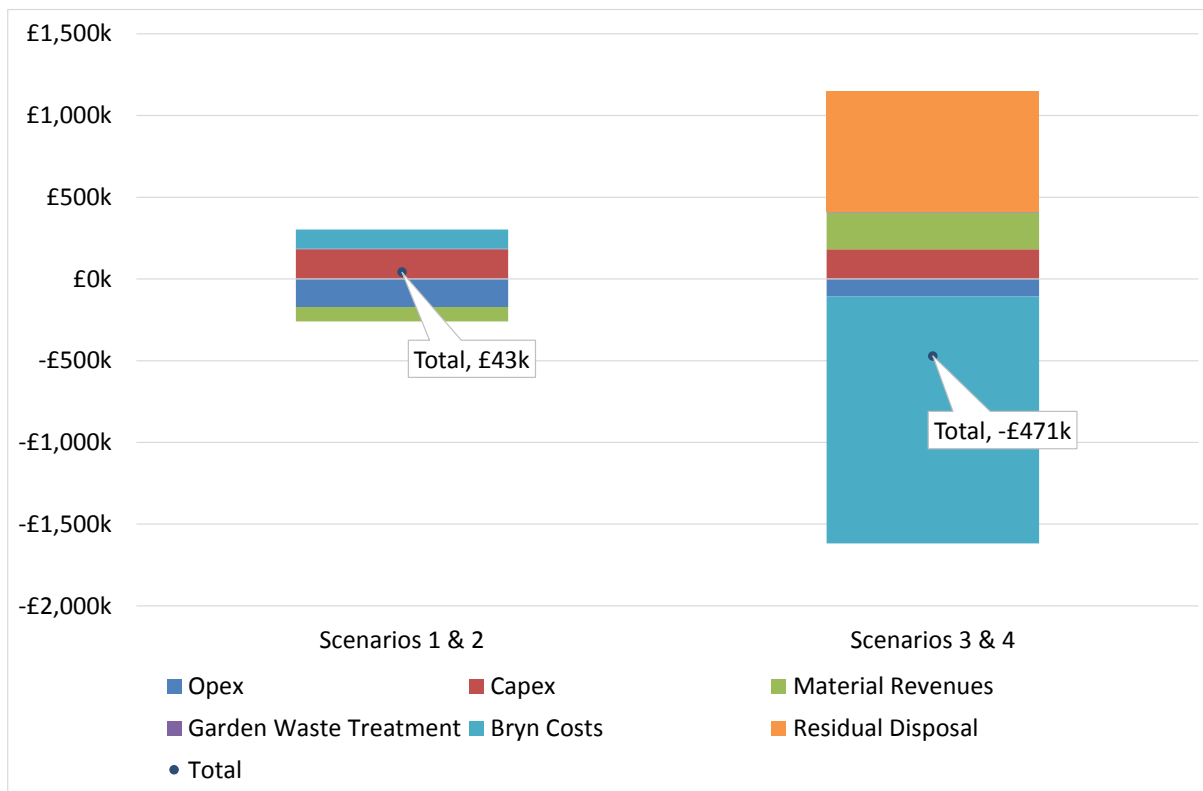


Table 13: Cost Difference: No HWRC Residual Restrictions (Sc1, Sc2) vs Residual Waste Restrictions (Sc3, Sc4)

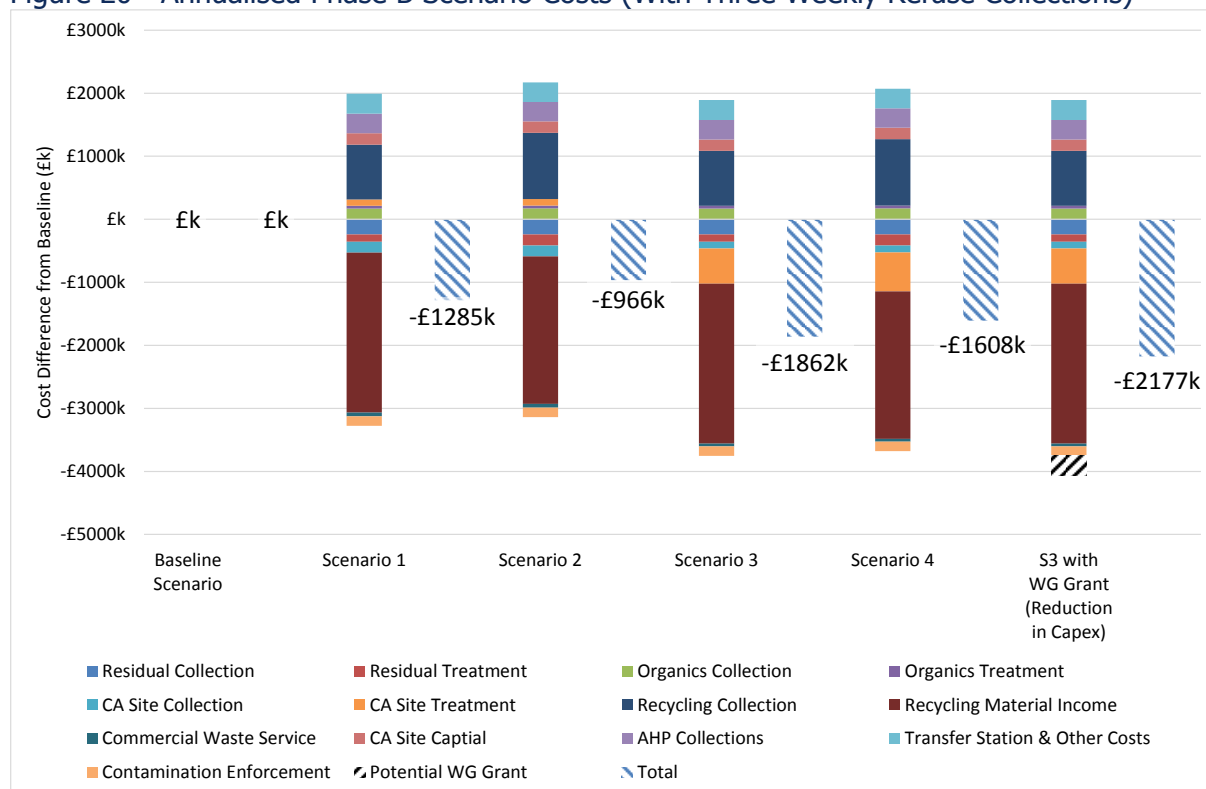
		Sc 1,2	Sc 3,4	Difference	Reason
Operating Cost Differences	Operating Cost	-£171.9k	-£107.8k	£64.2k	Reduced savings in Sc 3&4 due to redeployment of staff and maintaining current staffing levels
	Capital Costs		£181.8	-	
Material Treatment & Disposal Cost Differences	Additional Treatment of HWRC Recycling	-£87.5k	£223.1k	£310.5k	Sc 1 & 2 increase capture of higher-value recyclate. Sc 3 & 4 additionally pull out more expensive materials such as mattresses to keep recycling high
	Additional Garden Waste Treatment	£3.5k	£4.6k	£1.1k	Less residual waste collected (due to contamination collected alongside mixed fibres), at a high marginal residual waste gate fee (banding of prices to incinerator)
	Bryn Savings	£116.8k	-£1509.7k	£1,626.4k	Less recyclate income due predominantly to lower value of mixed fibres
	Residual Disposal	£0.0k	£736.6k	£736.6k	Less recyclate income due predominantly to lower value of mixed

					fibres
Total cost difference	£42.7k	-£471.4k	-£514.1k		

These savings are tabulated in more detail in Appendix 5.

Figure 20 shows the annualised saving attributed to undertaking all of changes within each scenario including the rollout of three weekly collections.

Figure 20 - Annualised Phase B Scenario Costs (With Three Weekly Refuse Collections)



When comparing Figure 19 and Figure 20, the financial impact of three weekly refuse collections can be isolated. These savings have been tabulated in Table 14.

Table 14 – Modelling Annualised Savings From the Introduction of Three Weekly Refuse Collections

Scenario	1	2	3	4
Modelled Savings from Three Weekly Collections	£151k	£61k	£214k	£189k

Table 14 highlights that the savings from introducing three weekly refuse collections are much higher in Scenarios 3 and 4 when compared to Scenarios 1 and 2. This is due to the modelled impact of the black bag ban within the HWRCs, minimising the movement of residual waste from the kerbside to HWRCs as capacity is squeezed and the capture of an amount of this displaced waste as recycling. With such a significant difference in the potential level of savings available to CCBC, it would be advisable for the authority to consider the introduction of a restricted residual waste policy at HWRCs before, or alongside, the implementation of three weekly residual waste collections, maximising the financial and performance impact of these changes.

The savings provided in Table 14 are lower than those normally associated with three weekly refuse collections, however, all of the three weekly scenarios also include the cost of the

provision of a weekly Absorbent Hygiene Products (AHP) service. This service costs approximately £300k per annum and has thus reduced the potential savings from this change to the amount shown in Table 14.

An additional column has also been included in Figure 20 to analyse the impact of a £2m capital grant from Welsh Government for the purchase of the vehicles. Although this grant is by no means guaranteed, it is possible that a capital grant of this level could be provided by Welsh Government if CCBC were to move to the Collections Blueprint (Scenario 1 and 3), therefore, for illustrative purposes, the impact of this has been modelled against Scenario 3 (the Scenario with the greatest savings) as an annualised capital saving. The additional saving equates to £315k per annum for the first seven years of the new service. Following the purchase of these vehicles, the purchase of any additional or new vehicles at the end of the depreciation period would need to be included in future budgets.

3.1.2 Capital Costs

In terms of capital costs, there are many similarities between Phase A and Phase B, with the main differences being in the HWRC and WTS/depot costs as in Phase B Full Moon is developed into a super HWRC and a new WTS is modelled to be developed at Trehir. Phase B Capital costs are provided in Table 15.

Table 15 – Phase B Scenario Collection Costs (Fortnightly Residual)

	Vehicles	HWRC	Depot	Containers	Cost of Change	Total
Scenario 1	£3.12M	£3.35M	£2.21M	£0.78M	£0.5M	£9.96M
Scenario 2	£2.28M		£2.12M	£0.64M		£8.90M
Scenario 3	£3.12M		£2.21M	£0.78M		£9.96M
Scenario 4	£2.28M		£2.12M	£0.64M		£8.90M

Note that:

- Scenario 2 and 4 capital costs are lower due to the re-allocation of 9 existing twin-back vehicles;
- WTS capital costs include £1.6M for the works, £0.43M for a sort-line and baler and £40k (Sc 1 & 3) - £120k (Sc 2 & 4) for forklifts;

For three-weekly collections, additional capital would be required for: four additional tippers (total £180k); additional recycling vehicle (120k for one additional RRV in Scenarios 1 and 3, and £350k for two additional twin-back vehicles in Scenarios 2 and 4).

The three-weekly total capital cost for Blueprint scenarios is £10.26M compared to £9.44M for the Multi-stream scenarios.

The combined capital costs of HWRC and WTS/Depot works are higher in the Phase B modelling due to the more extensive works at Full Moon and the new WTS at Trehir

The capital requirements differ from Phase A modelling only in the HWRC and WTS capital costs.

As discussed in Section 3.1.1, with Scenario 1 and 3 there is the potential opportunity for CCBC to apply for Welsh Government funding for capital assets such as vehicles. As the availability of capital funding is not guaranteed, early engagement with Welsh Government

and clear political and officer commitment would be recommended to maximise the likelihood of receiving additional support with these purchases.

3.2 Performance of the Service

As within Phase A of the project, all of the Phase B scenarios have been designed to increase CCBC’s recycling performance, supporting the authority in meeting the Welsh Government targets of a 64% recycling rate by 2019/2020 and a 70% recycling rate by 2024/2025. However, due to the different interventions within each scenario, and the timings of these, the overall performance of each scenario does vary.

In analysing CCBC’s current recycling performance in more detail, with the aim of understanding if any further increases in performance could be made, we have made two adjustments to the current baseline position:

- 3. A more conservative reduction in the MRF reject rate is modelled, from 30% to 25% (rather than down to 15% as previously modelled in Phase A), reflecting ongoing reported issues with the current co-mingled material despite current enforcement efforts. This has an approx. 1.5% impact on baseline recycling rates.
- 4. Where Bryn Quarry is used, the reported recycling rate of 77% has been replaced by the maximum estimate of 42% in the baseline and 30% in options 1 and 2. This based on a high-level assessment of composition of the Bryn-recycled materials, based on the recent compositional work. With increasing pressure on the wider industry to produce high quality outputs, the risk that the contribution of the sorting undertaken by Bryn Quarry is reduced needs to be accounted for in our modelling. This adjustment has resulted in a 4% reduction in the baseline position.

Although this adjustment to baseline position represents a worst case scenario for CCBC, it is important that this risk is taken into account as part of any assessment of a future ‘no change’ baseline scenario.

A summary of the modelled recycling performance for each future Scenario can be found in Table 16.

Table 16 – Phase B Scenarios Recycling Rate Performance

Scenario	B/L	1	2	3	4
Recycling Rate – Fortnightly Residual Waste	62%	65%	65%	67%	67%
Recycling Rate – Three Weekly Residual Waste	-	68%	68%	70%	70%
<i>NB: AHP Recycling (rather than disposal) under 3W collections could increase recycling rate by further 1%</i>					

Based upon the more conservative baseline position used in Phase B, in all scenarios CCBC still meet the 2019/2020 target of 64%. However, as within Phase A the modelling demonstrates that 2024/2025 statutory recycling targets of 70% can only be met by moving to three weekly refuse collections. The potential annualised financial liability to CCBC of the 2024/2025 recycling targets not being met are provided in Table 17.

Table 17 – Phase B Scenarios - Potential Rate Fines

Scenario	B/L	1	2	3	4
Fortnightly Residual Waste	£1.7m	£1m	£1m	£650k	£650k
Three Weekly Residual Waste	£1.7m	£430k	£430k	-	-

3.3 Environmental Impact of the Service

As in Phase A, the environmental impact of each scenario has been calculated using details from various life-cycle studies and takes into account the details of materials collected, the fate of this material (recycling, refuse, organic treatment etc.) and also emissions for collection and onward transportation of material.

However, as Phase B focuses on a point in time impact, the outputs for this phase have been tabulated in Table 18 as opposed to being shown graphically over time. For the purposes of our analysis we have used impact in 2020/2021. Changes would be incremental over time following any significant changes in the approach to the way waste and recycling is collected and reprocessed/disposed of.

Table 18 – Environmental Saving of Each Scenario Expressed as Tonnes per CO₂ Equivalent Compared to Baseline

Scenario	Fortnightly	With Three Weekly
Scenario 1	-9,270	-10,148
Scenario 2	-10,856	-11,922
Scenario 3	-14,793	-15,670
Scenario 4	-16,379	-17,443

3.4 Employment Generated by the Service

As in Phase A, to support CCBC meeting the requirements of the Well-being of Future Generations Act (2015) and improve the employment opportunities through the delivery of waste and recycling services within Caerphilly, the employment generated within each Phase B Scenario has been analysed.

Table 19 shows the maximum amount of people employed within each Phase B following rollout of the new service.

Table 19 – Employment Generated Following Rollout of Services – 2021/2022 Used as Reference Year

Scenario	Fortnightly	With Three Weekly
Baseline	269	269
Scenario 1	291	291
Scenario 2	273	274
Scenario 3	283	286
Scenario 4	267	268

It is clear in Table 19 that the highest levels of employment are highest from the Collections Blueprint scenarios (1 and 3). As in Phase A, the main driver behind this being the increase in employment in association with operating the collections blueprint recycling collections.

4.0 Conclusions

In conclusion all scenarios modelled will allow CCBC to make significant savings on their baseline budget position. However, the decision to make such substantial changes to the way in which services are delivered is not purely financial, other issues such as operational and delivery risks need to be considered. With the right planning and support (potentially funded via the WRAP CCP programme), most of these risks can however be largely controlled and/or mitigated.

If CCBC do decide to move towards a three weekly refuse service in the future (as this is the most cost effective option), it would be advisable for the authority to consider the introduction of a restricted residual waste policy at HWRCs before, or alongside, the implementation of three weekly residual waste collections, maximising the financial and performance impact of these changes.

CCBC do however, need to be cognisant of risks outside of their control such as the risk of fines from Welsh Government and the ever changing materials reprocessing markets, all of which will have an impact on the medium to long term sustainability of a 'do nothing' approach.

In terms of next steps, we would recommend that CCBC undertake a full analysis of the risks associated with all scenarios, examining the potential impact of those both inside and outside of the authority's control, allowing a balanced approach to be taken to the opportunities for the future development of the authority's waste services.

Appendix A - Modelling Assumptions

A.1 Household Numbers

Data was provided by CCBC for low and high forecasts of housing developments, initially over 5 years from 2016, and then further beyond. Details on the number of small scale site completions are expected at a rate of 50 per year. This data was provided by Victoria Morgan (Principle Planner).

It is assumed that the planned developments will be completed in a linear fashion, and the model apportions the developments over the years used in the model. It has been assumed that small scale developments have 8 properties per site. These have been included annually.

Table 20 details the number of properties assumed in the model for each year⁵. The low forecast has been used within the model.

Table 20 - Caerphilly Household Projections

Year	No. of Households
2015/16	78,197
2016/17	79,672
2017/18	80,410
2018/19	81,148
2019/20	81,885
2020/21	82,623
2021/22	83,403
2022/23	84,183
2023/24	84,964
2024/25	85,744
2025/26	86,524
2026/27	87,304
2027/28	88,084
2028/29	88,865
2029/30	89,645
2030/31	90,425

A.2 Prevention and Preparation for Re-Use

As part of each scenario, policy enforcement will be undertaken with the aim to decrease contamination from 2018. CCBC provided Eunomia with two options for policy enforcement and associated costs. The policy enforcement option would involve teams visiting properties in Caerphilly. Each team would include; 1 Waste Advisory Officer, 1 Driver, 1 R&C operative and a vehicle.

⁵ The Rt Hon Brandon Lewis MP (2014) Written statement to Parliament Small-scale developers

The policy enforcement approach modelled utilises 2 enforcement teams over a 5 year period, to allow for full coverage of the borough over that period with a repeat visit to 50% of properties. The approximate cost of this is assumed at £200,000 p.a. for 5 years.

Enforcement work will focus, in the main, on reducing contamination rather than solely on increasing recycling tonnages. It is assumed that the target of this enforcement would be to reduce the current high level of contamination (as indicated in the recent input compositions reported to MF portal) and subsequent high rate of rejection from the facility.

A new dry recycling offtaker contract would charge the authority more to achieve recycling rates higher than 70%. Recent sampling work, undertaken by the offtaker and reported to CCBC, has suggested that up to 90-95% of material collected is potentially recyclable.

For the purposes of modelling in the CBA, we assume the impact of enforcement work (and/or the change in MRF) is to bring contamination and subsequent rejects in line with average performance. The assumption of this impact was scaled back for Phase B. This both transfers some contamination into the residual stream, and increases the amount of target material recycled from collections. We also assume a 1% year-on-year target material capture increase is sustained for the five years of the initiative.

In options which switch away from a co-mingled system, the 1% target increase is assumed to be sustained over the remainder of the five year period with a reduced budget of £50k for additional ongoing resident engagement.

Table 21 - Impact of Policy Enforcement

Enforcement	Contamination	MRF Rejection Rate
	Current	15%
2022/23 (Phase A)	10%	15%
2022/23 (Phase B)	12.5%	20%

As part of the recycling and collection services modelling, there have been no predicted improvements to the kerbside bulky waste or re-use collection tonnages. Currently the majority of re-use is generated through CCBC’s network of Bring Sites. This service has not been considered in any of the 5 scenarios.

Modelling work undertaken by Resource Futures hasn’t taken into consideration an increase in re-use at HWRCs. No further modelling of this was undertaken as part of the CBA. It is not expected that there will be any increase in the amount of re-use at HWRCs without a serious drive, or improvement in collection facilities. There is currently no infrastructure at HWRCs to set up a re-use drop off point. However, re-use should be considered when designing the “super site” and would further increase CCBC’s ability to meet the 70% target

A.3 Recycling and Collection Services

A.3.1 Kerbside Waste and Recycling Collections

Waste Flows

The baseline waste arisings were taken from 2016/17 WasteDataFlow (WDF). The service changed mid-way through this year to introduce separate food and garden waste collections – however, since it is too early to establish a year-round assumption regarding the eventual split and capture of food and garden waste, the assumption of food and garden split remains that used within the KAT modelling.

The Enhanced Baseline as modelled in the KAT work has been used as the baseline KAT scenario from 2017/18 within the CBA model, reflecting the KAT-modelled cost and performance of the separated organics collection over the whole year. Table 22 compares the baseline kerbside-collected tonnages taken from WDF 2016/17 with the calculated tonnage outputs from the Enhanced Baseline scenario and the tonnages modelled within the CBA. The CBA uses co-mingled and residual kerbside household tonnages from WDF but adjusted to align with revised estimates of commercial collected waste. Food and garden waste yields are same in kg/hh terms as in KAT.

Table 22 - Baseline 2016/2017 Household Kerbside Collection Tonnages

Material	KAT Enhanced Baseline (2015/16)	2016/17 WDF Tonnages	CBA Enhanced Baseline 2016/17
Hhlds	77,614		78,935
Co-mingled	17,884	18,690	18,482
Food	6,343	3,094	6,452
Garden	5,190	450	5,279
Mixed Food and Garden	-	7,766	-
Residual	27,635	26,192	27,796
Total	57,261	56,192	57,261

Source: CCBC WDF 2016/16 & KAT modelling

Service Costs

Baseline service costs for 16/17 have been taken directly from CCBC's budget monitoring sheeting provided by Tony White. The baseline budget can be found in Table 23. Service costs savings in the CBA reflect those modelled within WRAP KAT modelling, and are applied to the budget lines below.

Table 23 - Caerphilly Waste Kerbside Collection Budget 2016/17

Area	Category	Budget
Residual	Collection	£1,302,011
	Treatment	£37,000
	Disposal	£1,430,933
Dry Recycling	Collection	£1,259,429
	Treatment	£2,012,757
Organics	Collection	£1,077,585
	Treatment	£505,094
Bulky	Collection	£52,688
	Treatment	£92,882
Other Associated		£50,914
Transfer Station		£134,694

In KAT, costs are modelled for a 'baseline' year (reflecting the service as it was in 2015/16) and an 'enhanced baseline year' (as it would be in 2017/18).

Due to the introduction of the separate garden and food waste collections halfway through 2016, the budget costs for 2016/17 are assumed to already incorporate half of the cost impacts of switching to the enhanced baseline. A 'KAT current service' equivalent cost was therefore modelled for the organics collections service (at the mid-point between the costs of organics collections under the baseline and the enhanced baseline service), as shown in Table 24.

Table 24 – Baseline Organics Collection Costs

Category	KAT Baseline	KAT Enhanced Baseline	KAT Current Service
Collection	£1,002,215	£1,084,645	£1,043,430

An additional modelling exercise has been completed to inform assumptions around the need for additional resources as household numbers increase. Vehicle requirements were modelled through KAT, and assessed at housing growth of 1400 and 2800. It was assumed that when growth reached these figures the vehicles capacity shown in Table 25 would be required.

Table 25 - Vehicle Uplift with housing growth

Service	+1400	+2800
Baseline, Scenario 1 & 2		
Recycling	0.1	0.2
Food/Garden	0	0.2
Residual	0.1	0.1
Scenario 4 & 5		
Recycling/Food	0.4	0.5
Garden	0	0
Residual	0.1	0.1
Scenario 3		
Recycling	0.2	0.2
Recycling/Food	0.1	0.2
Garden	0	0
Residual	0.1	0.1

It has been assumed that when vehicle requirement reaches 0.2 of a vehicle above the existing resource, an additional vehicle would be required to complete the round. Whole vehicle numbers as used within the CBA are shown in Table 26.

Table 26 - Number of vehicles required each year

Service	16/ 17	17/ 18	18/ 19	19/ 20	20/ 21	21/ 22	22/ 23	23/ 24	24/ 25	25/ 26	26/ 27
Baseline, Scenario 1 & 2											
Recycling	9	9	9	9	9	9	10	10	10	10	10
Food	7	7	7	7	7	7	7	7	7	7	7
Garden											
Residual	7	7	7	7	7	7	7	6	6	6	6
Tipper	5	5	5	5	5	5	5	5	5	5	5
Total	28	28	28	28	28	28	29	28	28	28	28
Scenario 4 & 5											
Recycling		21	21	21	21	21	21	22	22	22	22
Food											
Garden		4	4	4	4	4	4	5	5	5	5
Residual		7	7	7	7	7	7	6	6	6	6
Tipper		5	5	5	5	5	5	5	5	5	5
Total		41	41	41	41	41	41	43	43	43	43
Scenario 3											
Recycling		18	18	18	18	18	20	20	20	20	20
Food											
Garden		4	4	4	4	4	4	5	5	5	5
Residual		7	7	7	7	7	7	6	6	6	6
Tipper		5	5	5	5	5	5	5	5	5	5
Total		34	34	34	34	34	36	36	36	36	36

A.3.2 Fuel Costs

The price of diesel was assumed at £1.15 per litre. As part of the KAT modelling, annual miles of each service were provided, this annual figure was used to calculate the cost of fuel per vehicle. When an additional vehicle has been modelling, the same annual mileage has been used, and fuel costs have been calculated in the same way.

A.4 Waste Transfer Station

The capital costs for undertaking WTS redevelopment for Phase A were provided through Resource Futures. Phase B costs for a new Trehir WTS have been estimated at a high level based upon comparative costs, and a more detailed costing is recommended.

These costs have been annualised, in agreement with CCBC over 25 years and an interest add in of 2.5% pa.

Table 27 - Caerphilly WTS Redevelopment Capital Cost Assumptions

Category	Phase A		Phase B (Blueprint/Multi stream WTS)
	Co-mingled WTS	Blueprint/Multi-stream WTS	
FM Depo Improvements	£430k	-	-
FM WTS Redevelopment	-	£1,343k	-
Trehir Depot and WTS	-	-	£1,660k
Total	£430k	£1,343k	£1,660k
Annualised	£23k	£72k	£90k

A depot cost assessment was provided by WRAP calculating additional operating costs for the Blueprint (£242k) and Multi-stream (£170k) depot configurations compared to current depot costs. This is reproduced below in Table 28.

Table 28 - Caerphilly WTS Operational Cost Assumptions (Above current operational costs)

Operational factor	Co-mingled WTS		Blueprint/Multi-stream WTS	
	Qty	Annual revenue equivalent	Qty	Annual revenue equivalent
Fork lift trucks	3	£17,143	1	£5,715
Shovel loaders x 2 (redeployed from FM)				
Baler (inc. installation)	1	£28,333	1	£28,333
Equipment maintenance costs		£10,000		£8,000
Power		£2,000		£2,000
Baler wire (£3/tonne baled and estimated 3ktpa to be baled)		£9,000		£9,000
Fork lift drivers	3	£75,000	1	£25,000
Teleporter & Driver	1	£25,000	1	£25,000
Baler operatives	2	£50,000	2	£50,000
Yard manager (£35k)	1	£35,000	1	£35,000
Overheads (10% staff costs)		£18,500		£10,000
Total (estimate)		£241,976		£170,048
Comingled Recyclate Processing Saving identified in KAT modelling		-£28,000		-£28,000

The capital requirement is different for each option (though this capital is annualised in the table above), because of the requirement for a sortline and baler for the cans and plastics stream, and between one and three additional forklifts.

A.5 Household Waste Recycling Centres

A.5.1 Waste Flows

For Phase A, Waste Flows have been taken directly from Resource Futures HWRC review and no additional assumptions have been made to this data, with the exception of a transfer of kerbside residual waste tonnage to the HWRC network when three-weekly collections are introduced (as modelled in KAT).

Without assumptions regarding implementation of strict residual waste policies at the HWRC (a focus on design and staffing) it is assumed that this is collected as residual waste at the HWRC and incurs additional costs equivalent to this material being incinerated.

For Phase B, recycling captures from HWRCs were revisited and capture rates for different materials taken from best-practice HWRC performance alongside well-implemented residual waste policies. The net result still only brings the on-site recycling rate from 48% baseline to 76%, which is well below best practice performance in Wales – though some of the remaining residual waste may be displaced back into the kerbside due to the impact of a black bag ban. Table 26 below shows resulting assumptions regarding tonnages captured.

Table 29 – Recycling Collected in HWRC Network, Baseline, Phase A, and Phase B (tonnes)

Category	Waste Type	Current	Phase A	Phase B: With Residual Policies	Est. Phase B capture rate
	Mixed glass		129	251	85%
Paper	Paper		258	258	95%
	Card	194	478	1,115	
Plastics	Mixed Plastics			144	70%
	OTHER PLASTICS [7]		102	861	50%
Organics	Green Garden Waste Only	1,961	2,068	2,102	99%
Wood	Wood	4,432	4,732	4,840	95%
WEEE	WEEE	1,004	1,178	1,178	100%
	Other Scrap metal	682	966	1,030	85%
Furniture	Furniture			368	50%
Construction	Rubble	4,982	5,532	6,047	95%
	Soil		121	121	95%
	Plasterboard	294	294	416	-
	Mineral Oil	29	29	29	-
	Mattresses			643	95%
	Carpets			1,338	90%
	Textiles & footwear		436	443	36%
	Other materials (batteries, foil, cans, scrap metal)		20	262	80%
Residual waste		14,717	11,953	6,850	-
Total		21,446	21,446	21,446	-
On-site recycling rate		48%	58%	76%	-

A.5.2 Service Costs

Baseline service costs for 16/17 have been taken directly from CCBC's budget monitoring sheeting provided by Tony White. The baseline budget can be found in Table 30.

Table 30 - Caerphilly HWRC Site Budget 16/17

Area	Category	Budget
HWRC Sites	Collection	£967,764
	Treatment	£1,998,588

The capital costs for undertaking HWRC network rationalisation and improvements has been taken directly from Resource Futures' work. Resource Future's work provided capital costs

for redeveloping Aberbargoed, Penmaen and Trehir as well as improvement works on Full Moon. These costs have been annualised, in agreement with CCBC over 25 years and an interest add in of 2.5% pa.

Table 31 - Caerphilly HWRC Site Redevelopment Capital Cost Assumptions

Category	Phase A		Phase B
	Co-mingled	Blueprint/Multi-stream	
Aberbargoed Expansion	£180k	£180k	£180k
Penmaen Expansion	-	£310k	-
Penalta Expansion	-	-	£360k
FM HWRC Improvements	£280k	-	£1,260k
Trehir HWRC	£1,550k	£1,550k	£1,550k
Total	£2,010k	£2,040k	£3,350k
Annualised	£109k	£110k	£182k

Annual operating costs savings from reducing the number of HWRC sites were provided by Resource Futures from their work. For Phase B, staff are assumed to be redeployed across just four sites to maximise recycling and enforce residual policies.

Table 32 –HWRC Site Operating Costs

	Current	Phase A Network Rationalisation	Phase B Network Rationalisation
Staff	£400k	£336k	£400k
(Staff positions)	11	7 + £30k additional supervisor costs	11
Other Operating Costs	£378k	£270k	£270k
Total Operating Costs	£780k	-	£670k

A.6 Commercial Collections

A.6.1 Waste Flows

The waste flows for the kerbside commercial waste service have been taken directly from modelling completed by Amec Foster Wheeler (AFW).

A.6.2 Service Costs

Baseline service costs for 16/17 have been taken directly from CCBC's budget monitoring sheeting provided by Tony White. The baseline budget can be found in Table 33.

Table 33 – Caerphilly Commercial Waste Service Budget 16/17

Area	Category	Budget
Commercial	Collection	£254,402
	Treatment	£303,827
	Income	-£993,920

A split has been added to commercial waste budget in order to identify the costs of operating refuse and recycling collections. This has been based off work completed by AFW. 6% of costs are associated with recycling operations, and the remaining 94% are associated with refuse collections.

In the CBA, the kerbside service costs within the KAT modelling have been adjusted to remove the estimated costs of collecting commercial waste (since these costs are estimated separately). Additionally, the level of commercial waste collections resource included within KAT modelling changes in scenarios when a three-weekly service is introduced, as the kerbside service is assumed to service half of the current trade waste customers, the remaining half serviced by an additional vehicle. The accounting approach for taking the commercial collections cost out of the KAT modelling is defined as follows:

Kerbside Residual Service	Operations	KAT Collection Cost Attributable to Trade Waste
Baseline and Fortnightly Collection	3,352 tonnes collected from trade (11% of total kerbside residual tonnage collected)	Current Cost Estimate = 11% * Residual Kerbside Collection Cost
3-weekly Collections	Half trade customers assumed to be collected by separate vehicle	3-Weekly Cost Estimate = 0.5 * Current Cost Estimate

A.6.3 Bring Site Provision

It was agreed with WRAP and CCBC that within the CBA it should be assumed that that bring site performance is un-changed from the baseline provision. Baseline tonnages have been taken from 2016/17 WDF data. CCBC budget lines do not include a separate service cost for Bring Sites.

A.7 Residual Waste

A.7.1 End Destinations

Table 34 shows the residual waste treatment and disposal routes assumed within the CBA, based on baseline waste data reported to WasteDataFlow for the year 2016/17.

Table 34 - Assumed Residual Waste Treatment Split

Treatment destinations for residual waste (16/17 onwards)	% of waste		
	Collected Residual	Rejects from MRF	Rejects from Bryn Quarry
Landfill	39.2%		56.2%
Incineration	84.8%	100%	43.8%

Source: Caerphilly WDF 16/17

Table 35 shows the assumed percentage of material sent for incineration which is recycled.

Table 35 - Assumed Percentage of Material Sent for Incineration which is Recycled

Recycling from incineration (16/17 onwards)	% of input tonnage waste	
	Collected Residual	Rejects
Incinerator bottom ash	17.6%	16.5%
Recovery of metals	3.7%	3.2%

Source: Caerphilly WDF 16/17

A.7.2 Disposal Costs

Table 36 details the disposal costs for residual waste used within the CBA in, with Table 37 showing the landfill tax forecasts over the period of the CBA. Total incineration gate fee costs have been calculated annually based on the tonnage input modelled, and a WG subsidy equivalent to £20/tonne for tonnages in bands 0 and 1 has been netted off the cost.

Table 36 - Residual Waste Disposal Costs

Service Element	£ per tonne	
Incineration Band 0	£79.86	0 - 24,840 tpa
Incineration Band 1	£64.01	24,841 -31,090 tpa
Incineration Band 2	£97.24	31,091 - tpa
Landfill	£17.50 + LF tax	
Haulage	£5-£6	

Source: Tony White, CCBC

Table 37 - Landfill Tax Costs within CBA

Year	Landfill tax, 2016 real terms
2016/17	£84.40
2017/18	£86.10
2018/19 onwards	£88.95

A.8 Dry Recyclables

A.8.1 Income and Gate Fees

The modelled income and cost for the kerbside dry recyclables can be found in Table 38 and Table 39. A separate sensitivity analysis was run on the original KAT modelling to demonstrate the impact of varying recyclate incomes per tonne. The co-mingled gate fee from 2017/18 has been amended to reflect the new contract amendment.

Table 38 – Kerbside Dry Recycling Income

Material	Cost, £ per tonne
Co-mingled (Current)	
Co-mingled	£87
Haulage	£5
Co-mingled (July 2017)	
Co-mingled	£57
Haulage	£26

Source: Tony White, CCBC

Table 39 - Kerbside Dry Recycling Income

Material	Income, £ per tonne
Separated	
Paper	£75
Card	£72.5
Glass	£5
Plastic	£45
Steel	£40
Aluminium	£610
Textiles	£375
Twin Stream (loose)	
Fibres	£50
Containers (inc. Glass)	-£35
Twin Stream (bagged)	
Fibres	£35
Containers (inc. Glass)	-£50
Plastics & cans (ex. glass)	£10

Source: WRAP KAT Modelling

The modelled income received for the HWRC dry recyclables can be found in Table 40.

⁶ HM Revenue and Customs (2015) Landfill Tax rates, accessed 15 July 2017, <https://www.gov.uk/government/publications/rates-and-allowances-landfill-tax/landfill-tax-rates-from-1-april-2013>

Table 40 - HWRC Dry Recycling Income

Material list	Income, £ per tonne
Card	-£10
Paper	£45
Mixed Glass	-£12
Plastics	£100
Garden Waste	£31
Wood	£45
Small WEEE	£0
Large WEEE	£0
Cat Tubes	£0
Fridge/Freezer	£0
Metal	-£65
Rubble	£20
Soil	£20
Plasterboard	£64
Oil	£0
Bryn Quarry Mixed Waste	£98

Source: Resource Futures

Additionally, substantial tonnages of waste recorded within WasteDataFlow as co-mingled recycling is sent to two facilities for sorting/recycling, at Bryn Quarry Ltd. and at Amber Engineering Ltd.

When front-end sorting is introduced and the capture rate of materials rise from HWRCs, it is assumed that the gate fee associated with the material from HWRCs sent to Bryn will increase. CCBC officers reported that conversations with Bryn Quarry have suggested the gate fee shown in Table 41. This is due to the lower recyclable content associated with the residual waste generated from HWRCs.

Quantities and costs of mainly non-household co-mingled recyclable material collected and sent to Amber Engineering are assumed not to change from the baseline.

Table 41 – Bryn Gate Fee (HWRC residual waste)

Material list	Current	With Front End Sort
Gate Fee, £/tonne	£98	£130

Source: Tony White, CCBC

A.9 Organics

A.9.1 Destinations

It was assumed that all organic waste falling under the "Waste Food Only" category of WDF goes to an AD plant. Previously organic waste "Green Garden Waste Only" and "Mixed Garden & Food Waste" have been sent for composting through a mix of Windrow and in-vessel composting (IVC). However, it has been assumed that going forward with the introduction of a separate food and garden waste collection, all "Green Garden Waste Only" will be sent to Windrow.

A.9.2 Disposal Costs

The disposal costs used for garden waste and food waste can be found in Table 42. These have been updated from the values originally used for the KAT modelling.

Table 42 - Organic Disposal Costs

Service Element	£ per tonne	Destination
Garden waste gate fee	£31.00	IVC
Food waste gate fee	£22.00	AD

Source: Tony White, CCBC

Appendix B – Phase A Cost Lines

A breakdown of the cost lines outputs for each scenario over 10 years from 2016/17 to 2025/26.

Table 43 - Baseline Cost Lines 16/17 - 25/26

Cost Line	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
Residual Collection	£1,302k	£1,294k	£1,294k	£1,294k	£1,294k	£1,294k	£1,294k	£1,294k	£1,294k	£1,294k
Residual Treatment	£1,472k	£1,488k	£1,507k	£1,537k	£1,566k	£1,596k	£1,628k	£1,656k	£1,684k	£1,712k
Organics Collection	£1,078k	£1,119k	£1,119k	£1,119k	£1,119k	£1,119k	£1,264k	£1,264k	£1,264k	£1,264k
Organics Treatment	£505k	£353k	£356k	£359k	£363k	£366k	£370k	£373k	£377k	£381k
CA Site Collection	£968k	£968k	£968k	£968k	£968k	£968k	£968k	£968k	£968k	£968k
CA Site Treatment	£1,999k	£2,015k	£2,031k	£2,047k	£2,063k	£2,079k	£2,095k	£2,112k	£2,129k	£2,146k
Recycling Collection	£1,259k	£1,259k	£1,259k	£1,259k	£1,259k	£1,259k	£1,393k	£1,393k	£1,393k	£1,393k
Recycling Material Income	£2,013k	£1,953k	£1,908k	£1,862k	£1,815k	£1,767k	£1,719k	£2,023k	£2,038k	£2,053k
Bulky Collection	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k
Bulk Treatment	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k
Commercial Collection	£254k	£253k	£251k	£251k	£251k	£251k	£251k	£251k	£251k	£251k
Commercial Treatment	£304k	£307k	£311k	£312k	£313k	£314k	£315k	£316k	£317k	£318k
Commercial Income	-£994k	-£992k	-£990k	-£990k	-£990k	-£990k	-£990k	-£990k	-£990k	-£990k
CA Site Capital	£k	£k	£19k	£39k	£39k	£39k	£39k	£39k	£39k	£39k
Cost of Change	£k	£k	£k	£k	£k	£k	£k	£k	£k	£k
AHP Collections	£k	£k	£k	£k	£k	£k	£k	£k	£k	£k
Transfer Station & Other Costs	£186k	£186k	£386k	£386k	£386k	£386k	£386k	£186k	£186k	£186k
Net Financial Costs	£10,494k	£10,351k	£10,568k	£10,591k	£10,594k	£10,597k	£10,881k	£11,221k	£11,550k	£11,618k

Table 44 - Scenario 1 Cost Lines 16/17 - 25/26

Cost Line	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
Residual Collection	£1,302k	£1,294k	£1,294k	£1,294k	£1,294k	£1,294k	£1,294k	£1,048k	£1,048k	£1,048k
Residual Treatment	£1,472k	£1,488k	£1,507k	£1,537k	£1,566k	£1,596k	£1,628k	£1,299k	£1,311k	£1,322k
Organics Collection	£1,078k	£1,119k	£1,119k	£1,119k	£1,119k	£1,119k	£1,264k	£1,274k	£1,274k	£1,274k
Organics Treatment	£505k	£353k	£359k	£363k	£366k	£370k	£373k	£416k	£420k	£424k
CA Site Collection	£968k	£968k	£1,028k	£1,028k	£1,028k	£1,028k	£1,028k	£1,028k	£1,028k	£1,028k
CA Site Treatment	£1,999k	£2,015k	£2,075k	£2,091k	£2,108k	£2,124k	£2,142k	£2,234k	£2,251k	£2,269k
Recycling Collection	£1,259k	£1,259k	£1,259k	£1,259k	£1,259k	£1,259k	£1,393k	£1,589k	£1,589k	£1,589k
Recycling Material Income	£2,013k	£1,953k	£1,908k	£1,862k	£1,815k	£1,767k	£1,719k	£2,174k	£2,191k	£2,207k
Bulky Collection	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k
Bulk Treatment	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k
Commercial Collection	£254k	£253k	£251k	£251k	£251k	£251k	£251k	£251k	£251k	£251k
Commercial Treatment	£304k	£307k	£311k	£312k	£313k	£314k	£315k	£314k	£314k	£313k
Commercial Income	-£994k	-£992k	-£990k	-£990k	-£990k	-£990k	-£990k	-£990k	-£990k	-£990k
CA Site Capital	£k	£k	£19k	£39k	£39k	£39k	£39k	£39k	£39k	£39k
Cost of Change	£k	£k	£k	£k	£k	£k	£k	£506k	£k	£k
AHP Collections	£k	£k	£k	£k	£k	£k	£k	£308k	£308k	£308k
Transfer Station & Other Costs	£186k	£186k	£386k	£386k	£386k	£386k	£386k	£190k	£190k	£190k
Net Financial Costs	£10,494k	£10,351k	£10,676k	£10,700k	£10,703k	£10,706k	£10,991k	£11,828k	£11,428k	£11,477k

Table 45 - Scenario 2 Cost Lines 16/17 - 25/26

Cost Line	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
Residual Collection	£1,302k	£1,294k	£1,294k	£1,294k	£1,294k	£1,294k	£1,294k	£1,048k	£1,048k	£1,048k
Residual Treatment	£1,472k	£1,488k	£1,507k	£1,537k	£1,566k	£1,596k	£1,628k	£1,299k	£1,311k	£1,322k
Organics Collection	£1,078k	£1,119k	£1,119k	£1,119k	£1,119k	£1,119k	£1,264k	£1,274k	£1,274k	£1,274k
Organics Treatment	£505k	£353k	£359k	£363k	£366k	£370k	£373k	£416k	£420k	£424k
CA Site Collection	£968k	£968k	£1,028k	£1,028k	£892k	£825k	£825k	£825k	£825k	£825k
<i>CA Site Treatment</i>	£1,999k	£2,015k	£2,075k	£2,091k	£2,108k	£2,124k	£2,142k	£2,234k	£2,251k	£2,269k
Recycling Collection	£1,259k	£1,259k	£1,259k	£1,259k	£1,259k	£1,259k	£1,393k	£1,589k	£1,589k	£1,589k
Recycling Material Income	£2,013k	£1,953k	£1,908k	£1,862k	£1,815k	£1,767k	£1,719k	£2,174k	£2,191k	£2,207k
Bulky Collection	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k
Bulk Treatment	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k
Commercial Collection	£254k	£253k	£251k	£251k	£251k	£251k	£251k	£251k	£251k	£251k
Commercial Treatment	£304k	£307k	£311k	£312k	£313k	£314k	£315k	£314k	£314k	£313k
Commercial Income	-£994k	-£992k	-£990k	-£990k	-£990k	-£990k	-£990k	-£990k	-£990k	-£990k
CA Site Capital	£k	£k	£19k	£45k	£105k	£133k	£133k	£133k	£133k	£133k
Cost of Change	£k	£k	£k	£k	£k	£k	£k	£506k	£k	£k
AHP Collections	£k	£k	£k	£k	£k	£k	£k	£308k	£308k	£308k
Transfer Station & Other Costs	£186k	£186k	£386k	£386k	£386k	£386k	£386k	£190k	£190k	£190k
Net Financial Costs	£10,494k	£10,351k	£10,676k	£10,706k	£10,634k	£10,597k	£10,882k	£11,719k	£11,319k	£11,368k

Table 46 - Scenario 3 Cost Lines 16/17 - 25/26

Cost Line	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
Residual Collection	£1,302k	£1,294k	£1,294k	£1,294k	£1,299k	£1,299k	£1,299k	£1,053k	£1,053k	£1,053k
Residual Treatment	£1,472k	£1,488k	£1,507k	£1,528k	£1,662k	£1,673k	£1,685k	£1,400k	£1,413k	£1,425k
Organics Collection	£1,078k	£1,119k	£1,119k	£1,119k	£1,267k	£1,267k	£1,465k	£1,421k	£1,421k	£1,421k
Organics Treatment	£505k	£353k	£359k	£364k	£368k	£371k	£375k	£418k	£422k	£426k
CA Site Collection	£968k	£968k	£1,028k	£1,028k	£1,028k	£926k	£825k	£825k	£825k	£825k
<i>CA Site Treatment</i>	£1,999k	£2,015k	£2,075k	£2,091k	£2,108k	£2,124k	£2,142k	£2,233k	£2,251k	£2,269k
Recycling Collection	£1,259k	£1,259k	£1,259k	£1,259k	£2,223k	£2,223k	£2,439k	£2,312k	£2,312k	£2,312k
Recycling Material Income	£2,013k	£1,953k	£1,908k	£1,862k	-£462k	-£478k	-£494k	-£558k	-£566k	-£575k
Bulky Collection	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k
Bulk Treatment	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k
Commercial Collection	£254k	£253k	£251k	£308k	£310k	£310k	£310k	£310k	£311k	£311k
Commercial Treatment	£304k	£307k	£311k	£224k	£216k	£217k	£217k	£213k	£213k	£213k
Commercial Income	-£994k	-£992k	-£990k	-£1,009k	-£1,009k	-£1,009k	-£1,009k	-£1,009k	-£1,010k	-£1,010k
CA Site Capital	£k	£k	£8k	£23k	£69k	£111k	£111k	£111k	£111k	£111k
Cost of Change	£k	£k	£k	£253k	£253k	£k	£k	£506k	£k	£k
AHP Collections	£k	£k	£k	£k	£k	£k	£k	£308k	£308k	£308k
Transfer Station & Other Costs	£186k	£186k	£386k	£549k	£760k	£760k	£760k	£562k	£562k	£562k
Net Financial Costs	£10,494k	£10,351k	£10,665k	£11,042k	£10,241k	£9,944k	£10,273k	£10,254k	£9,773k	£9,798k

Table 47 - Scenario 3 Cost Lines 16/17 - 25/26

Cost Line	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
Residual Collection	£1,302k	£1,294k	£1,294k	£1,294k	£1,299k	£1,299k	£1,299k	£1,053k	£1,053k	£1,053k
Residual Treatment	£1,472k	£1,488k	£1,507k	£1,528k	£1,773k	£1,786k	£1,800k	£1,472k	£1,497k	£1,523k
Organics Collection	£1,078k	£1,119k	£1,119k	£1,119k	£1,259k	£1,259k	£1,387k	£1,446k	£1,446k	£1,446k
Organics Treatment	£505k	£353k	£359k	£364k	£368k	£371k	£375k	£418k	£422k	£426k
CA Site Collection	£968k	£968k	£1,028k	£1,028k	£1,028k	£926k	£825k	£825k	£825k	£825k
<i>CA Site Treatment</i>	£1,999k	£2,015k	£2,075k	£2,091k	£2,108k	£2,124k	£2,142k	£2,232k	£2,251k	£2,269k
Recycling Collection	£1,259k	£1,259k	£1,259k	£1,259k	£2,025k	£2,025k	£2,025k	£2,219k	£2,219k	£2,219k
Recycling Material Income	£2,013k	£1,953k	£1,908k	£1,862k	£544k	£561k	£579k	£641k	£651k	£660k
Bulky Collection	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k
Bulk Treatment	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k
Commercial Collection	£254k	£253k	£251k	£308k	£310k	£310k	£310k	£310k	£311k	£311k
Commercial Treatment	£304k	£307k	£311k	£224k	£220k	£220k	£221k	£213k	£214k	£214k
Commercial Income	£994k	£992k	£990k	£1,009k	£1,009k	£1,009k	£1,009k	£1,009k	£1,010k	£1,010k
CA Site Capital	£k	£k	£8k	£23k	£69k	£111k	£111k	£111k	£111k	£111k
Cost of Change	£k	£k	£k	£253k	£253k	£k	£k	£506k	£k	£k
AHP Collections	£k	£k	£k	£k	£k	£k	£k	£308k	£308k	£308k
Transfer Station & Other Costs	£186k	£186k	£386k	£549k	£725k	£725k	£725k	£485k	£485k	£485k
Net Financial Costs	£10,494k	£10,351k	£10,665k	£11,042k	£10,033k	£9,736k	£9,781k	£10,097k	£9,630k	£9,669k

Table 48 - Scenario 5 Cost Lines 16/17 -25/26

Cost Line	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26
Residual Collection	£1,302k	£1,294k	£1,294k	£1,294k	£1,294k	£1,294k	£1,294k	£1,053k	£1,053k	£1,053k
Residual Treatment	£1,472k	£1,488k	£1,507k	£1,528k	£1,552k	£1,582k	£1,614k	£1,472k	£1,497k	£1,523k
Organics Collection	£1,078k	£1,119k	£1,119k	£1,119k	£1,119k	£1,119k	£1,247k	£1,446k	£1,446k	£1,446k
Organics Treatment	£505k	£353k	£359k	£364k	£368k	£371k	£375k	£418k	£422k	£426k
CA Site Collection	£968k	£968k	£1,028k	£1,028k	£1,028k	£926k	£825k	£825k	£825k	£825k
<i>CA Site Treatment</i>	£1,999k	£2,015k	£2,075k	£2,091k	£2,108k	£2,124k	£2,142k	£2,232k	£2,251k	£2,269k
Recycling Collection	£1,259k	£1,259k	£1,259k	£1,259k	£1,259k	£1,259k	£1,259k	£2,219k	£2,219k	£2,219k
Recycling Material Income	£2,013k	£1,953k	£1,908k	£1,862k	£1,815k	£1,767k	£1,719k	-£641k	-£651k	-£660k
Bulky Collection	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k	£53k
Bulk Treatment	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k	£93k
Commercial Collection	£254k	£253k	£251k	£308k	£310k	£310k	£310k	£310k	£311k	£311k
Commercial Treatment	£304k	£307k	£311k	£224k	£213k	£214k	£215k	£213k	£214k	£214k
Commercial Income	-£994k	-£992k	-£990k	-£1,009k	-£1,009k	-£1,009k	-£1,009k	-£1,009k	-£1,010k	-£1,010k
CA Site Capital	£k	£k	£12k	£28k	£83k	£134k	£134k	£134k	£134k	£134k
Cost of Change	£k	£k	£k	£k	£k	£k	£k	£337k	£169k	£k
AHP Collections	£k	£k	£k	£k	£k	£k	£k	£308k	£308k	£308k
Transfer Station & Other Costs	£186k	£186k	£386k	£386k	£386k	£386k	£386k	£328k	£485k	£485k
Net Financial Costs	£10,494k	£10,351k	£10,668k	£10,630k	£10,676k	£10,628k	£10,660k	£9,794k	£9,821k	£9,692k

Appendix C – Phase A Capital Costs

Table 49 - Annual breakdown of Capital Cost Requirements

	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	Total
Scenario 1									
Kerbside Vehicles	£k	£k	£k	£k	£k	£k	£k	£k	£k
Containers	£k	£k	£k	£k	£k	£k	£k	£k	£k
HWRCs	£k	£k	£286k	£k	£k	£k	£k	£k	£286k
Depot and WTS	£k	£k	£428k	£k	£k	£k	£k	£k	£428k
Cost of Change	£k	£k	£k	£k	£k	£k	£k	£k	£k
Total	£k	£k	£714k	£k	£k	£k	£k	£k	£714k
Scenario 2									
Kerbside Vehicles	£k	£k	£k	£k	£k	£k	£k	£k	£k
Containers	£k	£k	£643k	£k	£k	£k	£k	£k	£643k
HWRCs	£k	£k	£286k	£177k	£1,554k	£k	£k	£k	£2,017k
Depot and WTS	£k	£k	£428k	£k	£k	£k	£k	£k	£428k
Cost of Change	£k	£k	£k	£k	£k	£k	£k	£k	£506k
Total	£k	£k	£1,357k	£177k	£1,554k	£k	£k	£k	£3,513k
Scenario 3									
Kerbside Vehicles	£k	£k	£2,275k	£k	£k	£k	£k	£530k	£2,805k
Containers	£k	£k	£643k	£k	£k	£k	£k	£k	£643k
HWRCs	£k	£k	£311k	£711k	£1,554k	£k	£k	£k	£2,043k
Depot and WTS	£k	£k	£k	£1,973k	£k	£k	£k	£k	£1,973k
Cost of Change	£k	£k	£253k	£253k	£k	£k	£506k	£k	£1,012k
Total	£k	£k	£3,483k	£2,403	£1,554k	£k	£506k	£530k	£6,729k

Scenario 4

Kerbside Vehicles	£k	£k	£3,120k	£k	£k	£k	£k	£300k	£3,420k
Containers	£k	£k	£775k	£k	£k	£k	£k	£k	£775k
HWRCs	£k	£k	£311k	£177k	£1,554k	£k	£k	£k	£2,043k
Depot and WTS	£k	£k		£1,888k					£1,888k
Cost of Change	£k	£k	£253k	£253k	£k	£k	£k	£k	£1,012k
Total	£k	£k	£4,460k	£2,318k	£1,554k	£k	£506k	£300k	£9,138k

Scenario 5

Kerbside Vehicles	£k	£k	£k	£k	£k	£k	£k	£3,420k	£3,420k
Containers	£k	£k	£k	£k	£k	£k	£k	£775k	£775k
HWRCs	£k	£k	£k	£177k	£1,866k	£k	£k	£k	£2,043k
Depot and WTS	£k	£k	£k	£k	£k	£k	£k	£1,888k	£1,888k
Cost of Change	£k	£k	£k	£k	£k	£k	£337k	£169k	£506k
Total	£k	£k	£k	£177k	£1,866k	£k	£337k	£6,252k	£8,632k

Appendix D – Breakdown of Phase B Costs

Table 50 – Breakdown of Annual Savings (No Three Weekly Refuse Collections)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Residual Collection	£5k	£5k	£5k	£5k
Residual Treatment	£234k	£120k	£234k	£120k
Organics Collection	£140k	£148k	£140k	£148k
Organics Treatment	£5k	£5k	£6k	£6k
CA Site Collection	-£172k	-£172k	-£108k	-£108k
CA Site Treatment	£29k	£29k	-£567k	-£568k
Recycling Collection	£765k	£963k	£765k	£963k
Recycling Material Income	-£2,478k	-£2,290k	-£2,478k	-£2,290k
Commercial Collection	-£52k	-£56k	-£35k	-£38k
CA Site Capital	£182k	£182k	£182k	£182k
Transfer Station & Other Costs	£357k	£308k	£357k	£308k
Contamination Enforcement	-£150k	-£150k	-£150k	-£150k
Total	-£1134k	-£905k	-£1648k	-£1419k

Table 51 - Breakdown of Annual Savings (Three Weekly Refuse Collections)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Residual Collection	£241k	-£241k	-£241k	-£241k
Residual Treatment	-£115k	-£177k	-£115k	-£177k
Organics Collection	£169k	£174k	£169k	£174k
Organics Treatment	£43k	£43k	£45k	£45k
CA Site Collection	-£172k	-£172k	-£108k	-£108k
CA Site Treatment	£101k	£102k	-£558k	-£618k
Recycling Collection	£870k	£1,052k	£870k	£1,052k
Recycling Material Income	-£2,538k	-£2,340k	-£2,538k	-£2,340k
Commercial Collection	-£60k	-£59k	-£43k	-£46k
CA Site Capital	£182k	£182k	£182k	£182k
AHP Collections	£308k	£308k	£308k	£308k
Transfer Station & Other Costs	£317k	£310k	£317k	£310k
Contamination Enforcement	-£150k	-£150k	-£150k	-£150k
Total	-£1,285k	-£966k	-£1,862k	-1,608k

Appendix E – Phase B Costs Per Annum

Costs provided in are full year following the rollout of services.

Table 52 – By Line Costs Following Rollout of Service (No Three Weekly Collections)

Financial Cost	Baseline Scenario	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Residual Collection	£1294k	£1299k	£1299k	£1299k	£1299k	£1302k
Residual Treatment	£1552k	£1786k	£1673k	£1991k	£1883k	£1538k
Organics Collection	£1119k	£1259k	£1267k	£1259k	£1267k	£1078k
Organics Treatment	£366k	£371k	£371k	£372k	£372k	£470k
CA Site Collection	£968k	£796k	£796k	£860k	£860k	£968k
CA Site Treatment	£2078k	£2108k	£2108k	£1307k	£1300k	£2078k
Recycling Collection	£1259k	£2025k	£2223k	£2025k	£2223k	£1259k
Recycling Material Income	£1917k	-£561k	-£373k	-£561k	-£373k	£1917k
Bulky Collection	£53k	£53k	£53k	£53k	£53k	£53k
Bulk Treatment	£93k	£93k	£93k	£93k	£93k	£93k
Commercial Collection	£251k	£310k	£310k	£310k	£310k	£310k
Commercial Treatment	£313k	£220k	£217k	£237k	£235k	£212k
Commercial Income	-£990k	-£1009k	-£1009k	-£1009k	-£1009k	-£1009k
CA Site Captial	£k	£182k	£182k	£182k	£182k	£k
Cost of Change	£k	£k	£k	£k	£k	£k
AHP Collections	£k	£k	£k	£k	£k	£k
Transfer Station & Other Costs	£386k	£593k	£544k	£593k	£544k	£386k
Landfill Tax	£3k	£3k	£3k	£3k	£3k	£3k
Recycling Target Fines	£k	£k	£k	£k	£k	£k
Total	£10662k	£9528k	£9757k	£9014k	£9243k	£10659k

Table 53- By Line Costs Following Rollout of Service (Three Weekly Collections)

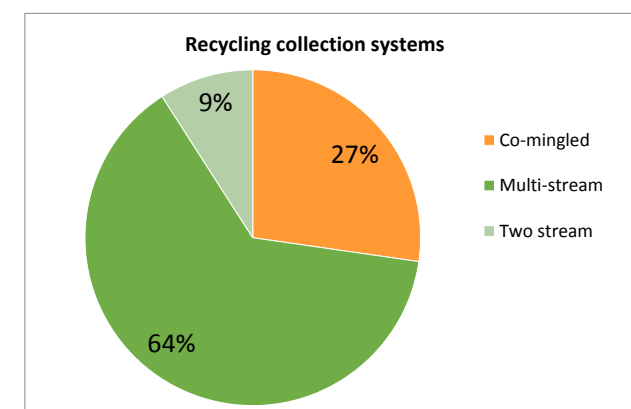
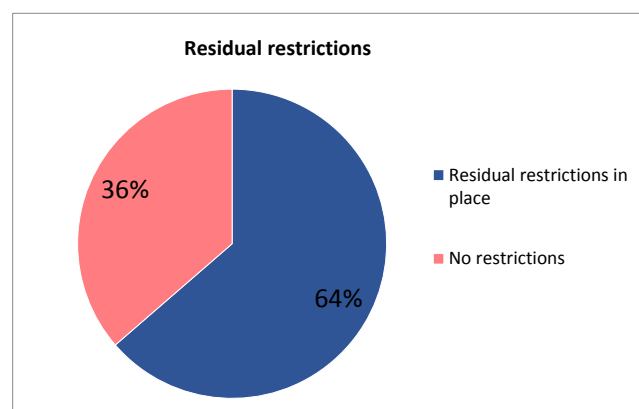
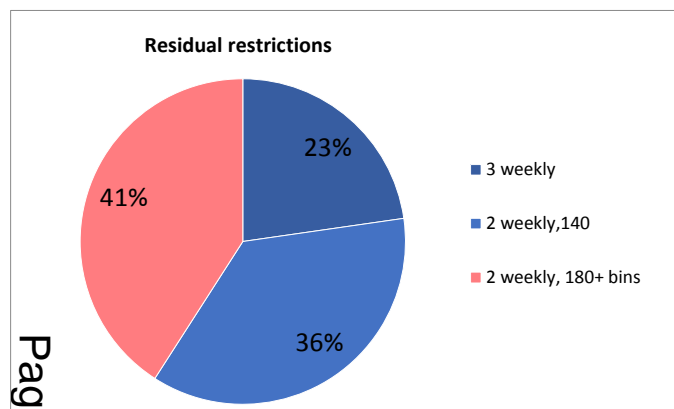
Financial Cost	Baseline Scenario	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Residual Collection	£1294k	£1053k	£1053k	£1053k	£1053k	£1053k
Residual Treatment	£1552k	£1437k	£1375k	£1697k	£1584k	£1697k
Organics Collection	£1119k	£1288k	£1293k	£1288k	£1293k	£1288k
Organics Treatment	£366k	£410k	£410k	£411k	£411k	£411k
CA Site Collection	£968k	£796k	£796k	£860k	£860k	£860k
CA Site Treatment	£2078k	£2180k	£2180k	£1260k	£1252k	£1260k
Recycling Collection	£1259k	£2130k	£2312k	£2130k	£2312k	£2130k
Recycling Material Income	£1917k	-£621k	-£424k	-£621k	-£424k	-£621k
Bulky Collection	£53k	£53k	£53k	£53k	£53k	£53k
Bulk Treatment	£93k	£93k	£93k	£93k	£93k	£93k
Commercial Collection	£251k	£310k	£310k	£310k	£310k	£310k
Commercial Treatment	£313k	£212k	£214k	£230k	£227k	£230k
Commercial Income	-£990k	-£1009k	-£1009k	-£1009k	-£1009k	-£1009k
CA Site Captial	£k	£182k	£182k	£182k	£182k	£182k
Cost of Change	£k	£k	£k	£k	£k	£k
AHP Collections	£k	£308k	£308k	£308k	£308k	£308k
Transfer Station & Other Costs	£386k	£552k	£546k	£552k	£546k	£552k
Landfill Tax	£3k	£3k	£3k	£3k	£3k	£3k
WG Government Grant	£k	£k	£k	£k	£k	-£315k
Total	£10662k	£9377k	£9695k	£8800k	£9054k	£8485k

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Service Configuration and Collection Frequency for Welsh Local Authorities

* This information represents WRAP's best understanding of kerbside collections being operated by local authorities in Wales as of October 2018
On an ongoing basis LAs are introducing service changes and improvements and so note that there may be some variations to the information below.

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Local Authority	Current Dry Recycling Collections			Current Food Waste Collections		Current Residual Waste Collections		Current Garden Waste Collections		Current Nappy/AHP collection		
	Scheme Type	Frequency of Collection	Type of Vehicle Used	Service	Frequency of Collection	Container	Frequency of Collection	Frequency of Collection	Charge	Collection provided?	Frequency of Collection	Notes
Isle of Anglesey County Council	Multi-stream	Weekly	Kerbloder	Separate food waste	Weekly	Wheeled bin 180-240 litres	3-weekly and Fortnightly	Fortnightly	No	Yes	n/k	
Conwy County Borough Council	Multi-stream	Weekly / Fortnightly	Kerbloder	Separate food waste	Weekly	Wheeled bin 180-240 litres	3-weekly and 4-weekly	Fortnightly	No	Yes	Weekly	
Flintshire County Council	Multi-stream	Weekly	Some Kerbloders, some BMI maximisers	Separate food waste	Weekly	Wheeled bin 140-180 litres	Fortnightly	Fortnightly	No	No		
Denbighshire County Council	Co-mingled	Fortnightly/ Weekly	RCV	Separate food waste	Weekly	Wheeled bin 140 litres	Fortnightly	Fortnightly	Yes	No		
Gwynedd County Council	Multi-stream	Weekly	Kerbloder	Separate food waste	Weekly	Wheeled bin 180-240 litres	3-weekly	Fortnightly	Yes	Yes	Weekly	Collected separately
Wrexham County Borough Council	Multi-stream	Weekly	Kerbloder	Separate food waste	Weekly -	Wheeled bin 180-240 litres	Fortnightly	Fortnightly	No	No		

Powys County Council	Multi-stream	Weekly	Kerbloader	Separate food waste	Weekly	Wheeled bin 180-240 litres	3-weekly	None	n/a	No		
Ceredigion County Council	Co-mingled	Weekly	RCV	Separate food waste	Weekly	Householder provides	Fortnightly	Weekly	Not clear	No		
Pembrokeshire County Council	Two Stream (59407 HHS) / Co-mingled (2002 HHS)	Weekly (glass fortnightly)	RCV	Separate food waste	Weekly	Non-reusable sack	Fortnightly	Fortnightly	Yes	No		
Carmarthenshire County Council	Co-mingled	Fortnightly	Split back RCV	Separate food waste	Weekly	Householder provides	Fortnightly	Fortnightly	Yes	Yes	Weekly	Collected separately
Neath Port Talbot County Borough Council	Multi-stream	Weekly	Kerbloader	Separate food waste	Weekly	Wheeled bin 140 litres	Fortnightly	Weekly	no	No		
Swansea City and County Council	Multi-stream	Fortnightly	Split back RCV	Separate food waste	Weekly	Non-reusable sack	Fortnightly	Fortnightly	No	Yes		Can apply for exemption to have additional allowance of residual waste bags
Merthyr Tydfil County Borough Council	Multi-stream	Weekly	Kerbloader	Separate food waste	Weekly	Wheeled bin 140 litres or less	Fortnightly	Fortnightly	No	No		
Blaenau Gwent County Borough Council	Multi-stream	Weekly	Kerbloader	Separate food waste	Weekly	Wheeled bin 180-240 litres	3-weekly	Fortnightly	No	Yes	Weekly	Collected separately
Monmouthshire County Council	Two Stream	Weekly	RCV	Co-collected with garden waste	Weekly	2 Non-reusable sack per collection	Fortnightly	Weekly	Yes	Yes	Fortnightly	Provides bags which are co-collected with refuse
Torfaen County Borough Council	Multi-stream	Weekly/ Fortnightly	Bespoke kerbloader - Designed by the LA	Separate food waste	Weekly	Wheeled bin 140 litres	Fortnightly	Fortnightly	No	Yes	Fortnightly	Provides bags which are co-collected with refuse
Caerphilly County Borough Council	Co-mingled	Weekly	RCV	Separate food waste	Weekly	Wheeled bin 240 litres	Fortnightly	Weekly	No	Yes	Fortnightly	Provides bags which are co-collected with refuse
Rhondda Cynon Taff County Borough Council	Two stream	Weekly	RCV	Separate food waste	Weekly	Wheeled bin 180-240 litres	Fortnightly	Weekly	No	Yes	Weekly	Collected separately
Bracknell County Borough Council	Multi-stream	Weekly	Kerbloader	Separate food waste	Weekly	Non-reusable sack	Fortnightly	Fortnightly	Yes	No		
Newport City Council	Multi-stream	Weekly	Kerbloader	Separate food waste	Weekly	Wheeled bin 180 litres	Fortnightly	Fortnightly	No	Yes	Fortnightly	Collected on alternate week to refuse collection
Cardiff County Council	Co-mingled	Weekly	RCV	Separate food waste	Weekly	Wheeled bin 140 litres	Fortnightly	Fortnightly	No	Yes	Weekly	Collected separately
Vale of Glamorgan Council	Co-mingled	Weekly	RCV	Separate food waste	Weekly	Non-reusable sack - 2 sacks only	Fortnightly	Fortnightly	Yes	No		

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Collaborative Change Programme Support to Caerphilly County Borough Council

Caerphilly County Borough Council - KAT Modelling results – Further analysis



This report provides a summary of the outputs from modelling for service collection options at Caerphilly County Borough Council

WRAP's vision is a world where resources are used sustainably.

We work with businesses, individuals and communities to help them reap the benefits of reducing waste, developing sustainable products and using resources in an efficient way.

Find out more at www.wrapcymru.org.uk

Written by: WRAP Collaborative Change Programme Unit

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Executive summary

Caerphilly County Borough Council (CCBC) is being supported through the Welsh Government Collaborative Change Programme to investigate the impact of various recycling and waste collection options.

The current collection service comprises of a weekly comingled collection, weekly mixed garden and food collection and fortnightly residual waste collection.

WRAP's Kerbside Analysis Tool (KAT) is an Excel based spreadsheet tool, which allows users to make projections of kerbside collection infrastructure and associated standardised costs by applying default and user-defined values to key parameters. The projected costs are standardised in order to fairly assess the differences between options. **It is important to note that KAT modelling is relative and based on the current service; if efficiency savings could be made on the current services, then they would also be able to be made on all of the options considered.** As such it is the cost difference that is the relevant output of this work rather than the absolute numbers.

Two stream, three stream and kerbside sort options have been compared to the current service

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1.0 Introduction

1.1 Support Aims

Caerphilly County Borough Council (CCBC), supported by WRAP and the Welsh Government Collaborative Change Programme, is investigating the potential impacts of introducing one of a range of recycling and waste collection options. This report follows on from the previous papers 'Caerphilly KAT Modelling – Indicative results & assumptions' (issued July 2015 in which early indicative results from options modelling were presented) and 'Caerphilly County Borough Council - KAT Modelling results and assumptions' (issued November 2015).

After the indicative results were shared with the authority, a number of refinements and enhancements of the modelling work were undertaken by WRAP and included in the follow up paper issued in November.

The key changes to the modelling were as follows:

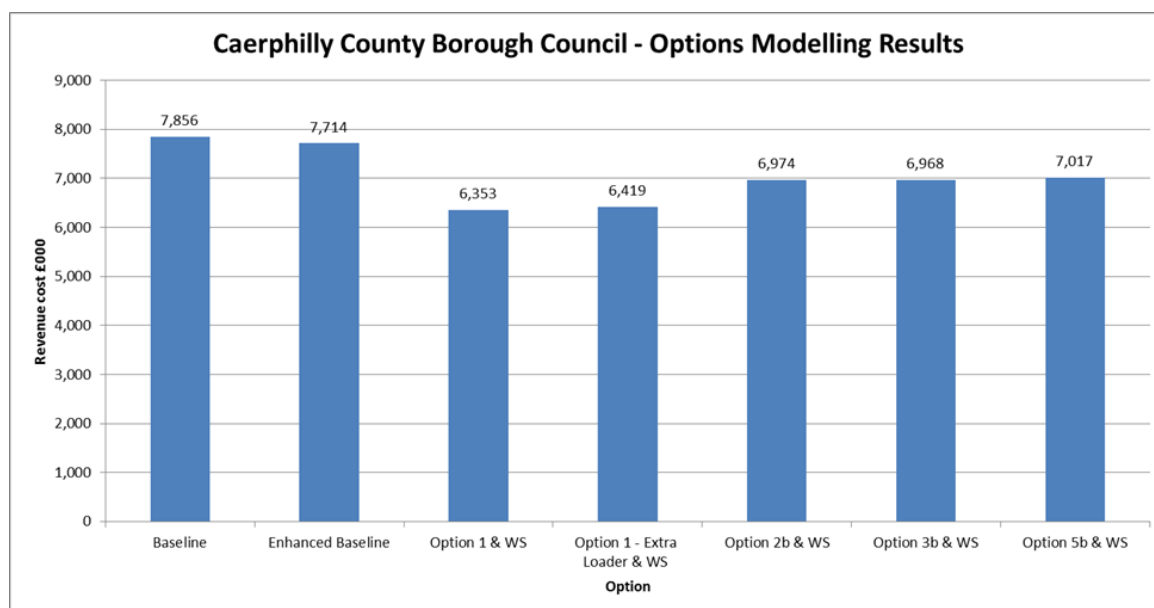
- In addition to driver +1 configuration, blueprint options modelled as driver +2 and driver +1.5.
- Paper/cardboard split updated to reflect the reduction in paper and increased cardboard yields seen.
- Examination of the effect that variations to material prices have on overall cost.
- Updated depot costings
- Additional collection option suggested by CCBC modelled (5b)
- Options modelled with fortnightly, 3 weekly and 4 weekly residual waste collection
- All core options also modelled with winter suspension of garden waste.

Results from previous paper 'Caerphilly County Borough Council - KAT Modelling results and assumptions' shown in fig 1 below.

Fig 1 – Previous modelling results

Revenue Expenditure	Baseline	Enhanced Baseline	Option 1 & WS	Option 1 - Extra Loader & WS	Option 2b & WS	Option 3b & WS	Option 5b & WS
Annual Capital - Vehicles	611,870	633,919	775,665	681,168	663,843	797,714	799,289
Containers	118,582	118,582	265,139	265,139	246,333	312,303	312,303
Operating costs	2,527,720	2,563,984	2,875,290	3,064,189	2,848,850	3,150,063	3,181,117
Supervision	370,644	370,644	370,644	370,644	370,644	370,644	370,644
Overhead	447,877	447,877	447,877	447,877	447,877	447,877	447,877
Restricted Access Collections	303,959	303,959	331,448	331,448	330,782	330,782	330,782
Spare Vehicles	184,979	153,133	219,159	190,125	173,867	183,741	200,429
Total collection	4,565,631	4,592,098	5,285,222	5,350,589	5,082,197	5,593,125	5,642,441
Bulking Costs	235,000	235,000	610,000	610,000	525,000	610,000	610,000
Treatment - Dry	1,520,140	1,520,140	-1,034,177	-1,034,177	-46,721	-672,004	-672,004
Treatment - Organic	645,904	478,084	461,994	461,994	461,994	461,994	461,994
Disposal - Residual	1,664,932	1,664,932	1,806,145	1,806,145	1,727,343	1,750,963	1,750,963
Income - Trade	-813,000	-813,000	-813,000	-813,000	-813,000	-813,000	-813,000
Costs - Trade	37,000	37,000	37,000	37,000	37,000	37,000	37,000
Total	7,855,606	7,714,253	6,353,184	6,418,551	6,973,813	6,968,078	7,017,395
Variation from E Baseline	141,353	0	-1,361,070	-1,295,702	-740,440	-746,175	-696,858

Fig 2 – Previous results



From the modelling undertaken previously, it can be seen that Option 1 exhibited the lowest cost overall. Options 2b, 3b and 5b were similar to each other in terms of cost and were all lower than the enhanced baseline.

In light of the above findings, and taking into account feedback from the authority, it was decided that further revisions to the modelling were required:

- Updated commodity prices – Latest available data to be used
- Reduced driver contribution in Option 1 + Extra loader. Previous 10% assumed driver contribution to be reduced to zero.
- Increased ratio of spare vehicles to frontline vehicles – Model updated to include a greater number of spare vehicles. Closer to current level of spares
- Garden waste containment – Brown wheeled bins previously modelled to be replaced by reusable sacks

Also, in light of the results of the previous modelling work, it was decided by the authority to reduce the number of options to be considered, with two preferred options identified for further modelling in addition to the blueprint and baseline options.

Options taken forward:

- Enhanced Baseline – Business as usual option, but with the mixed organic waste stream split into separately collected food and garden waste streams.
- Option 1 – WG Blueprint, source segregated collection of dry recycle and food using RRV
- Option 1 + Extra Loader – As Option 1, but with Driver +2 configuration rather than the Driver + 1 modelled in option 1.
- Option 5b – 3 stream dry recycling collection and food. Glass, plastics & cans, mixed paper & card and food waste collected using a combination of two twin chamber RCVs.

It was decided by the authority that the following options would not be explored further

- Options 2a and 2b – Small benefit in terms of cost compared to options 3b and 5b, but there was a significant potential risk in terms of compliance as a result of the commingled collection of glass with other recyclate.
- Options 3a and 3b – Slightly lower cost than Option 5b, but not taken forward due to concerns over the complexity and serviceability of the three chamber 'One Pass' vehicles.

1.2 Current Waste and Recycling Services

CBCC delivers an 'in house' kerbside waste and recycling service to approximately 77,614 households across the authority area. The current kerbside service is summarised in Fig 3 below.

Fig 3- CBCC Current Service Profile

Service	Frequency	Containers Used	Materials Collected
Dry Recycling	Weekly	240l wheeled bin (approx. 70% of households) Kerbside boxes (to approx. 25% households) Single use sacks (approx. 5% of households)	<ul style="list-style-type: none"> • Glass • Cans • Plastic Bottles • Mixed Plastic • Paper • Card
Food Waste	Weekly	5 Litre Internal Caddy 23Litre Kerbside Caddy	<ul style="list-style-type: none"> • All Food Waste
Garden Waste	Weekly	Reusable Sack	<ul style="list-style-type: none"> • All Garden Waste
Refuse	Fortnightly	240l wheeled bin (approx. 98% of households) Plastic sacks	<ul style="list-style-type: none"> • Residual Waste

1.2.1 Kerbside Dry Recycling

Every household in the authority receives a weekly commingled dry recyclate collection.

The authority currently uses a fleet of 9 standard RCVs to provide this service along with a smaller tipper vehicle to collect from areas of restricted access. The dry recycling vehicles offload at the authority's bulking station prior to material being sent for sorting to a MRF.

1.2.2 Kerbside Organics

All households across the authority receive a weekly food waste collection, with every household being provided with internal and external caddies. A weekly garden waste collection is also provided using reusable hessian sacks. Whilst food and garden wastes are

presented separately at the kerbside, they are mixed at the point of collection in a standard RCV. Collection fleet consists of 7 RCVs and up to two small caged vehicles for areas of restricted access.

1.2.3 Kerbside Residual Waste

Residual waste is collected fortnightly from all properties. Residual waste is currently collected by a fleet of 7 RCVs and up to two small caged vehicles. This material is then bulked at the authority's transfer station before onward transport to the Viridor EfW facility in Cardiff.

1.2.4 Other Council Services

CCBC operate six Household Waste Recycling Centres (Full Moon, Aberbargoed, Penallta, Penmaen, Trehir, Rhymney). Additionally, CCBC also operate 22 bring sites throughout the county.

CCBC operates a commercial waste and recycling service across the county. Residual waste is co-collected with household waste using a common fleet of RCVs. The mass of commercial waste collected is not directly measured, but recent work undertaken by WRAP on behalf of the authority estimated, based on the number of customers & lifts, that 3,325 tonnes of material is collected. Commercial recycling collections are also offered and again, material is co-collected with the household dry recycling fraction. The amount of commercial recycling is relatively low, estimated to be approximately 208 tonnes.

As commercial wastes are co-collected with household waste they have been included in the KAT model.

2.0 KAT Modelling

WRAP's Kerbside Analysis Tool (KAT) is an Excel based spreadsheet tool, which allows users to make projections of kerbside collection infrastructure and associated standardised costs by applying default and user-defined values to key parameters.

The first step in modelling the service is to create a baseline representative of the authority's current service. It is essential that the resources and logistics of the existing services are reflected as accurately as possible within this so that it serves as a reliable foundation for testing various alternative collection service options. Authority specific inputs to the baseline include information regarding the number and type of households, current services and service performance and resources. Known inputs (from the perspective of the model these include tonnages of each material type collected, numbers and types of households offered the service, assumed tipping locations) are calibrated to known outputs (which in modelling terms includes the numbers of crew and vehicles used to deliver the collection services).

Factors such as productivity, pass rates, participation rates, recognition rates (and therefore capture rates) are subsequently checked (where known), or developed from scratch where required (depending on the data available and its quality) to provide a full baseline model.

Put simply, the baseline model should accurately reflect:

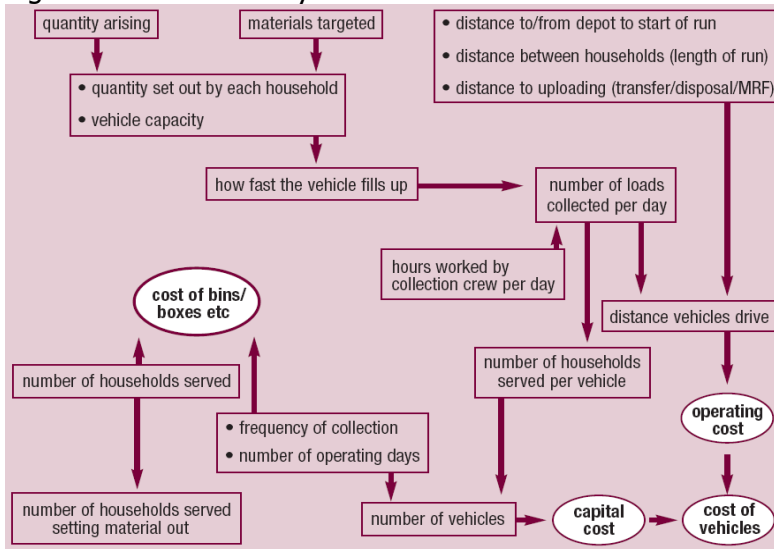
- Waste composition and tonnages;
- Current participation, set out, recognition and capture;
- Authority characteristics (household numbers, population, housing types, distances etc.);

- Travel logistics (time, distance, speed, pass rate, pick up time etc.); and
- Current vehicle and container types and costs.

This creates a sensible/credible basis from which to establish the change in resource requirements for different potential future service configurations, ensuring that CCBC’s specific constraints are properly reflected.

The key factors that influence the outputs from KAT are shown in Fig 4 below. KAT uses a series of calculations based on the inter-relationship between refuse collection and recycling to make projections of resources required for a new service provision.

Fig 4 – Overview of key factors in KAT model



For CCBC, KAT has been calibrated using the current collection arrangements. The majority of the data used in the model has been provided by the authority.

KAT outputs are derived from projections of the infrastructure and resource requirements for new services e.g. numbers of collection vehicles required, numbers of loads per day, number of rounds and average round size. All projections are based on average and therefore are indicative of the authority as a whole. The projections highlight the costs of the different options in direct relation to the operational and capital requirements of the vehicles required to deliver the various service options being considered.

The projected costs are standardised in order to fairly assess the differences between options. **It is important to note that KAT modelling is relative and based on the current service; if efficiency savings could be made on the current services, then they would also be able to be made on all other options modelled.** As such it is the costs **difference** that is the relevant output of this work rather than the absolute numbers.

2.1.1 The Enhanced Baseline

The enhanced baseline is created to ensure that a relevant and fair comparison is made with the current system. The current service has a slightly uneven working pattern. As such the enhanced baseline assumes that work is undertaken over an even working day of 7 hours. This results in a slight reduction in collection cost and reflects a more relevant “as is” picture if the current service carried on. It should be noted however, that the enhanced baseline does not address any other service inefficiencies. It is important to note that if the current system can be made more efficient then this should be applied to all options so the relative results will still stand.

CCBC are intending to collect food and garden wastes separately in future, so a variant of the enhanced baseline has been modelled to reflect this. In this option, the current combined organic collection via single chamber RCVs is replaced by a separate collection using twin chamber RCVs.

Seasonal garden waste collection variants have been applied to all of the options modelled and these are discussed further in Section 4.1.

2.2 Options Modelled

The future service delivery options are described below:

Fig 5 – Options modelled

Option	Description	Dry		Food		Green	
		Frequency	Vehicles & Containers	Frequency	Vehicles & Containers	Frequency	Vehicles & Containers
Baseline	Current Service	Weekly	RCV - Single stream commingled 240l wheeled bin	Weekly	RCV- Combined Food & Green Waste 23l Caddy & Reusable Sacks	Weekly	RCV- Combined Food & Green Waste 23l Caddy & Reusable Sacks
Enhanced Baseline & Separate Organic	Current Service plus efficiencies & Separate organic waste	Weekly	RCV - Single stream commingled 240l wheeled bin	Weekly	Twinpack - 23l Caddy	Weekly	Twinpack - Reusable sack
Option 1	WG Blueprint	Weekly	RRV - 3x Kerbisde boxes & lids	Weekly	RRV - 23l Caddy	Fortnightly	RCV - Reusable sack
Option1 + Extra Loader	As WG Blueprint additional loader on dry recycle collection	Weekly	RRV - 3x Kerbisde boxes & lids	Weekly	RRV - 23l Caddy	Fortnightly	RCV - Reusable sack
Option 5b	Multi-Stream	Weekly	Twinpack 1 - Fibres/Plastics & Cans. Twinpack 2 - Glass/food Reusable sacks & box for glass	Weekly	Twinpack - 23l Caddy	Fortnightly	RCV - Reusable sack
All Options - Fortnightly Residual - RCV 240l wheeled bin							
Run all options with separate food & seasonal garden							
Run all options with high and low commodity prices							
Run all options with 3 weekly & 4 weekly residual waste collection							

2.3 Assumptions

The following assumptions have been made as part of the options modelling process:

2.3.1 Depots

From the indicative modelling work it was clear that any service change would likely require a significant change to the current depot and waste transfer station infrastructure. WRAP is currently working with the authority on a detailed study of depot requirements and from this work, the likely cost of new infrastructure will be determined. In lieu of the results of this study being available, a high level estimate of cost has been produced to enable a comparison of options to be undertaken. However, depot costs used in the model will need to be updated when results of the depot study become available, therefore the final comparative option costs may be subject to change as a result.

In calculating the high level depot costs, the current cost of operating the waste transfer station, along with the contribution towards shared depot costs, have been extracted from the waste budget and are used in the baseline and enhanced baseline models.

It is assumed that for the other options the current transfer station would not be suitable for handling the dry recyclate and food waste collected. However, for these options, the current site would still be used for the deposit and bulking of residual wastes. The cost of operating the transfer station for residual waste only has been reduced by £25,000 to reflect the likely reduction in resources required onsite due to the removal of the dry recyclate stream.

Costs were then estimated for establishing and operating a separate facility for the handling of kerbside collected dry recyclate and food waste. The cost of such a site varies depending on the activities required to be undertaken onsite, however, as the material handling requirements of the alternative options considered are broadly similar, the costs of operating a depot for these options is assumed to be the same. It is assumed that the land used for the example site costed is leased rather than purchased, with the annual lease cost included within the revenue cost.

Fig 6 below shows both capital and revenue costs associated with a typical depot required for each collection option, along with the total annual revenue cost resulting from the operation of the depot.

Fig 6 – Depot costs

Capital Cost (£)			
Item	Baseline	Option 1	5b
Design		25,000	25,000
Geotechnical survey		5,000	5,000
Supervision		10,000	10,000
Concrete yard		400,000	400,000
Enclosed Structure		400,000	400,000
External Bays		60,000	60,000
Baler		150,000	150,000
Plastic & cans Sort		200,000	200,000
Loading Shovel		75,000	75,000
FLT		25,000	25,000
Food Skips		10,000	10,000
Total Capital		1,360,000	1,360,000
Annualised capital	0	155,392	155,392
Revenue Cost (£)			
Land Rent/Lease		60,000	60,000
Staff		125,000	125,000
Maintenance		15,000	15,000
Licenses & Permits		10,000	10,000
Baling Wire		6,000	6,000
Electricity		8,000	8,000
Loading shovel running costs		8,000	8,000
FLT Running costs		6,000	6,000
Other costs/contingency		10,000	10,000
Revenue Cost (excluding capital)	0	248,000	248,000
Total Revenue cost including capital	0	403,392	403,392
Residual Waste - Transfer	178,000	150,000	150,000
Shared depot costs	57,000	57,000	57,000
Total Depots & Bulking	235,000	610,392	610,392

2.3.2 Material Income

The previous models were calculated using material prices obtained at the end of December 2014. It was agreed that the models would be re-run using current material prices.

Material prices were obtained from the WRAP Material Pricing Report (MPR) for the month of October 2015, with the mid-point values for each waste stream used.

In addition to re-modelling with updated material prices, the effect that variations to prices would have on overall cost is examined by modelling using material prices 30% greater and 30% lower than those used in the core models.

Fig 7 – Material prices used in model

Material	Core	High	Low
Paper	-75	-97.5	-52.5
OCC	-72.5	-94.25	-50.75
Mixed plastics	-45	-58.5	-31.5
Glass	-5	-6.5	-3.5
Steel	-40	-52	-28
Aluminium	-610	-793	-427
Twin Stream			
Fibres (loose)	-50	-65	-35
Containers (inc Glass - Loose)	35	23	47
Fibres (bagged)	-35	-50	-20
Containers (inc glass - bagged)	50	38	62

Effect on MRF gate fees

It is acknowledged that commodity prices also affect MRF gate fees. Therefore MRF gate fees were varied as part of the sensitivity modelling.

It was assumed that the MRF gate fee is made up of an operating cost (i.e. labour, capital recharges, maintenance, energy use, profit etc.) less the income received from the sale of recycle to the market.

The 'operating cost' was estimated by taking the current gate fee and subtracting typical incomes from the sale of material processed during the same period (material prices taken from MPR).

For the sensitivity modelling, higher material incomes would result in lower MRF gate fees (i.e. greater income offsetting more of the operating cost) whilst lower material incomes would result in a higher gate fee. The same +/- 30% range of material prices was used.

Fig 8 below details the adjusted MRF gate fees used in the model.

Fig 8 – Adjusted MRF gate fees

Adjusted MRF Costs	Core	High	Low
Commingled dry	85	72	98

2.3.3 Vehicles

A range of vehicles were used in the modelling.

For consistency, the capital cost of vehicles for all options modelled are annualised over 7 years.

RCV

Based on Dennis chassis, single chamber compacting body with 16.7 m³ capacity.

RCV - Split back

Based on Dennis Chassis, vehicle comprises of twin chamber compacting body with total capacity of 16.2m³. Larger compartment 65% of total volume, smaller compartment 35%.

Resource Recovery Vehicle - RRV

A Romaquip Kerb sort multi compartment vehicle, with compaction for card and plastic.

Following work undertaken by WRAP, since 2007, RRVs have been developed as an alternative to stillage and Kerbsider type collection vehicles. Standard RRVs are mounted on 12 tonne chassis and are able to load on either one or both sides. They are typically crewed by a team of driver plus one loader.

Separate Food Waste/AHP vehicle

Terberg Plastic Bodied Utility Vehicle (PBUV). Non compacting body constructed from a polypropylene material. Mounted on 7.5t chassis with body volume of 7.5 m³.

Vehicle capacity

For the RRV vehicles an analysis was undertaken as to which compartments within the vehicle were rate limiting, and therefore the likely overall capacity of the vehicle was calculated.

From a detailed specification obtained from the manufacturer, the volumes of the internal compartments within the vehicle were deduced.

It is acknowledged that not all of the available volume within the compartments can be used, therefore the useable volume for each compartment was estimated.

Based on the density and the likely yield of materials collected, it is possible to calculate the number of households that can be collected from before a compartment is full.

Clearly, once a compartment is full the vehicle will need to return to the bulking station to be emptied even if space exists in the other compartments. It is likely therefore that the utilisation of available space within the vehicle will be significantly less than 100%.

From the analysis carried out (see fig 9) it can be seen that typically, the rate limiting compartment on the vehicle will be Cardboard. The analysis would suggest that the vehicle would need to be emptied after passing 582 properties. The analysis would also suggest that at this point 64% of the nominal volume of the vehicle is used.

The % utilisation figure is used within the KAT model to determine the capacity of the collection vehicle. In order to be conservative, a lower utilisation figure of 60% was used in the KAT model.

Fig 9 – Analysis of rate limiting compartment RRV

Material	Nominal Volume (m ³)	Usable volume (m ³)	Density (kgm ⁻³)	Compaction Ratio	Mass (kg)	Av Yield per hh (kg)	Households collected	Mass at hh limit (kg)	Volume used (m ³)
Paper	4.4	3.6	300	1	1,080	1.24	873	720	2.4
Card	4.8	4	60	2	480	0.83	582	480	4.0
Plastics & Cans	19	17	31	1	527	0.67	783	392	12.6
Glass	4.9	4	400	1	1,600	1.09	1,469	634	1.6
Food	2.6	2.2	500	1	1,100	1.57	700	914	1.8
Additional (textiles)	1.5	1							1.0
Total	37.2	31.8			4,787	5.40		3,139	23.4
Households collected at limit									582
% Utilisation (Usable volume)									75%
% Utilisation (Nominal volume)									64%

2.3.4 Yield

Mass data was provided by CCBC/WasteDataFlow for the current service for calendar year 2014:

Fig 10 – Mass Collected

Material	Household	Non-Household
Commingled Dry	17,884	5,592
Commingled Organic	11,534	0
Refuse	27,635	3,352

Commercial residual waste is co-collected with the household waste. Recent work undertaken on behalf of CCBC estimates the mass of commercial residual waste to total 3,352 tonnes. For the purposes of the modelling it is assumed that this arrangement would remain across all of the options modelled. The non-household portion of the waste stream is therefore included in the KAT models. It is recognised that the collection of commercial residual waste will incur both costs (from collection and disposal) and income (from commercial waste customers) both of which are included in the modelling results.

The non-household element of kerbside dry recycling recorded in WDF is not collected by the main collection fleet, so is excluded from the KAT models.

In order to model the additional options, it is necessary to estimate the yield and composition of the commingled waste streams currently collected.

Dry Recycling

Data from WDF Q100 put the average MRF contamination rate for the commingled dry recycling stream at 13.68%

It is therefore assumed that of the 17,884 tonnes of commingled material collected at the kerbside, 15,438 tonnes is target material. For options 1 to 5 it is assumed that the mass of target material collected remains constant, but that non target material collected with it, but subsequently rejected, varies (i.e. 0.5% reject rate assumed for separate collections, 10% for three stream).

The mass of dry recyclate collected at the kerbside will be less for Kerbside sort options and three stream options compared to the baseline commingled service. This is due to a reduction in the amount of contamination collected along with the target material compared

to the baseline commingled service). However the amount collected and subsequently recycled (i.e. the target material) will be the same for all options.

It is also assumed that non-target material previously collected via the commingled system that would not be collected in KSS or twinstream systems would instead be collected via the domestic residual service. Therefore, for all of the core options modelled, the overall total waste arisings are constant.

The yield calculation is dependent on the reported MRF reject rate being as accurate as possible. The MRF reject rate will be due to both the collection of non-target material and from target material being incorrectly or incompletely sorted at the MRF.

An overall yield of 199 kg per household is calculated by this method.

Whilst this figure in absolute terms is higher than a number of other Welsh authorities which operate a kerbside source segregated collection, it should be viewed in context.

CCBC have the 3rd highest municipal waste arisings per household in Wales. When yield from kerbside dry recyclate of 199kg is taken as a percentage of total MSW, we get a figure of 16.06% (15445 tonnes from Total MSW 96,180)

For comparison, other authorities in South Wales operating a source segregated collection are achieving similar yields:

Newport – 194kg per household, 17.88%
Bridgend – 177kg per household, 16.14%

In addition, early data from Merthyr Tydfil further supports the premise that the yield modelled is achievable with source segregated collection. Based on a 13 week sample of data following the recent service change, the overall annual yield of kerbside dry recycling can be estimated:

Merthyr Tydfil – 214 kg per household

Based on the total municipal waste arisings for 2014/15, a kerbside dry recyclate yield of 214 kg per household per year as calculated would represent 18.4% of total MSW, a figure in excess of that modelled for CCBC.

From the available data, the 199kg dry recycling yield calculated for CCBC, which represents 16% of total municipal waste arisings for the authority, is slightly lower than the yields seen in Newport (17.9%) and Merthyr Tydfil (18.4%) , and broadly similar to that seen in Bridgend (16.1%).

Composition

In order to model separate collection, it is necessary to determine the composition of the commingled dry recycling stream. This can be estimated based on outputs from WDF Q100:

Fig 11 – Composition data

Q100 Composition Data	
Material	%
Glass	25%
Paper & Card	47%
Metal	4%
Plastics	11%
Reject	14%

Using data from WDF Q100 and data gathered by WRAP from WDF and elsewhere, it is then possible to estimate composition of the mixed waste streams shown in the above table.

Fig 12 – Composition of mixed recyclate streams

Composition of mixed streams	
Paper & Card	
Paper	60%
Card	40%
Plastics	
Film	15%
Bottles	50%
Rigid	35%
Cans	
Steel	71%
Aluminium	29%

Since the first iteration of the model, additional data has become available from other Welsh local authorities, and from the initial indicative results of the national waste composition study, which would suggest that the proportion of cardboard within the mixed paper and card stream is likely to be higher than that modelled initially.

Given that cardboard is significantly less dense than paper, the effect of additional cardboard on collection modelling could be significant, having higher volumes of cardboard in the dry recyclate stream is likely to require more resources to collect it.

Therefore the composition of the dry recyclate stream has been updated in the latest models to reflect the increasing amounts of card collected.

From the available data, it is possible to estimate the overall kerbside yield for each material stream:

Fig 13 – Yields used in KAT models

Material	Current		Option 1		Option 5	
	Total	kg/hh	Total	Kg/hh	Total	kg/hh
Paper	4,995	64	4,995	64	4995	64
OCC	3,330	43	3,330	43	3,330	43
Film	295	4	295	4	295	4
Bottles	984	13	984	13	984	13
Rigid	689	9	689	9	689	9
Glass	4,396	57	4,396	57	4,396	57
Steel	534	7	534	7	534	7
Alu	214	3	214	3	214	3
Reject	2,446	32	77	1	1,104	14
Total Dry (collected)	17,884	230	15,515	200	16,542	213
Total Dry ex reject	15,438	199	15,438	199	15,438	199
Residual (HH)	27,635	356	30,004	387	28,977	373
Residual (trade)	3,352	43	3,352	43	3,352	43
Food	6,344	82	6,344	82	6,344	82
Green	5,190	67	5,190	67	5,190	67
Total Organic	11,534	149	11,534	149	11,534	149
Total Arisings	60,405	778	60,405	778	60,405	778

3 weekly & 4 weekly refuse

The effect of additional residual waste restrictions has also been considered in the modelling. Based on results obtained from other local authorities who have introduced 3 weekly and 4 weekly residual waste collections, material yields have been varied to reflect likely uplifts in both dry recycle and food waste as a result of less frequent residual waste collection.

However, a number of other factors also need to be taken into account:

AHP Collection

It is likely that a separate collection service for Absorbent Hygiene Products (AHP) would be required for 3 & 4 weekly refuse options.

Yield is estimated based on the amount of this type of material within the residual waste stream and the frequency of residual waste collection (i.e. more material collected when 4 weekly residual collections in place compared to 3 weekly residual)

Fig 14 – AHP Yield calculation

AHP Collection - Yield	
Total Residual (household)	27037
AHP as % of Residual (from comp analysis)	11.50%
Mass AHP	3109
Capture %	40%
Mass for collection	1244
Collection Weeks (3 weekly Residual)	17
Weeks AHP Collected	35
Mass separately collected	837
Collection Weeks (4 weekly Residual)	13
Weeks AHP Collected	39
Mass separately collected	933

Separate trade waste collection

Given that trade waste is currently co-collected with residual waste, it is likely that a separate collection vehicle would be required to service existing trade customers during weeks where no household residual collections are planned.

It is estimated that approximately half of the current trade waste would be collected on a dedicated vehicle.

The updated trade waste arising figure of 3,352 tonnes, estimated as part of the recent trade waste project undertaken at CCBC, has been used.

Diversion of material to HWRC

It is likely that some material would be diverted to HWRC as a result of increased residual restriction. This has been estimated as 4% of total household residual waste for 3 weekly and 6% for 4 weekly collections.

Waste Reduction effect

Data from other authorities operating 3 & 4 weekly collections would suggest that a reduction in overall waste arisings, albeit small, will occur as a result of introducing less frequent residual waste collection. A reduction factor of 2% of total household residual waste for 3 weekly collection and 4% for 4 weekly collections has been applied.

The effect of these changes can be seen in figs 15 & 16 below.

Fig 15 – Material yields 3 weekly residual

Material	Option 1 - 3W		Option 5 - 3W	
	Total	kg/hh	Total	Kg/hh
Paper	5,245	68	5,245	68
OCC	3,830	49	3,830	49
Film	310	4	310	4
Bottles	1,132	15	1,132	15
Rigid	792	10	792	10
Glass	4,528	58	4,528	58
Steel	614	8	614	8
Alu	247	3	247	3
Reject	83	1	1,217	16
Total Dry (collected)	16,781	216	17,914	231
Total Dry ex reject	16,697	215	16,697	215
Residual (HH)	27,210	351	26,077	336
Residual (trade)	1,676	22	1,676	22
Separately collected trade	1,676	22	1,676	22
Diverted Residual to HWRC	1,105	14	1,105	14
Waste reduction factor	553	7	553	7
Food	7,612	98	7,612	98
Green	5,450	70	5,450	70
Total Organic	13,062	168	13,062	168
Total Arisings	59,852	771	59,852	771

Fig 16 – Material yields 4 weekly residual collection

Material	Option 1 - 4W		Option 5 - 4W	
	Total	kg/hh	Total	kg/hh
Paper	5,495	71	5,495	71
OCC	4,329	56	4,329	56
Film	340	4	340	4
Bottles	1,279	16	1,279	16
Rigid	896	12	896	12
Glass	4,836	62	4,836	62
Steel	694	9	694	9
Alu	279	4	279	4
Reject	91	1	1,331	17
Total Dry (collected)	18,238	235	19,478	251
Total Dry ex reject	18,147	234	18,147	234
Residual (HH)	24,859	320	23,619	304
Residual (trade)	1,676	22	1,676	22
Separately collected trade	1,676	22	1,676	22
Diverted Residual to HWRC	1,658	21	1,658	21
Waste reduction factor	1,105	14	1,105	14
Food	8,247	106	8,247	106
Green	5,709	74	5,709	74
Total Organic	13,956	180	13,956	180
Total Arisings	59,300	764	59,300	764

3.0 Core results

The following section seeks to present the headline results and draw out the key findings. The costs are broken down as follows:

Vehicle Capital – This is the annualised capital cost of the core fleet used in each option, based on financing over 7 years. Tipper vehicles and spare vehicles are accounted for separately.

Operating Costs – This includes all costs relating to direct operational staff (drivers and loaders), Fuel and vehicle maintenance costs and standing charges relating to vehicles.

Containers – On going replacement costs for existing containers (i.e. 240l residual bins) are included in the KAT model, however it is assumed that there is no repayment of capital required for the existing containers. In options where new containers are required (e.g. boxes for kerbside sort) capital repayment costs are included within the model in addition to ongoing replacement costs.

Restricted access vehicles – All costs relating to restricted access routes are accounted for, including annualised capital costs for vehicles, staff costs, fuel and vehicle maintenance.

Spare vehicles – Annualised capital costs for spare vehicles are included along with maintenance costs and standing charges.

Bulking costs – costs relating to operation of bulking facilities.

Dry Treatment – This includes the treatment cost of dry recyclate collected, including any income received from sale of material.

Organic Treatment – This includes costs relating to treatment of food & garden waste, based on current arrangements.

Residual Disposal –this includes the treatment and disposal costs relating to residual waste collected, along with cost of disposal of rejected material where applicable.

Trade Income – Income from trade waste service included as trade residual co-collected with household waste

Trade Costs – Additional costs resulting from operation of trade waste service

Supervision and Overheads -

Supervision and management is assumed to be constant across all option, Figures supplied by CCBC used.

3.1 Options Modelled

Option 1 follows the WG Blueprint. Option 5 is a 3 stream configuration, with material presented in a combination of boxes and reusable bags for collection.

Table in Fig 17 shows the revenue cost for the core options modelled. As can be seen, Option 1 exhibits the lowest cost of the options modelled, £1.14m less than the enhanced baseline option.

The variant of Option 1 with additional loader does exhibit higher costs than Option 1 with a single loader, approximately £180,000 more, but cost calculated for this option is still approximately £330,000 lower than the three stream collection modelled in 5b.

Whilst collection costs for option 1 are around £750,000 more expensive than the enhanced baseline, the cost of processing the collected material is far less in option 1. The enhanced baseline sees costs in excess of £1.5m resulting from MRF gate fees & haulage costs compared to an income of just over £870,000 is seen in Option 1 from the sale of separately collected dry recycle.

A similar pattern is seen in Option 5, with higher collection costs, in excess of those modelled in the enhanced baseline, offset by income generated from the sale of the collected material (as opposed to MRF treatment costs).

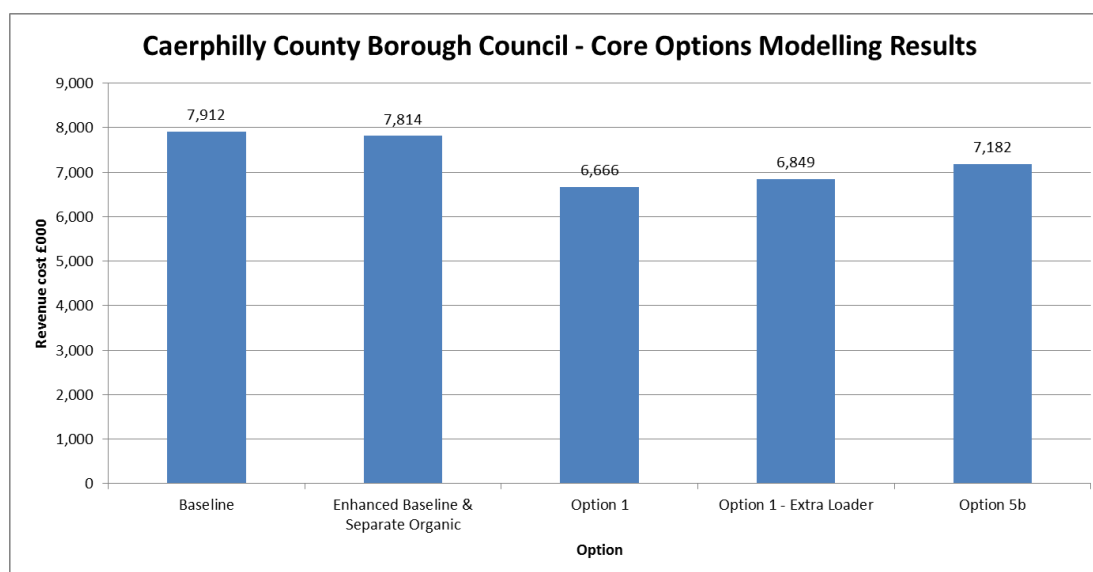
Incomes in option 5 are lower than those in option 1, with just over £720,000 income generated. This is largely due to the reduced income realised from the sale of mixed paper and card compared to the sale of separately collected paper and card fractions in option 1.

Work currently being undertaken by WRAP examining the potential options for bulking facilities and depots for CCBC will also examine whether potential exists to separate cardboard from one of the mixed streams onsite, thus increasing overall income from sales. The additional cost of this activity, if deemed technically possible, will need to be considered alongside the potential increased income.

Fig 17 – KAT modelling results – Core options

Revenue Expenditure	Baseline	Enhanced Baseline	Option 1	Option 1 - Extra Loader	Option 5b
Annual Capital - Vehicles	611,870	633,919	775,665	700,067	799,289
Containers	118,582	118,582	202,592	202,592	301,958
Operating costs	2,527,720	2,572,000	3,017,241	3,305,249	3,313,662
Supervision	370,644	370,644	370,644	370,644	370,644
Overhead	447,877	447,877	447,877	447,877	447,877
Restricted Access Collections	303,959	303,959	331,448	331,448	330,782
Spare Vehicles	240,874	244,874	294,638	265,604	289,020
Total collection	4,621,526	4,691,855	5,440,104	5,623,481	5,853,232
Bulking Costs	235,000	235,000	610,000	610,000	610,000
Treatment - Dry	1,520,140	1,520,140	-878,841	-878,841	-720,651
Treatment - Organic	645,904	478,084	478,084	478,084	478,084
Disposal - Residual	1,664,932	1,664,932	1,792,201	1,792,201	1,737,019
Income - Trade	-813,000	-813,000	-813,000	-813,000	-813,000
Costs - Trade	37,000	37,000	37,000	37,000	37,000
Total	7,911,502	7,814,011	6,665,548	6,848,925	7,181,685
Variation from E Baseline	97,491	0	-1,148,462	-965,085	-632,326

Fig 18 – KAT modelling results – core options



Daily Pass Rates

One of the key outputs from the KAT model will be the number of vehicles/crews required for each collection option modelled.

This is affected by a number of factors, such as the mass and density of material set out for collection, the number of households setting out waste for collection in any given week, the capacity of the collection vehicle, crew size, distances travelled, amount of productive and non-productive time in a day, current productivity, time required to empty different waste container types etc.

The KAT model takes all of these factors into consideration when performing the necessary calculations to quantify the level of resources required for each option modelled.

Once the number of vehicles has been calculated, it is possible then to work out the daily average pass rate for each element of the service (i.e. The average number of households each vehicle drives past in a day)

In light of the modelling results presented to the authority, concerns were raised about how achievable the modelled levels of productivity were for the WG Blueprint options (Option 1).

It is useful therefore to compare the pass rates as calculated by the KAT model for CCBC with other authorities operating similar collection systems.

Table in fig 19 below shows the daily average pass rates for a number of local authorities.

Fig 19 – Daily pass rates

Council	Daily Pass rate	Crewing
Newport	765	D+1
Anglesey	680	D+1
Bridgend	750	D+1
Merthyr Tydfil	540	D+1
Blaenau Gwent	711	D+2
Conwy	622	D+2

It can be seen that the calculated pass rate of 616 households per day (for driver + 1) for CCBC is comparable to a number of the authorities sampled, lower than the pass rates achieved by Newport, Anglesey and Bridgend, but higher than those seen in Merthyr Tydfil. Anecdotally, it does appear that now the new service has had time to bed in, some spare capacity exists in the Merthyr Tydfil rounds. With collection rounds routinely finishing ahead of time, potential may exist for a reduction in collection fleet numbers, with a resultant increase in the average daily pass rate.

The daily pass rate of 725 households when the driver + 2 configuration as modelled is broadly similar to that of Blaenau Gwent and is lower than that seen in Bridgend and Newport who operate the service with a single loader. The figure modelled does however exceed that seen in Conwy.

Due to the many and varied factors affecting productivity, it is difficult to compare figures directly with other authorities, but the figures calculated do appear to be in the range of what could realistically be achieved.

4.0 Sensitivities Modelled

4.1 Seasonal garden waste

The current garden waste service is run weekly all year round, largely due to the fact that garden waste is co-collected with food. Garden waste is extremely seasonal and in winter months very little is produced by households. Many authorities either suspend their service or reduce the frequency of collection over the winter months as a result.

In Options 1 & 5, garden waste is collected on a fortnightly basis in a dedicated vehicle; consequently, it is relatively straightforward to suspend the service over the winter months.

Following discussions with CCBC it was felt that the existing brown recycling bin would not be suitable for garden waste collection due to the potential for increased contamination.

It is therefore assumed that householders would continue to be provided with reusable sacks for presentation of garden waste. It should be noted however that WRAP do have concerns regarding manual handling for garden waste collection using this type of container.

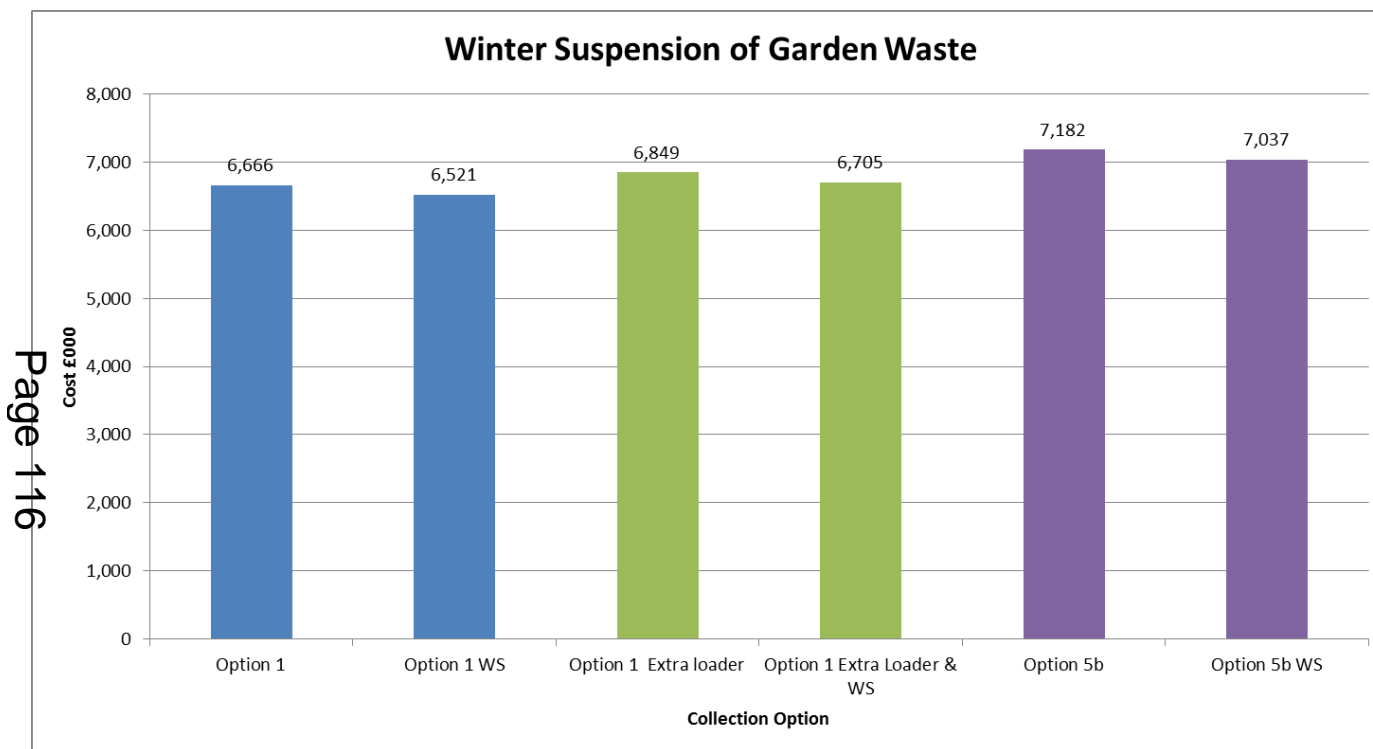
The model has been adjusted to take into account the difference in cost of providing sacks rather than wheeled bins. The collection of bagged materials is likely to be marginally quicker than a corresponding service using bins, but as it is difficult to estimate the resource required for collection of garden waste due to the extremely seasonal nature of collections, the same level of resource has been modelled as previously.

The cost of providing a weekly collection of garden waste for options 1 and 5 has not been modelled, however it is estimated that an additional 2-3 RCVs and crew would be needed, adding approximately £300,000 to the core model cost.

The projected costs of options with suspended garden waste are shown in the chart in fig 20 below, alongside the cost of the corresponding core option.

Fig 20 – Winter suspension of garden waste

Option	Option 1	Option 1 WS	Option 1 Extra loader	Option 1 Extra Loader & WS	Option 5b	Option 5b WS
Cost £000's	6,666	6,521	6,849	6,705	7,182	7,037



It can be seen that in all cases a similar cost saving of approximately £140,000 could be realised from suspending garden waste collections over the winter months.

It is assumed that all labour savings can be realised, though this will require appropriate planning and flexibility. Vehicles will still incur standing cost when not used (insurance, tax etc.), however fuel and other running costs will not be incurred.

4.2 Additional loaders for blueprint options

As requested by CCBC, the blueprint option, Option 1, was modelled with an additional loader per vehicle.

In addition to modelling collections with an extra loader, the model was also run with an additional 0.5 loaders per vehicle. This was to reflect the option of retaining a driver +1 configuration for half of the collection rounds and the operation of driver +2 for the rest.

Fig 21 below shows the relative costs of the driver +1, driver + 1.5 and driver +2 configurations.

Fig 21 – Cost comparison – Additional loaders Option1

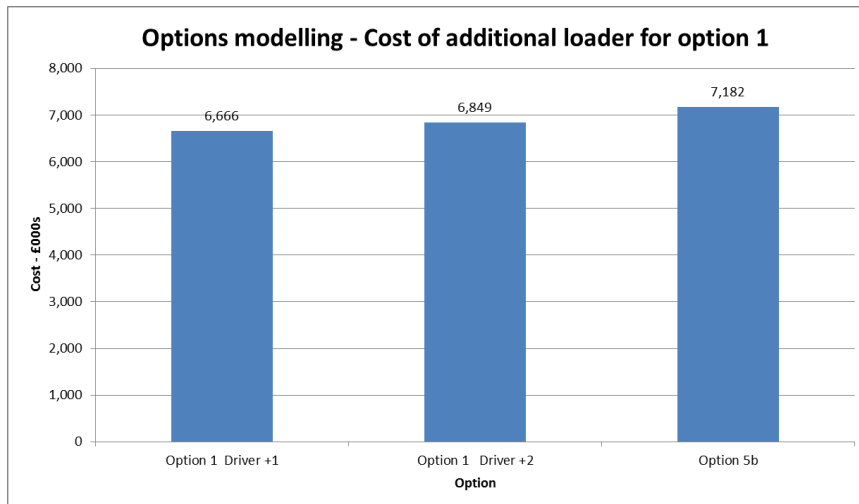
	Option 1 Driver + 1	Option 1 Driver + 1.5	Option 1 Driver + 2
Cost - £000s	6,666	6,710	6,849
Difference from core	-	44	183
Vehicles	24.4	21.8	20.7
Av daily pass rate	616	688	725

The addition of a second loader does increase collection costs; however the increased productivity from having a second loader on the vehicle increases the daily pass rate of the collection vehicle and thus reduces the number of vehicles required overall.

The model was modified with a zero figure assumed for driver contribution (previously 10%). The resulting reduction in productivity means that more vehicles and crew would be required than previously modelled. The daily pass rate dropped from 761 households per day to 725, with an additional vehicle needed as a result. Consequently, the cost of this option increased relative to the core option. However, as was the case previously, the overall cost modelled for option 1 with the additional loader is still less than that calculated for Option 5.

Fig 22 – Cost comparison – Additional loader

	Option 1 Driver +1	Option 1 Driver +2	Option 5b
Cost - £000s	6,666	6,849	7,182



4.3 Effect of commodity prices

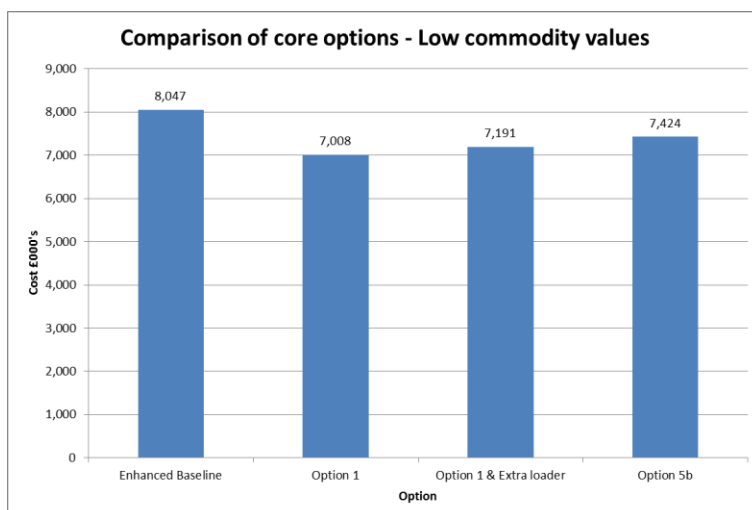
The original commodity prices used in the model were updated with the latest data available from the WRAP Materials Pricing Report (MPR). The figures used were from October 2015, and in general prices are lower for most of the materials modelled compared to the previous data used. This means that overall service costs are higher across all of the alternative collection options modelled, however, the relative positions of the options considered is largely unchanged.

The effect of possible future variations to the commodity prices modelled was also examined.

4.3.1 Low commodity prices

Using the methodology described previously in section 2.3.2 commodity prices in the modelling were reduced by 30% and the adjusted MRF gate fee was used. Fig 23 below shows the costs of core options modelled with low commodity prices:

Fig 23 – Kat modelling results – Low commodity values

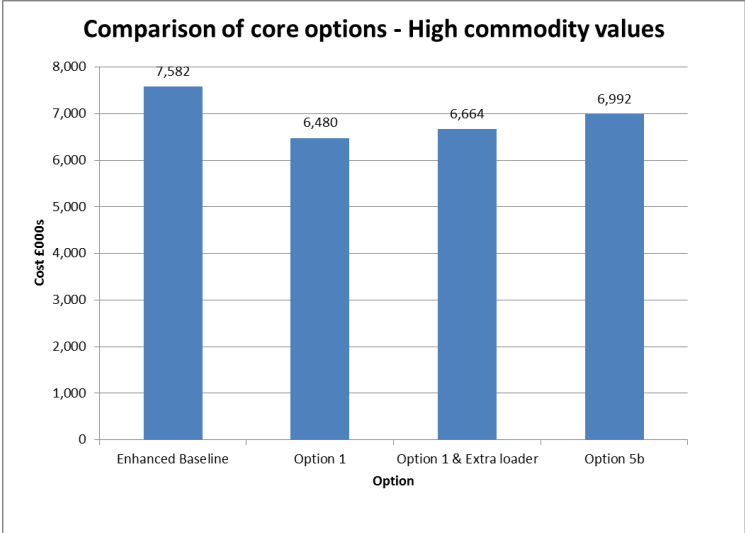


Overall, reduced incomes from the sale of materials result in increased service costs for all of the options modelled. Option 1 remains significantly cheaper than the enhanced baseline, though the difference is reduced to just over £1m. Option 1 also remains the lowest cost option overall, £416,000 less than option (5b). When the variant of option 1 with an additional loader is considered, the differential is reduced to £233,000.

4.3.2 High commodity prices

Again, using the same methodology, commodity prices were increased by 30% compared to those used in the core model. The updated MRF gate fee was also used. Results are shown in fig 24 below.

Fig 24 – Kat modelling results – High commodity values



Increased income from the sale of recyclate resulted in lower costs overall. Option 1 was the lowest cost option overall, approximately £1.1m cheaper than the enhanced baseline. The difference between option 1 and option 5b is more pronounced, with option 1 costing £512,000 less. The addition of a second loader reduces this differential to £328,000.

Ultimately, whilst commodity prices have a significant impact on overall service costs; the relative position of the options being compared remains unchanged.

It should also be noted that high quality separated material is likely to command higher prices and will be easier to sell during periods of low market prices.

4.4 Additional restriction to residual waste

3 & 4 weekly collection

The core options were modelled with increased yields arising from the less frequent collection of residual wastes.

The chart on fig 25 below shows the cost of the core options as modelled with 2 weekly, 3 weekly and 4 weekly refuse collection.

Fig 25 – KAT modelling results – Additional residual waste restriction



For both 3 and 4 weekly collection the increase in yield of food waste and dry recycling results in an increase in resources required to collect the material. The increased average household yield means that vehicles will fill quicker and the collection rounds themselves will be slower.

For example, when considering Option 1, with current residual waste restriction, the collection vehicle will be full after passing 582 properties, and overall a total of 616 households will be passed per day by each vehicle (requiring 2 trips to the bulking facility). However when the frequency of residual waste collection is reduced to once every 4 weeks, the increased material yield means that the vehicle will, on average, be full after passing 447 properties, and overall the additional work required to collect the additional waste means that the daily pass rate will also be reduced to 553 households. The number of visits each vehicle is required to make to unload at the bulking facility remains at 2 per day, but the lower daily pass rate due to the increased yield means that more vehicles are required overall.

To some degree, this increase in collection cost is offset by the reduction in frequency of residual waste collection and the resulting reduction in the number of residual waste collection vehicles and crews required.

The uplift in recycling yields, and consequent reduction in residual waste collected also results in savings from lower disposal costs and higher incomes from the sale of material, though there is also a significant increase in the treatment cost associated with food waste.

In general terms, the net cost of treatment and disposal of collected material decreases with reduction in frequency of residual waste collection.

However, the reduction in frequency of residual waste collection requires the establishment of collection services for Absorbent Hygiene Product (AHP), and it is assumed that a separate trade waste collection vehicle would be required to collect from premises during periods where no residual waste collections are made.

AHP costs

Service provided using a caged tipper or similar vehicle. Crewing level is assumed to be a driver + 1 loader.

Fig 26 – AHP service cost

Residual Frequency	Vehicles required	Annualised capital	Bags	Operating cost	Total
4 weekly	4.3	35,436	22,198	296,704	354,338
3 weekly	3.8	28,349	22,198	257,776	308,323

CCBC suggest that separate AHP collection may not be required for 3 weekly residual collection options. In this case, the cost of operating the collection, £308,323 can be removed from the overall option cost. This will not affect the relative position of the options being considered as the same cost will need to be removed from all, however, the overall service cost would be lower than that calculated for 4 weekly collection of residual waste.

4 weekly Residual collection – vehicle numbers

Some concerns were raised by CCBC regarding the number of vehicles calculated for the collection of residual waste for the 4 weekly residual collections.

For example, in option 1, the number of RCVs required reduces from 6.5 to 3.7 vehicles.

This is partly due to the reduction in frequency itself, but also due to the additional diversion of material from the residual waste stream to the food and dry recycle collection services. Some material previously collected, namely a portion of commercial waste and AHP will also move to dedicated collection rounds, further reducing the mass of residual waste to be collected.

With the current fortnightly residual collection, for option 1 it has been calculated that 32,703 tonnes of residual waste would be collected by 6.5 vehicles. This equates to an average mass per vehicle per day of 19.35 tonnes.

The average daily pass rate per vehicle for this collection is calculated as 1,159 properties per day.

With a 4 weekly collection, the mass collected is reduced significantly to 22,361 tonnes. With 3.7 collection vehicles, this equates to 23.2 tonnes per day per vehicle. The daily mass per vehicle is higher than modelled for the 2 weekly residual collection, however it is assumed that due to the less frequent collection, both set out rate and the average mass of material presented by the householder per collection is increased. This results in significantly shorter rounds, albeit with heavier average bin weights (round is reduced to 954 properties per day).

Trade Waste Costs

Fig 27 – Additional trade round cost

Additional Trade round	
Resource	Annual cost
26t RCV	42,996
Driver	29,675
Loader	27,028
Total	99,699

The additional costs from these services mean that overall, the difference in costs between the core options and those for 3 & 4 weekly refuse options are relatively small.

Cost of 3 weekly options are slightly higher than the corresponding core option, whilst the 4 weekly options are generally slightly lower in terms of cost when compared to the core options.

Whilst there may be little benefit in terms of cost, the move to less frequent residual waste collection as modelled does have a beneficial effect on overall recycling rate.

Based on the arisings used for the modelling, and from recycling rates during the same period, the uplift to overall recycling rate resulting from the expected increased yield of dry recyclate and food waste can be calculated.

Moving to a three weekly collection of residual waste would result in an increase of 3.2 percentage points to the overall recycling rate. Whilst moving to a 4 weekly collection cycle would result in an increase of 8.5 percentage points.

Fig 28 – Recycling rate uplift – additional residual waste restriction

	Total Dry Reuse (tonnes)	Total Dry Recycling (tonnes)	Total Composting (tonnes)	Total Municipal Waste (tonnes)	Average Dry Reuse Rate	Average Dry Recycling Rate	Average Composting Rate	Average Reuse, Recycling & Composting Rate	Difference
Baseline	160	32327	23218	99575	0.16%	32.46%	23.32%	55.94%	
Adjustment for 3 weekly	0	1259	1528	-624					
Revised output	160	33586	24747	98951	0.16%	33.94%	25.01%	59.11%	3.17%
Adjustment for 4 weekly	0	2709	1851	-1118					
Revised output	160	36295	26598	97832	0.16%	37.10%	27.19%	64.45%	8.51%

4.5 Trolibocs

As a sensitivity, the cost of providing Trolibocs to all householders for Option 1 was modelled. Trolibocs are significantly more expensive than providing standard boxes and lids, with a unit price of around £28 (as obtained from WRAP Container framework) compared to just under £10 for 3 standard boxes.

Ultimately, provision of Trolibocs all households would have a capital cost of £2.1m. Written off over 10 years, this would represent an additional revenue cost of £154,000 per annum over and above that calculated for the core blueprint option.

5.0 Conclusions and Recommendations

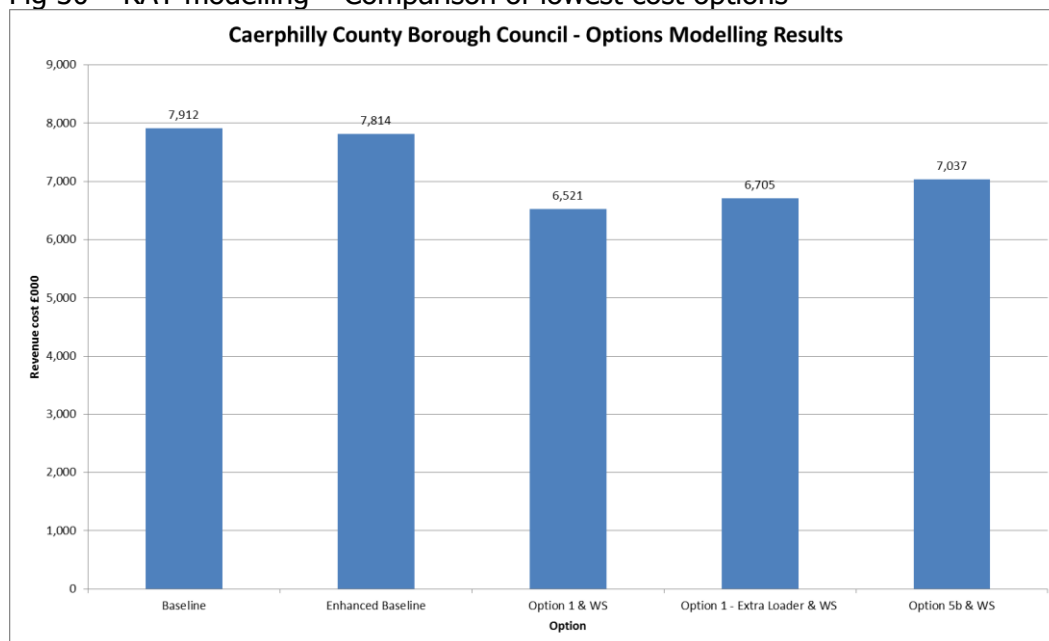
From the modelling work it is possible to draw a comparison of costs across the range of options modelled. From the sensitivities modelled, it is shown that a fortnightly collection of green waste, coupled with a suspension of that service over the winter months will realise a cost saving for all options.

Therefore, to ensure a fair comparison, the table and chart below show the costs for all options with this configuration for green waste.

Fig 29 – KAT Modelling results – comparison of lowest cost options

Revenue Expenditure	Baseline	Enhanced Baseline	Option 1 & WS	Option 1 - Extra Loader & WS	Option 5b & WS
Annual Capital - Vehicles	611,870	633,919	775,665	700,067	799,289
Containers	118,582	118,582	202,592	202,592	301,958
Operating costs	2,527,720	2,572,000	2,875,290	3,163,298	3,171,117
Supervision	370,644	370,644	370,644	370,644	370,644
Overhead	447,877	447,877	447,877	447,877	447,877
Restricted Access Collections	303,959	303,959	331,448	331,448	330,782
Spare Vehicles	240,874	244,874	294,638	265,604	289,020
Total collection	4,621,526	4,691,855	5,298,153	5,481,530	5,710,687
Bulking Costs	235,000	235,000	610,000	610,000	610,000
Treatment - Dry	1,520,140	1,520,140	-878,841	-878,841	-720,651
Treatment - Organic	645,904	478,084	461,994	461,994	461,994
Disposal - Residual	1,664,932	1,664,932	1,806,145	1,806,145	1,750,963
Income - Trade	-813,000	-813,000	-813,000	-813,000	-813,000
Costs - Trade	37,000	37,000	37,000	37,000	37,000
Total	7,911,502	7,814,011	6,521,451	6,704,828	7,036,994
Variation from E Baseline	97,491	0	-1,292,559	-1,109,182	-777,017

Fig 30 – KAT modelling – Comparison of lowest cost options



The modelling results indicate that option 1, the WG Blueprint, combined with the suspension of garden waste collections over the winter period, is the lowest cost option.

The cost modelled for this option is around £1.4m per annum less than the baseline option and £1.3m less than the enhanced baseline.

When options 1 and 5 are compared, it can be seen that the cost modelled for option 1 is £516,000 lower than the next lowest cost option (option 5b).

Costs increase with the addition of a second loader to Option 1, reducing the differential in costs with option 5b to £332,000.

All options assume that a similar yield of dry recyclate is collected, and that overall waste arisings remain constant, therefore the performance, in terms of recycling rate, for all the options modelled will be the same.

Sensitivities

In addition to the core options modelling, a number of sensitivities were examined.

Fluctuations in commodity prices

The effect of both high and low commodity prices was examined as part of the modelling. It was shown that commodity prices would have an impact on overall service cost, with low prices resulting in higher overall service costs and conversely, high commodity prices resulting in lower service costs. However, the overall position of the options modelled relative to each other remained unchanged, with option 1 remaining the lowest cost configuration when both high and low commodity prices were modelled.

Additional residual waste restriction

In addition to the current fortnightly residual waste service, options were modelled both with a 3 and 4 weekly residual waste service (using the existing 240l wheeled bin).

The additional yield of dry recyclate and food waste resulting from the additional residual waste restriction required additional resources to collect it, with more vehicles and crew needed for all of the options modelled. The resulting additional costs were offset by reduced disposal costs and increased incomes from the sale of recyclate, along with a reduction in the residual waste fleet. However less frequent residual collection would mean that additional resources would also be needed to provide a collection of AHP and an additional dedicated trade waste round.

Ultimately, moving to less frequent residual waste collection would have little impact in terms of cost, with 3 weekly options exhibiting slightly higher cost than the current restriction and 4 weekly residual resulting in slightly lower costs.

However, there would be an uplift in recycling performance, with 3 weekly residual collection predicted to result in an uplift of 3.2 percentage points and 4 weekly collection resulting in an 8.5 percentage point increase.

Again, the relative position of the options modelled remains largely unchanged when residual waste collection frequency is varied.

The KAT modelling results do indicate that moving from the current commingled system and adopting one of the alternative options modelled would result in cost savings to the authority, with option1, the WG Blueprint, realising the greatest saving.

Reducing the frequency of residual waste collections will not have a great impact on cost, with 4 weekly collections resulting in a small overall cost saving compared to the equivalent core option. However such a move would result in significant improvements to overall recycling rates.

It is recognised that adopting any of the alternative options modelled would require significant capital investment, both in terms of collection vehicles and depot/bulking infrastructure.

WRAP and CCBC are currently examining the depot infrastructure requirements in a separate project, and the results from this work will need to be incorporated in the options modelling once results are available.

Appendix 1 – Supplementary information

Containers

The assumptions made regarding the containers required for each option are provided in Fig 31 below. These assumptions are based upon industry best practice with costs provided by the authority, or where applicable, from the WRAP container procurement framework.

Fig 31 – Container costs

Containers			
Container	Unit cost (£)	Write off period	Replacement rate
240 litre bin	16.50	10	2%
5 & 23l caddy	2.98	10	4%
kerbside box	3.33	10	4%
Reusable sacks	1.24	5	25%
Poly Sacks	0.03		

Staff

Fig 32 - Staffing levels allocated to the options modelled

Crewing Levels	
Baseline	Crew
Dry Recycling	1+2
Organic	1+2*
Residual	1+2
Blueprint	Crew
Dry Recycling	1+1
Garden Waste	1+2
Residual	1+2
Twin/Multi Stream	Crew
Dry Recycling	1+2
Organic	1+2*
Separate Food	1+1
Separate garden	1+2

Fig 33 – Staff unit costs

Staff costs	
Driver	29,675
Loader	27,028

Overheads

Overhead figure of £447,877 has been taken from information supplied by CCBC.

Supervision

Supervision costs are assumed to remain constant across all options, with figure of £370,654 taken from data provided by CCBC.

Vehicle costs

Fig 34 - Typical vehicle costs

Vehicles - Typical figures used in KAT						
Vehicle	Purchase Cost	Depreciation Period	Annual Capital	Standing cost	Maintenance	Total
RCV	155,000	7	24,412	2,584	10,000	36,996
RCV & Lift	175,000	7	27,562	2,584	10,000	40,146
Twin Pack	175,000	7	27,562	2,584	12,000	42,146
Twin & Lift	195,000	7	30,712	2,584	12,000	45,296
One Pass	200,000	7	31,499	2,584	13,000	47,083
RRV	120,000	7	18,899	2,134	8,000	29,033
PBUV	60,000	7	9,450	2,134	4,000	15,584
Tipper	45,000	7	7,087	2,134	2,000	11,221
Micro RRV	50,000	7	7,875	2,134	2,000	12,009

Vehicle numbers

Calculated by the KAT model, vehicles required for each collection option shown in Fig 35 below.

Fig 35 - Vehicle requirements

2 weekly refuse

Collection	Baseline	Enhanced Baseline	Option 1	Option 1 - WS	Option 1 - 2 loaders	Option 1 - 2 Loaders & WS	Option 5b	Option 5b & WS
A	9.0	9.0	24.4	24.4	20.7	20.7	10.0	10.0
B	6.8	6.9	3.9	4.0	3.9	4.0	8.0	8.0
C	0.0	0.0	0.0	0.0	0.0	0.0	3.9	3.9
D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Refuse	6.7	6.5	6.5	6.5	6.5	6.5	6.5	6.5

3 weekly refuse

Collection	Option 1	Option 1 - WS	Option 1 - 2 loaders	Option 1 - 2 Loaders & WS	Option 5b	Option 5b & WS
A	25.8	25.8	21.9	21.9	10.4	10.4
B	4.0	4.0	4.0	4.0	8.3	8.3
C	3.8	3.8	3.8	3.8	3.9	3.9
D	0.0	0.0	0.0	0.0	3.8	3.8
Refuse	4.3	4.4	4.3	4.4	4.3	4.3

4 weekly refuse

Collection	Option 1	Option 1 - WS	Option 1 - 2 loaders	Option 1 - 2 Loaders & WS	Option 5b	Option 5b & WS
A	27.2	27.2	23.1	23.1	10.8	10.8
B	4.0	4.0	4.0	4.0	8.6	8.6
C	4.3	4.3	4.3	4.3	3.9	3.9
D	0.0	0.0	0.0	0.0	4.3	4.3
Refuse	3.7	3.8	3.7	3.8	3.5	3.6

Collection A = Dry Recycling, B = Organic, C = AHP (Option 5b B=Food, C= Green, D=AHP)

Spare Vehicles

Based on the fleet requirement for each option, a reasonable number of spare vehicles has been estimated for each option capital costs for spare fleet have been annualised (over 7 years) and included in the overall option cost. In addition, standing charges and maintenance costs are also included.

Fig 36 – Spare vehicles

2 weekly refuse

Collection	Baseline		Enhanced Baseline		Option 1		Option 1 - WS		Option 1 - Extra Loader		Option 5b		Option 5 b - WS	
	RCV	RCV	Twinpack	RCV	RRV	RCV	RRV	RCV	Twinpack	RCV	Twinpack	RCV	Twinpack	
Dry	9	9		0	25		25		21		18		18	
Organic	7		7	4	0	4	0	4		4		4		
Residual	7	7		7	0	7	0	7		7		7		
Total	23	16	7	11	25	11	25	11	21	11	18	11	18	
Spare	5	4	2	3	6	3	6	3	5	3	4	3	4	
Cost	184979	160583	84291	120437	174201	120437	174201	120437	145167	120437	168583	120437	168583	

3 weekly refuse

Collection	Option 1		Option 1 - WS		Option 1 - Extra Loader		Option 5b		Option 5 b - WS	
	RCV	RRV	RCV	RRV	RCV	Twinpack	RCV	Twinpack	RCV	Twinpack
Dry	0	26		26		21		19		19
Organic	4	0	4		4		4		4	
Residual	5	0	5		5		5		5	
Total	9	26	9	26	9	21	9	19	9	19
Spare	2	6	2	6	2	5	2	5	2	5
Cost	80291	174201	80291	174201	80291	145167	80291	210729	80291	210729

4 weekly refuse

Collection	Option 1		Option 1 - WS		Option 1 - Extra Loader		Option 5b		Option 5 b - WS	
	RCV	RRV	RCV	RRV	RCV	Twinpack	RCV	Twinpack	RCV	Twinpack
Dry	0	28		28	0	22		20		20
Organic	4	0	4		4		4		4	
Residual	4	0	4		4		4		4	
Total	8	28	8	28	8	22	8	20	8	20
Spare	2	7	2	7	2	5	2	5	2	5
Cost	80291	203234	80291	203234	80291	145167	80291	210729	80291	210729

Productivity

Fig 37 below shows the number of properties passed on average by each collection vehicle over the course of a working day.

Fig 37 - Daily Pass Rates

2 Weekly residual

Collection	Baseline	Enhanced Baseline	Option 1	Option 1 & Winter suspension	Option 1 Extra Loader	Option 1 Extra Loader & WS	Option 5b	Option 5b WS
A	1,661	1,663	616	616	725	725	1,497	1,497
B	2,213	2,177	1,911	1,877	1,911	1,877	1,887	1,887
C	0	0	0	0	0	0	1,911	1,911
D	0	0	0	0	0	0	0	0
Refuse	1,121	1,159	1,159	1,159	1,159	1,159	1,159	1,159

3 weekly residual

Collection	Option 1	Option 1 & Winter suspension	Option 1 Extra Loader	Option 1 Extra Loader & WS	Option 5b	Option 5b WS
A	583	583	685	685	1,441	1,441
B	1,877	1,877	1,877	1,877	1,815	1,815
C	2,633	2,633	2,633	2,633	1,911	1,911
D	0	0	0	0	2,633	2,633
Refuse	1,159	1,147	1,159	1,147	1,159	1,159

4 weekly residual

Collection	Option 1	Option 1 & Winter suspension	Option 1 Extra Loader	Option 1 Extra Loader & WS	Option 5b	Option 5b WS
A	553	553	650	650	1,389	1,389
B	1,877	1,877	1,877	1,877	1,748	1,748
C	2,633	2,633	2,633	2,633	1,911	1,911
D	0	0	0	0	2,633	2,633
Refuse	1,004	992	1,004	992	1,062	1,062

Collection A = Dry Recycling, B = Organic, C = AHP (Option 5b B=Food, C= Green, D=AHP)

Length of day

Fig 38 below shows the actual working times used in the baseline model (calculated from the tachograph data supplied), along with the times used for the enhanced baseline and subsequent options.

Fig 38 – Hours worked

Working Hours		
Service	Baseline	Enhanced Baseline & Options
Dry	06:35	07:00
Organic	06:50	07:00
Residual	06:50	07:00

Tipper fleet

It is assumed that the requirement to service 2500 properties not on core collection rounds can be provided using a similar level of resource as that used currently across all of the commingled and twinstream options.

Fleet requirements for commingles and source segregated collections were both run through the KAT model.

Costs shown in table below Costs calculated in a similar was as main options and are included in Fig 39 below

Fig 39 – Tipper fleet costs

Costs	Comingled	KSS	2 stream
Capital - Vehicles	37,011	40,161	37,011
Operating Costs	266,948	291,286	293,771
Total	303,959	331,448	330,782

WMT010 & 009b - Waste Reused, Recycled or Composted

Appendix 4

2018-19

Authority	Total Dry Reuse (tonnes)	Total Dry Recycling (tonnes)	Total Composting (tonnes)	Total Municipal Waste (tonnes)	Average Dry Reuse Rate	Average Dry Recycling Rate	Average Composting Rate	Average Reuse, Recycling & Composting Rate
Isle of Anglesey CC	1.01	15,202.83	10,038.81	36,133.95	0.00%	42.07%	27.78%	69.86%
Bridgend CBC	1,448.56	25,976.61	11,792.38	56,516.36	2.56%	45.96%	20.87%	69.39%
Flintshire County Council	12,067.75	30,869.04	14,965.72	84,246.78	14.32%	36.64%	17.76%	68.73%
Vale of Glamorgan Council	271.79	24,808.15	13,816.31	57,974.24	0.47%	42.79%	23.83%	67.09%
Wrexham CBC	13,820.27	27,137.83	15,438.39	85,795.72	16.11%	31.63%	17.99%	65.73%
Caerphilly CBC	273.83	52,071.22	15,531.89	104,290.41	0.26%	49.93%	14.89%	65.08%
Conwy CBC	322.05	20,490.30	15,514.89	55,958.56	0.58%	36.62%	27.73%	64.92%
Denbighshire County Council	395.35	17,050.35	10,252.68	43,090.53	0.92%	39.57%	23.79%	64.28%
Monmouthshire CC	159.21	19,139.74	10,978.72	47,781.02	0.33%	40.06%	22.98%	63.37%
City and County of Swansea	319.42	45,084.65	23,268.06	109,211.12	0.29%	41.28%	21.31%	62.88%
Gwynedd Council	98.98	29,737.52	14,449.65	71,070.98	0.14%	41.84%	20.33%	62.31%
Pembrokeshire County Council	478.05	28,442.23	15,100.85	71,044.55	0.67%	40.03%	21.26%	61.96%
Merthyr Tydfil CBC	270.14	11,707.55	4,609.58	26,933.64	1.00%	43.47%	17.11%	61.59%
Powys County Council	1,453.38	19,706.16	14,023.60	57,259.02	2.54%	34.42%	24.49%	61.45%
Rhondda Cynon Taff CBC	1,201.86	55,189.73	18,399.46	122,604.01	0.98%	45.01%	15.01%	61.00%
Neath Port Talbot CBC	168.74	31,398.98	10,992.70	69,989.74	0.24%	44.86%	15.71%	60.81%
Torfaen CBC	464.99	19,385.64	8,039.21	46,076.58	1.01%	42.07%	17.45%	60.53%
Ceredigion County Council	1,573.26	13,721.93	5,378.34	34,263.51	4.59%	40.05%	15.70%	60.34%
Blaenau Gwent CBC	98.91	13,153.51	4,557.12	30,044.08	0.33%	43.78%	15.17%	59.28%
Cardiff County Council	382.58	66,443.29	34,110.31	170,522.87	0.22%	38.96%	20.00%	59.19%
Newport City Council	699.11	30,015.43	12,136.13	72,692.01	0.96%	41.29%	16.70%	58.95%
Carmarthenshire County Council	306.15	37,000.14	15,110.01	88,922.35	0.34%	41.61%	16.99%	58.95%

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CABINET – 15TH JANUARY 2020

SUBJECT: VALLEYS TASK FORCE CROWDFUNDING PARTNERSHIP PROPOSAL

REPORT BY: BUSINESS ENTERPRISE AND RENEWAL MANAGER

1. PURPOSE OF REPORT

- 1.1 To agree a partnership funding arrangement with Welsh Government and a number of neighbouring local authorities including Merthyr Tydfil, Neath Port Talbot, Torfaen, Bridgend and Blaenau Gwent to support the development of a crowdfunding platform aimed at delivering community and civic led projects.

2. SUMMARY

- 2.1 A proposal has recently been initiated by the Heads of the Valleys group of Local Authority Regeneration Managers to initiate a single civic crowdfunding programme for the Valleys region to deliver improved civic and community spaces. The aim of the programme is to create a funding platform that will generate project 'creators' and project 'backers' and to match the two together.
- 2.2 Local communities will be encouraged to come forward with their ideas on how they can improve their local areas. These project 'creators' could be individuals within the community, local businesses or community groups.
- 2.3 Supported by a core funding allocation from the Welsh Government's Valleys Task Force and enhanced by equal financial contributions from local authorities across the Valleys area the target of the initiative is to lever in additional funds through a 'coalition of willing funders'. These project backers could be local business, national institutions, philanthropic grant makers and others.



3. RECOMMENDATIONS

3.1 That the project is funded from Corporate / Directorate reserve balances.

4. REASONS FOR THE RECOMMENDATIONS

4.1 The funding commitment for each local authority is of low value and will be used to target and lever additional funding to support projects that can energise local communities, improve quality of life, engender civic pride, transform local spaces and support social cohesion. Increasing the number of locally driven projects can help to build the capacity of the community to push forward with new projects by transferring and empowering the experiential learning that they will have gained through this programme to further projects.

4.2 The experience of this platform so far has shown that over 50% of project 'creators' have not previously been involved in delivering civic projects and 75% of projects have been delivered in deprived wards.

4.3 The proposal has been developed by a company with a track record of delivering funding programmes that have supported 750 projects to raise £14m working with 35 local authority partners that averages at £18,667 delivered per project.

5. THE REPORT

5.1 A partnership proposal has been received by the Heads of the Valleys group of Local Authority Regeneration Managers from a company that have been established since 2012 with the aim of supporting community orientated project proposals to transform local places with a focus on community generated ideas.

5.2 The company have supported in excess of 750 projects since their inception generating over £14m of funding towards these projects using a technology based platform to attract crowdfunding financial support. The projects are supported by seed funding generated by local authority partner's that is used as a catalyst to attract further funding from individuals, local and national businesses, local people and donation/grant funding organisations amongst others.

5.3 The proposal for the Valleys region includes the provision of:

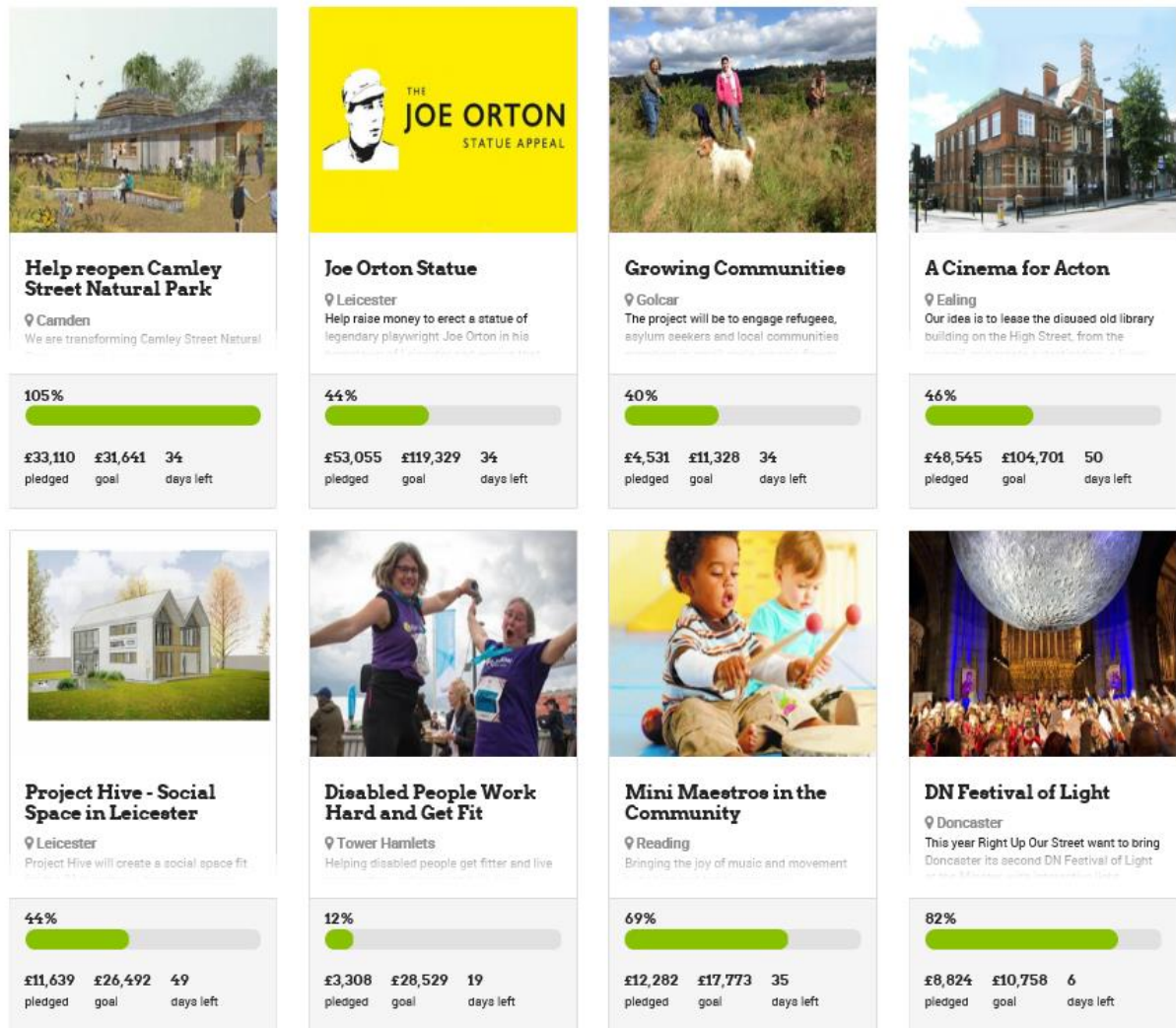
- a branded online hub for 'The Valleys' crowd;
- dedicated technological platform;
- marketing support;
- community engagement activity;
- project support;
- capacity building events.

5.4 The project would be supported by an 'umbrella' funding stream provided by Welsh Government and support funding from a number of local authority funding partners. So far local authorities including Merthyr Tydfil, Neath Port Talbot, Torfaen, Bridgend and Blaenau Gwent have pledged their initial, in principle support for the project.

5.5 The target is to establish a funding provision of between £500,000 and £600,000 per year depending on the number of participating local authority partners, with majority funding provided by Welsh Government. The aim of the project would be to attract an additional 250% of leveraged funds (circa £1.5m) from community 'backers' through an online crowdfunding platform that will be established for the Valleys region. This is lower than the UK average of 300% experienced so far through the 750 projects developed to date and is recognition of the Valleys area as a challenging landscape with the prevailing levels of deprivation in our communities. As the funding ecosystem is established it is anticipated that the initial target of

providing 75% of each project value for early funding rounds is stepped down to 50% and then 30%.

- 5.6 Projected funding support for 70 projects worth £1.2m over the first two years of the programme at an average of £17,143 per project is anticipated.
- 5.7 Aside from the provision of partnership funding, the local authority would be expected to support and champion the programme, liaise at an operational level to establish the funding rounds, make stakeholder introductions and establish a single point of contact. An example of crowd-funding projects that the company currently has listed is illustrated below.

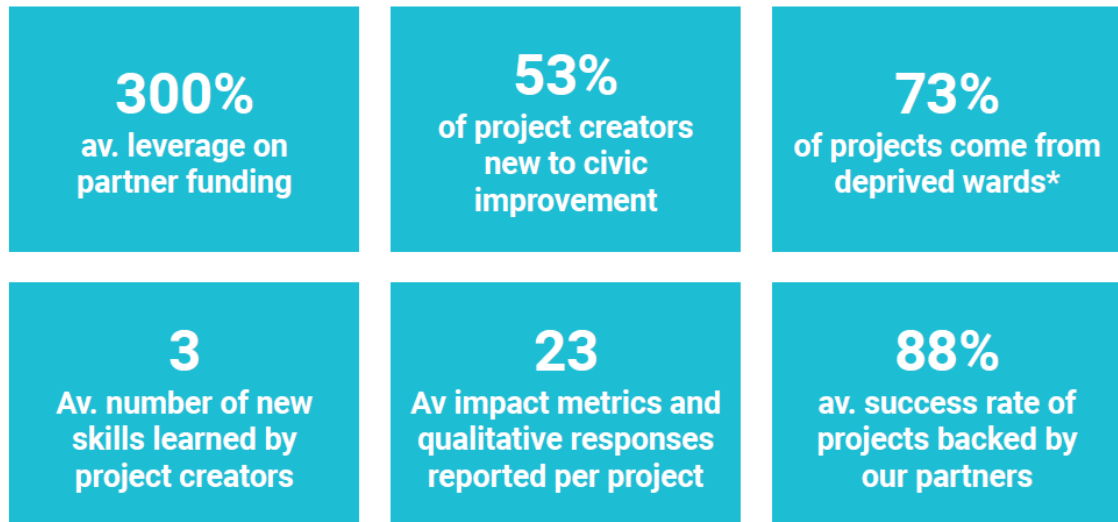


- 5.8 It is anticipated that Welsh Government and / or Blaenau Gwent will be leading on the procurement element of the proposal. Further discussion will be required with the Council’s procurement service if this changes.
- 5.9 The “ethos” of community involvement which is at the heart of this proposal is in keeping with the development of the “Caerphilly Conversation” within the overall #Team Caerphilly approach.

Conclusion

- 5.10 There are a variety of grant giving organisations that community groups can normally apply to secure funding. Often these can take significant time, resource and expertise to deliver and may only be one significant source of funding.

- 5.11 The project proposal could help reduce the time taken by project makers to source, apply and ultimately deliver a project by leveraging in additional funding from non-traditional areas and also gain from the support offered by the funding ecosystem that the project is intended to create.
- 5.12 The funding model offers the flexibility to allow participating partners to develop criteria that can apply at a local level to align with community priorities, for example, Caerphilly could pilot the first year of the project by targeting the Heads of the Valley Regeneration Area (HOVRA) to maximise the opportunities presented by the dualling of the A465 in the heads of the valleys.



- 5.13 There are a number of areas that will need to be considered prior to delivery of the project initiative, including the criteria for how projects are prioritised and supported, ongoing project maintenance required from Council departments, land ownership, insurances, project sustainability and support for the community to develop the necessary skills, capacity and the mechanism for allocation of funding across the partner areas. All of this material to appropriately support initiatives will be key to its success along with engaging and consulting with the community at the earliest possible opportunity to encourage community 'buy in' to maximise the opportunity presented. Engagement and support is resource intensive and will need to be considered as part of the proposal.

6. ASSUMPTIONS

- 6.1 The financial pressures on local authority budgets will continue in the medium term as outlined in the Council's Medium Term Financial plan.
- 6.2 The partnership arrangements and funding commitment would be reviewed after an initial three year operating period.

7. LINKS TO RELEVANT COUNCIL POLICIES

- 7.1 The report links to the following Council policies:

- Corporate Plan 2018-2023.
- A Foundation for Success 2018 – 2023, Regeneration Strategy for Caerphilly County Borough.

- 7.2 **Corporate Plan 2018-2023**

The options outlined in the report affect:

Objective 2 - Enabling employment.

Objective 5 - Creating a county borough that supports a healthy lifestyle in accordance with the sustainable Development Principle within the Wellbeing of Future Generations (Wales) Act 2015.

Objective 6 - Support citizens to remain independent and improve their well-being.

8. WELL-BEING OF FUTURE GENERATIONS

8.1 This project can contribute to the Well-being goals by supporting a range of diverse projects that are community focussed.

8.2 The Well-being of Future Generations (Wales) Act 2015, sets out seven Well-being Goals which aim to make a positive impact upon the social, economic, environmental and cultural well-being of the area or community concerned. The project aligns with the following Well-being Goals:

- **A prosperous Wales**
Project proposals seen in other areas have included bringing disused buildings back into economic use generating economic benefits and direct employment.
- **A healthier Wales**
Projects could include supporting the development of physical community assets across urban and rural areas helping to remove the barriers to currently inaccessible places for active participation, recreation and creative pursuits helping to improve self-esteem, mood, social contact and the development of transferable skills nurturing creativity and supporting a healthier Wales.
- **A more equal Wales**
The provision of a range of project opportunities to participate in community based activity across the county borough can help remove cultural, geographic, economic and social barriers to life enhancing participation and engagement benefits, contributing to a more equal Wales.
- **A more resilient Wales**
Access and proximity to the provision of outdoor places are recognised tools in supporting mental well-being and contribute to developing a resilient community through enabling people to lead an active lifestyle.
- **A Wales of Cohesive Communities**
The provision of spaces and places led by community 'projects makers' can deliver educational and recreational activities in a safe environment and can increase individual and community confidence and sense of self-worth, building social cohesion by creating friendship and a sense of 'belonging'. It can make people feel safer and more positive about where they live, taking a pride in their own local environment.
- **A Globally Responsible Wales**
Developing projects that are rooted in the community helps to contribute to being responsible for our own health and well-being and through exploration and discovery can bring new insights to familiar challenges helping us to become more engaged, active and fulfilled citizens.

8.3 The report is consistent with the five ways of working as defined within the sustainable development principle in the Act:

Long term

The project through increasing the delivery capacity embedded within our local communities can support their long term sustainability, viability and role contributing to the economic and social prosperity of the region.

Prevention

The project can address the long term financial pressures on public sector bodies and prevent problems arising in the longer term by diversifying the current range of income generation needed to support community development and allow the local authority to support our communities to provide a range of project choices and fulfilment.

Integration

The Council's well-being objectives for the period 2018-2023, as identified in Section 7, supports a range of organisations to match and integrate their aims through this project with project funding criteria that can be set to reflect our objectives to support healthy lifestyles, economic prosperity and employment, mental well-being, independence, quality of life and cohesive communities to build personal and community resilience.

Collaboration

The project is a partnership of a number of local authorities committed to supporting the proposals backed by the Welsh Government through the Valleys Task Force that encourages a collaborative approach to deliver a financially sustainable model to support community development and enhancement using technology and the efficient use of organisational resources.

Involvement

The project will provide opportunities for our residents to participate and represent their community's interest in achieving their well-being goals through the development of projects by and for the community.

9. EQUALITIES IMPLICATIONS

- 9.1 No specific equality related implications are identified at this stage.

10. FINANCIAL IMPLICATIONS

- 10.1 The proposal is to fund the project for three years with Welsh Government committed to covering the £70,000 of the first year activation costs with participating local authorities sharing the cost of the second and third year activation costs which are set at £80,000 per year, equating to £11,429 per year for years two and three, supported by an additional £2,000 per year for a local event to target local project creators. This equates to a commitment of £13,429 per year for two years.
- 10.2 The recommendation is that the central funding allocation to encourage project bids should be set at between £500,000 and £600,000 per year (dependent on the number of local authority partners) which would mean the contributing local authorities potentially having to find a further £100,000 above the £500,000 allocated by Welsh Government. This would equate to a further £14,286 per year for the three years of the project with 7 partners.
- 10.3 There is an ongoing financial risk to local authority budget settlements that could impact on the availability of future funding availability. The table below outlines the higher of the two funding scenarios where the local authority partners add to the Welsh Government allocation to set an annual central funding sum of £600,000 and Table 1 shows the Council's three year financial commitment at this level.

Table 1

CROWDFUNDING PROPOSAL - COMMUNITY SPACES				
	Year 1	Year 2	Year 3	Totals
Core funding allocation	£600,000	£600,000	£600,000	£1,800,000
Activation costs	£80,000	£80,000	£80,000	£240,000
FUNDING REQUIRED	£680,000	£680,000	£680,000	£2,040,000
Valleys Task Force contribution	-£570,000	-£500,000	-£500,000	-£1,570,000
Local Authority contribution to 'activation costs' (7)	£1,429	£11,429	£11,429	£24,286
Local Authority contribution to 'core funding' (7)	£14,286	£14,286	£14,286	£42,857
Additional CCB event	£2,000	£2,000	£2,000	£6,000
Caerphilly CBC contribution	£17,714	£27,714	£27,714	£73,143

10.4 At this level of funding the project would require £17,714 in year 1 and £27,714 per year over the following two years totalling £73,143 across the pilot period of three years.

11. PERSONNEL IMPLICATIONS

11.1 A nominated senior officer would be required to liaise and support the project collaboratively with the other participating local authorities.

12. CONSULTATION

12.1 Feedback from the consultees to the report have been included.

13. STATUTORY POWER

10.1 The Local Government Acts 1998 and 2003.

Author: Paul Hudson, Business Enterprise and Renewal Manager

Consultees: Cllr. S Morgan, Cabinet Member for Economy, Infrastructure, Sustainability and Well-being of Future Generations Champion
Mark S Williams, Interim Corporate Director - Communities
Rob J Tranter, Head of Legal Services / Monitoring Officer
Rhian Kyte, Head of Regeneration & Planning
Stephen Harris, Interim Head of Business Improvement Services and Section 151 Officer
Dave Roberts, Principal Group Manager
Michael Eedy, Finance Manager
Allan Dallimore, Regeneration Services Manager
Tina McMahon, Community Regeneration Manager
Jeffrey Peters, Principal Business Development Officer
Shaun Watkins, Principal Personnel Officer
Anwen Cullinane, Senior Policy Officer
Cllr. J Ridgewell, Chair of Housing and Regeneration Scrutiny Committee
Cllr. C Forehead, Vice Chair of Housing and Regeneration Scrutiny Committee
Liz Lucas, Head of Customer and Digital Services
Ian Evans, Procurement and Information Manager

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CABINET – 15TH JANUARY 2020

SUBJECT: CAERPHILLY HOMES – #BUILDINGTOGETHER

REPORT BY: CORPORATE DIRECTOR FOR EDUCATION AND CORPORATE SERVICES

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- 1.1 The attached report was considered by the Housing and Regeneration Scrutiny Committee on 26th November 2019. The report outlined a vision to build new homes and increase housing supply in the county borough following the completion of the Welsh Housing Quality Standard in 2020. Scrutiny members were invited to comment prior to the presentation of the report to Cabinet.
 - 1.2 The scrutiny committee was advised that the Caerphilly Local Housing Market Assessment has identified a requirement of 282 units per annum over a period of 5 years in order to meet local demand. Members were advised that this is made up of 169 social housing rented units and 113 intermediate units and were informed that there is a particular need for one bedroom accommodation.
 - 1.3 Members noted that although there is currently a surplus of older person's accommodation throughout the county borough, the current provision does not meet the needs in terms of size, facilities and surrounding environment. This would need to be taken into account with any planned programme of development in order to ensure suitable accommodation is available for the anticipated growth in demand from older persons.
 - 1.4 The scrutiny committee were informed of the research already undertaken in terms of the way forward by looking at what has already been done in other areas, discussions with industry experts on good quality and precision engineered homes and an ambition to produce zero carbon homes, in line with Welsh Government expectations. The report outlines plans for 400 new homes in the first instance which is considered a realistic target as these proposals will take time to develop.
 - 1.5 Members highlighted the target for affordable housing targets for the county borough areas in the LDP and questioned whether the targets for the north of the county borough should be higher. The scrutiny committee were advised that demand is higher in the south and this is reflected nationally with population growth surrounding larger urban areas, because of employment and shorter transport links. The scrutiny committee stated that the council has a responsibility to consider the needs of the north of the county borough. Officers stated that each site would be looked at and individual solutions applied.
 - 1.6 The scrutiny committee sought reassurance that brown field sites would be given priority for development. Members stated the benefit of protecting green field sites because they absorb carbon and also highlighted the environmental impact of the use of cement in construction. Officers confirmed that brown field sites would be given priority, as well as consideration of planting schemes to offset any impact on the environment and the use of modern methods of construction. Members asked if these modern methods of construction have long term resilience, the scrutiny committee were reassured that these methods have

been utilised for a considerable time and include timber frame construction.

- 1.7 The need to support communities in the wider sense was discussed, and the benefits that these developments could have in terms of employment and training for residents.
- 1.8 Members asked if the use of consultants and the associated costs could be avoided and the work carried out by the newly proposed Caerphilly Homes *#BuildingTogether* Development Team. The scrutiny committee were advised that at the present time there is no one with the commercial experience working within the council who could carry out this role. However the aim going forward is to develop those skills within the team. In addition it was noted that the costs for the use of consultants would be met by the HRA and not the Council General Fund.
- 1.9 The scrutiny committee asked how we can ensure mixed tenure on the developments. Members were advised that it will depend on the site, and the needs at the time, however the common allocations policy as well as working with RSL's using the policy framework would be the basis for any decisions. Therefore allocation of property will be if they meet the criteria. Members were advised that this has already been done in other areas and that mixed tenure is seen as the way forward.
- 1.10 Members were advised of the work already underway in some areas and members sought reassurance that discussion with ABUHB was not delaying the development of the Ty Darren site in Risca. Members were advised that an informal response has been received and the council is actively seeking a formal statement of intent.
- 1.11 The scrutiny committee noted that this is a 5 year plan and asked what the plan is afterwards. Members were advised that it is anticipated that this is the start of a rolling programme which will be reviewed periodically to ensure that any changing needs are incorporated into plans.
- 1.12 Following consideration and discussion the Housing and Regeneration Scrutiny Committee unanimously agreed to recommend to Cabinet that:
- (i) Cabinet agree to the development, subject to planning approval, of the HRA site in Nelson in order to access AHG (Affordable Housing Grant) prior to the end of March 2020 via a direct award to a partner Registered Social Landlord.
 - (ii) Cabinet agree to the development of the HRA sites in Bedwas and Trecenydd subject to viability testing and planning approval as set out in the report.
 - (iii) Cabinet agree the principle of Caerphilly Homes acquiring new build affordable homes, via Section 106 Agreements in areas of housing need, subject to financial viability in terms of the Housing Business Plan.
 - (iv) Cabinet that the purchase via Section 106 Agreements of up to 10 affordable units per development be delegated to the Head of Service in conjunction with the Cabinet Member for Homes and Places. Section 106 Agreements involving more than 10 affordable units will be the subject of a report to Cabinet.
 - (v) Cabinet agree to proposals for General Fund land to be considered and appropriated to Caerphilly Homes for the development of affordable housing, subject to suitability and affordability. Further reports will be submitted as and when required on specific site proposals requesting appropriation from the General Fund to Caerphilly Homes for housing purposes.
 - (vi) Cabinet approve that where HRA land is sold for new development, 100% of the capital receipt is kept within the HRA and recycled to finance the Council's new build programme. Where there is no commitment to develop the land, there is an option to

- retain 25% of the receipt within the HRA and 75% utilised to repay debt (as in previous years with regards to Right to Buy sales).
- (vii) Cabinet support the exploration of innovative and commercial opportunities to facilitate the delivery of new affordable homes including the possibility of market sales, which on some sites may be necessary to ensure viability.
 - (viii) Cabinet approve the engagement and commissioning of consultants and a development partner via recognised and compliant public sector procurement instruments i.e. via the SCAPE and Welsh Procurement Alliance framework agreements (further explained in 5.5/6). Each separate procurement arrangement will be undertaken with support and advice from the Council's Procurement Team and will be subject to separate reports being brought forward as appropriate.
 - (ix) Cabinet approve the use of Modern Methods of Construction (MMC) including modular or partially modular homes together with a 'fabric first' approach to deliver the most energy efficient homes possible and respond to the zero carbon agenda.
 - (x) Cabinet approve the commissioning of an independent consultancy via a compliant framework agreement to undertake viability assessments of all suitable HRA land in order to develop a catalogue of commercially viable sites that can be developed over a 5 year period and form the basis of the Council's new build strategy. This information will be used as the basis to develop 'shelf ready' schemes in preparation for the announcement of new Welsh Government funding in 2021.
 - (xi) Cabinet approve the creation of a Caerphilly Homes Development Team to develop and drive forward the new #BuildingTogether programme as noted in 5.32 and 5.33.
 - (xii) Cabinet approve the submission of a report to Council which includes a request to borrow a further £14M to kick start the new build programme and other proposals contained in this report. Further details are contained in section 10.
 - (xiii) Cabinet approve that any unused borrowing from the £61m originally earmarked for WHQS be transferred to support the delivery of the new build programme. Further details are contained in section 10.
 - (xiv) it be noted that further reports will be submitted as and when required and details of specific schemes are known in order to advise members and where necessary seek Cabinet approval.

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Appendices:

Appendix A Report to Housing and Regeneration Scrutiny Committee 26th November 2019 – Agenda Item 10



HOUSING AND REGENERATION SCRUTINY COMMITTEE – 26TH NOVEMBER 2019

SUBJECT: CAERPHILLY HOMES – #BUILDINGTOGETHER

REPORT BY: CORPORATE DIRECTOR OF SOCIAL SERVICES AND HOUSING

1. PURPOSE OF REPORT

- 1.1 This report outlines a vision to build homes that are in places where people want to live, work and enjoy themselves; to build and add to cohesive communities and in doing so create sustainable opportunities for training and employment.
- 1.2 The report also sets out how Caerphilly Homes (Housing Services division of Caerphilly County Borough Council) intends to increase its supply of housing.
- 1.3 The views of the Housing and Regeneration Scrutiny Committee are being sought prior to the report's consideration by Cabinet.

2. SUMMARY

- 2.1 The Caerphilly Local Housing Market Assessment has identified a requirement for a total of 282 units per annum over a period of 5 years in order to meet local demand. This includes 169 social rented units and 113 'intermediate' units (56 low cost home ownership and 57 intermediate rent).
- 2.2 In terms of property size, by far the greatest requirement is for one bedroom accommodation however, the pattern of need varies between wards and housing market areas. There is a higher need for accommodation in the south of the borough than there is in the north. The assessment also highlights a surplus of older person's accommodation throughout the county borough. This is based on the location, type and quality of the existing provision, which in some instances no longer meets the needs and aspirations of older people. With national statistics showing that people are living longer and that the number of older people is expected to grow, there is a pressing requirement for alternative accommodation that is more flexible and better suits their needs now and for the future.
- 2.3 Having committed to investing approximately £260 million to improve the condition of our existing council homes to ensure all meet the Welsh Housing Quality Standard by 2020, this report sets out the ambitious long term investment plans of Caerphilly Homes to build and acquire a new generation of homes that meet a growing local need for new social and affordable housing.

- 2.4 The programme, branded *#BuildingTogether* aims to deliver 400 affordable homes between 2020 and 2025. This aim links directly with the Council's commitment contained within the Corporate Plan 2018-2023 and Wellbeing Objective 3 which aims to address the supply, condition and sustainability of homes throughout the county borough.
- 2.5 Recognising the need for additional affordable homes to meet an increasing demand, a commitment to build and increase the number of homes within the Council's portfolio is a corporate commitment.
- 2.6 In 2015 the Welsh Government ended the Housing Revenue Account subsidy system for Council homes thereby introducing new powers for Councils to keep their rental income and generate growth which, in Caerphilly, continues to be reinvested in homes to deliver the Welsh Housing Quality Standard by 2020 and will now also be invested into the Caerphilly Homes *#BuildingTogether* development programme to deliver the Council's commitment of providing additional affordable homes.

3. RECOMMENDATIONS

- 3.1 Members are asked to recommend that Cabinet agree to the development, subject to planning approval, of the HRA site in Nelson in order to access AHG (Affordable Housing Grant) prior to the end of March 2020 via a direct award to a partner Registered Social Landlord.
- 3.2 Members are asked to recommend that Cabinet agree to the development of the HRA sites in Bedwas and Trecenydd subject to viability testing and planning approval as set out in the report.
- 3.3 Members recommend that Cabinet agree the principle of Caerphilly Homes acquiring new build affordable homes, via Section 106 Agreements in areas of housing need, subject to financial viability in terms of the Housing Business Plan.
- 3.4 Members recommend to Cabinet that the purchase via Section 106 Agreements of up to 10 affordable units per development be delegated to the Head of Service in conjunction with the Cabinet Member for Homes and Places. Section 106 Agreements involving more than 10 affordable units will be the subject of a report to Cabinet.
- 3.5 Members recommend that Cabinet agree to proposals for General Fund land to be considered and appropriated to Caerphilly Homes for the development of affordable housing, subject to suitability and affordability. Further reports will be submitted as and when required on specific site proposals requesting appropriation from the General Fund to Caerphilly Homes for housing purposes.
- 3.6 Members recommend that Cabinet approve that where HRA land is sold for new development, 100% of the capital receipt is kept within the HRA and recycled to finance the Council's new build programme. Where there is no commitment to develop the land, there is an option to retain 25% of the receipt within the HRA and 75% utilised to repay debt (as in previous years with regards to Right to Buy sales).

- 3.7 Members recommend that Cabinet support the exploration of innovative and commercial opportunities to facilitate the delivery of new affordable homes including the possibility of market sales, which on some sites may be necessary to ensure viability.
- 3.8 Members recommend that Cabinet approve the engagement and commissioning of consultants and a development partner via recognised and compliant public sector procurement instruments i.e. via the SCAPE and Welsh Procurement Alliance framework agreements (further explained in 5.5/6). Each separate procurement arrangement will be undertaken with support and advice from the Council's Procurement Team and will be subject to separate reports being brought forward as appropriate.
- 3.9 Members recommend that Cabinet approve the use of Modern Methods of Construction (MMC) including modular or partially modular homes together with a 'fabric first' approach to deliver the most energy efficient homes possible and respond to the zero carbon agenda.
- 3.10 Members recommend that Cabinet approve the commissioning of an independent consultancy via a compliant framework agreement to undertake viability assessments of all suitable HRA land in order to develop a catalogue of commercially viable sites that can be developed over a 5 year period and form the basis of the Council's new build strategy. This information will be used as the basis to develop 'shelf ready' schemes in preparation for the announcement of new Welsh Government funding in 2021.
- 3.11 Members recommend that Cabinet approve the creation of a Caerphilly Homes Development Team to develop and drive forward the new *#BuildingTogether* programme as noted in 5.32 and 5.33.
- 3.12 Members recommend that Cabinet approve the submission of a report to Council which includes a request to borrow a further £14M to kick start the new build programme and other proposals contained in this report. Further details are contained in section 10.
- 3.13 Members recommend that Cabinet approve that any unused borrowing from the £61m originally earmarked for WHQS be transferred to support the delivery of the new build programme. Further details are contained in section 10.
- 3.14 Members are asked to note that further reports will be submitted as and when required and details of specific schemes are known in order to advise members and where necessary seek Cabinet approval.

4. REASONS FOR THE RECOMMENDATIONS

- 4.1 In recognition of the increasing demand for affordable housing this reports sets out the progress made by Caerphilly Homes to date in relation to increasing the number of Council homes.
- 4.2 The development of a Council home building programme will help to meet the needs of the 4,500 applicants currently on the Common Housing Register waiting list, future applicants and also contribute to reducing the incidence of homelessness and rough sleeping.

- 4.3 It will support the local housing market and provide new opportunities for apprenticeships, training and employment. The development of additional affordable homes will help stimulate and grow the local foundational economy through the creation of local supply chains, the delivery of community benefits and create and add value to existing communities thereby increasing cohesion and resilience.
- 4.4 The building of new affordable Caerphilly Homes to meet an ever increasing need for affordable homes is a corporate commitment.

5. THE REPORT

- 5.1 As a consequence of entering the final stages of the Welsh Housing Quality Standard (WHQS) investment programme, Cabinet approved the Caerphilly Homes Asset Management Strategy (AMS) on the 12th September 2018.
- 5.2 The AMS not only included proposals for ensuring that the WHQS was maintained post 2020 but also included a number of options for increasing Council house supply.
- 5.3 Progress made to increase Council house supply to date includes the following activities:

Property Acquisitions

- 5.4 Bids for the acquisition of 5 empty former Council properties under the Affordable Housing Grant (AHG) programme were submitted to Welsh Government in December 2018. Notification of funding award was received from Welsh Government in March 2019.
- 5.5 Colleagues in Property Services assisted with the valuation and negotiations on the purchase price and the five properties were successfully purchased prior to the 31st March 2019 in order to comply with the AHG deadline.
- 5.6 Further bids for AHG funding have been submitted to contribute towards the cost of improvements necessary to bring these properties up to an acceptable standard. In order to qualify for the AHG funding the properties need to be improved to Development Quality Requirements (DQR) Part 2 (Requirements for existing and rehabilitated dwellings built by housing associations).
- 5.7 A further 5 properties were purchased in September 2019 following submission of AHG applications by a revised deadline for which we are awaiting notification of an award, and again further bids have been submitted to contribute towards the cost of improvements.
- 5.8 The AHG funding covers 58% of the purchase and improvement costs and is paid in the form of a revenue stream over a 29 year period. The remainder of the cost is funded by the Council.
- 5.9 The AHG request for the acquisition of the 10 homes and associated refurbishment is therefore currently £739,330 in total, however the full amount of £1,274,708 will need to be provided up front as a capital cost by the HRA with the AHG element being provided as an annual revenue income stream of £39,633 by Welsh Government over a 29 year period.

- 5.10 In addition to the above, conversion works are underway at Hafod Y Bryn and Tredegar Court to create additional units of accommodation utilising Affordable Housing Grant (AHG) funding which will provide an additional 3 units of accommodation for older persons.
- 5.11 6 additional acquisitions have also been identified for purchase and discussions are ongoing with colleagues from Welsh Government to utilise the Affordable Housing Grant (AHG) to do so.

Bedwellty School Site – Llanmoor Homes

- 5.12 Llanmoor Homes have approached Caerphilly Homes regarding a development on the former Bedwellty School site. This development will provide Caerphilly Homes with the opportunity to acquire 8 housing units for transfer to the Council housing stock (2 of which will be for low cost home ownership). The development is in an area of housing demand and the purchase of these properties at the Supplementary Planning Guidance LDP 1 (SPG) transfer values is currently affordable in terms of the Housing Business Plan. Terms of the transfer would be in line with the Section 106 Agreement.
- 5.13 Further opportunities for such acquisitions will come forward as part of the planning and development process and as a consequence members are asked in 3.3 to recommend that Cabinet approve the principle of Section 106 acquisitions which may include low cost home ownership homes as well as social rented housing, accepting that this needs to be balanced against other Housing commitments and be financially viable in terms of the Housing Business Plan. A further explanation of the Section 106 process is contained within 5.42.

HRA Land Developments

- 5.14 The following sites are currently at the early stages of being progressed and will be subject to planning approval:-
- 5.15 Nelson – an area of HRA land that will lend itself to the development of 4 one bedroom social rented flats with individual entrances. There is a lack of this type of accommodation in the Caerphilly Homes stock portfolio and these new units will help address the high level of need identified in the 2018 Local Housing Market Assessment.
- 5.16 This site directly adjoins another site that is planned to be developed by an RSL and therefore there are clear benefits in pursuing the option of the RSL developing the plans, building the properties and project managing the scheme on behalf of Caerphilly Homes as an intrinsic part of their planned development. Our partner RSL's already have the necessary skills and resources in place and early discussions have been positive. Initial discussions have been held with Procurement Services to look at options to support a direct award to the RSL in order to progress this site with development contracts being signed prior to 31st March 2020 in order to allow the Council to access AHG funding. A detailed report outlining the procurement arrangements will be presented to the Director of Social Services and Housing shortly in line with Council's Standing Orders.
- 5.17 Members are asked to recommend approval by Cabinet retrospectively of the joint development of this site with the RSL designing, planning, constructing and project managing the development of this site on behalf of Caerphilly Homes, subject to satisfying procurement regulations. Retrospective approval is sought in order to

expend Affordable Housing Grant (AHG) funding within the timescale required by Welsh Government.

- 5.18 Llanfabon Drive, Bedwas and The Crescent, Trecenydd.
Initial feasibility studies suggest that 8 one bedroom social rented flats with individual access can be developed on each of these HRA sites, with draft designs anticipated for consideration by December 2019.
- 5.19 Caerphilly Homes has engaged, via the OJEU compliant SCAPE Framework agreement, a development partner who will now assist in undertaking a feasibility study on both sites together with initial designs.
- 5.20 Caerphilly Homes will work closely with the development partner to explore options to deliver innovative, energy efficient housing via a 'fabric first' approach on both sites subject to affordability and the potential to access Welsh Government grant funding. It is anticipated that designs and 'shelf ready' proposals will be prepared in readiness for an announcement by Welsh Government of new funding arrangements from 2021.

General Fund Land Developments

- 5.21 Chartist Gardens – It is anticipated that this site will be wholly developed by Pobl and provide both 66% affordable housing (social rent and shared ownership) and market sales. This development is being reported separately by Property Services.
- 5.22 Ty Darren, Risca - Members will recall the report on 'Remodelling Sheltered Housing Schemes' which included proposals to demolish three schemes in the Eastern Valley and develop a new scheme on the above site which would be fit for purpose and as far as possible 'future proofed'.
- 5.23 A site investigation report has been commissioned for this site and on receipt a full feasibility study will be conducted to confirm the financial viability of the proposals. Architectural Consultants have been engaged via OJEU compliant the Welsh Procurement Alliance framework agreement to provide a cost estimate for the development appraisal, viability assessment and design options. The site is currently owned by the General Fund and has been recently valued by the District Valuer at £825,000. The site would need to be appropriated under s.122 of the Local Government Act 1972 from the General Fund to Caerphilly Homes. Clarification regarding the value attributed to the site and whether that value is based on the site being developed for market sale properties rather than housing for social rent will be sought.
- 5.24 Caerphilly Homes intention, subject to a viability assessment, would be to develop the site in a way that encourages positive ageing thereby delivering the Council's ambition to increase its supply of Council homes which specifically meet tenant needs.
- 5.25 Discussions are ongoing with the Health Board who own the adjacent site, to determine if there is scope for a partnership approach and the provision of a community health focused hub facility.
- 5.26 This scheme is not anticipated to progress for approximately two years, which will allow time to complete the remodelling of our existing schemes and also complete WHQS works, as this will then help to inform the level and type of facility required at Ty Darran. A further report on the proposed development will be brought forward at

the appropriate time.

- 5.27 A summary of all delivery proposals for affordable housing including those to be delivered by Registered Social Landlords is provided in Appendix 2.

Future Plans *#BuildingTogether*

- 5.28 Members are asked to note that a development strategy which sets out the Council's ambitious plans to build new housing for the first time in over 20 years is currently being developed.
- 5.29 The strategy, entitled *#BuildingTogether* will outline a vision to build homes that are in places where people want to live, work and enjoy themselves; to build and add to cohesive communities and in doing so create sustainable opportunities for training and employment.
- 5.30 It will propose that a variety of homes will be built over the lifetime of the strategy (2020-2025), including accommodation for older people that supports positive aging and are future ready; accessible homes that take account of the needs of their inhabitants; homes that are energy efficient and homes that consider modern methods of design and construction.
- 5.31 The strategy intends to set a framework for the delivery of a new generation of 'Future Ready' homes delivered via a variety of delivery options.

***#BuildingTogether* Resources**

- 5.32 Currently the resources to deliver new affordable housing in-house do not exist so alternative arrangements need to be put in place. To assist with the process minor structure changes have been made within Caerphilly Homes in order to create a dedicated Manager to assist with the aim of increasing and developing new homes, compile a development strategy and to review various delivery options that may be available.
- 5.33 A further appointment will need to be made to focus on compiling the HRA land asset review and to oversee and advise on the suitability of proposed development from a Planning, Highways, Engineering, Drainage and ecological perspective. A Project Manager will also be required to liaise with contractors and oversee the delivery of proposed development schemes. Members are asked to support the recommendation noted in section 3.11 to create a new Caerphilly Homes *#BuildingTogether* Development Team.

***#BuildingTogether* Funding & Affordability**

- 5.34 The Welsh Government funding and finance regime is changing. 2020/21 is the final year for grants such as the Social Housing Grant (SHG) and the Affordable Housing Grant (AHG)(2019/20) and indications from colleagues at Welsh Government suggest that the next round of grant funding from Welsh Government to facilitate the development of new affordable homes will not be available until 2021 although there may be a fourth year of the Innovative Housing Programme (IHP) up to 2021.
- 5.35 Earlier this year the Welsh Government commissioned an independent Review of Affordable Housing. The Minister for Housing and Local Government has announced that she accepts all but one of the 22 recommendations contained in the report and that Welsh Government officials will now begin work on examining each

recommendation and determining how best it might be implemented. The Review, its recommendations and how those recommendations are interpreted will have a significant impact on the way in which affordable homes are developed and their affordability.

- 5.36 The Review and its recommendations seek to provide a new opportunity to make ground breaking improvements to the supply and quality of affordable housing and includes a recommendation for Welsh Government to provide longer-term certainty for local authorities wishing to start or continue an ambitious new Council home building programme.
- 5.37 The changes are also likely to result in challenges in relation to affordability, quality and design together with a requirement to deliver zero carbon homes.
- 5.38 With the new funding arrangements yet to be in place until 2021, it will also be difficult to determine the funding available in the short term to support the building of new homes. It is anticipated that an announcement will be made by the Minister before Christmas regarding the proposed 5 year rent policy. This will inform the HRA budget for 2020/21 and provide a clearer indication of the HRA budget likely to be available to support the programme in the future.

#BuildingTogether Outline Delivery Plan

- 5.39 The following diagram outlines the proposed delivery strategy that will be adopted by Caerphilly Homes as part of its #BuildingTogether programme:



- 5.40 In order to meet its delivery ambitions, Caerphilly Homes will utilise a number of different options to deliver new homes for social rent during the period 2020-2025.
- 5.41 The diagram above illustrates the range of options that will help increase the number of homes that are available via Caerphilly Homes and help deliver a diverse range of

options that are best suited to local need and future requirements. By utilising a variety of different mechanisms to deliver additional homes it will also better manage any risk (the proposed Development Strategy will be underpinned by a Risk Register and full Equality Impact Assessment); create economies of scale and help sustain and develop the local supply chain so to create additional employment and training opportunities within the locality.

Section 106

- 5.42 There is a specified target included in the Caerphilly County Borough Local Development Plan (LDP) for the delivery of affordable homes which differs depending on the location of the site. Where there is evidence of housing need the Council will seek to negotiate an affordable housing contribution based on the following targets:
1. 40% in the Caerphilly Basin area (excluding Aber Valley);
 2. 25% in the Northern Connections Corridor (excluding Newbridge);
 3. 10% in the Rest of Caerphilly County Borough (including Aber Valley and Newbridge);
 4. No requirement in the Heads of the Valleys Regeneration Area.
- 5.43 These are targets and will not always be achieved as they are dependent on the financial viability of each site, which is determined on an individual basis. If there is evidence of need and viability there are occasions where these targets are exceeded.
- 5.44 The Council in its role as the Local Planning Authority specifies to the developer the number and type of affordable homes that should be provided as part of the Section 106 contribution with the mix of homes being derived from an assessment of housing need within the locality (Local Housing Market Assessment 2018). The transfer cost of these properties to the social landlord is specified within the Supplementary Planning Guidance LDP1 (SPG). This SPG was first adopted by the Council in 2011, however Appendix 3 of the document is updated on an annual basis under delegated powers to reflect changes in transfer value. See Appendix 1.
- 5.45 The percentage of affordable housing to be provided by a developer is set out within the Section 106 Agreement. Within the agreement the Council can specify a preferred Registered Social Landlord zoned to develop affordable housing in the county borough to whom the developer must transfer the affordable housing.
- 5.46 Recent changes have resulted in Caerphilly Homes being included as a preferred landlord. This will enable Caerphilly Homes to purchase a number of Section 106 properties over the 5 year period of the strategy to contribute towards the overall target of 400 new homes.
- 5.47 The delivery of low cost home ownership homes (LCHO) may be included in the Section 106 agreements negotiated as well as homes for social rent.

RSL Collaboration

- 5.48 Caerphilly Homes is proud of its partnership history with our zoned local Registered Social Landlords. In relation to housing developments, United Welsh Housing Association, Pobl and Linc Cymru have collectively worked with us to increase the number of new affordable homes provided throughout the borough. Wales and the

West are also a zoned Registered Social Landlord in the county borough but are not currently actively developing.

- 5.49 In the recently published 'Independent Review of Affordable Housing Supply' a recommendation is made for Council's across Wales to enter into new partnership arrangements with Registered Social Landlords and the private sector. The Minister for Housing and Local Government is expected to announce the form of partnering arrangements that Welsh Government are wishing to see between Councils and Registered Social Landlords in their area shortly.
- 5.50 Caerphilly Homes will be seeking a closer partnering arrangement with the zoned RSL's in order to utilise the skills and knowledge of the RSL's to help build new Caerphilly Homes on our behalf. This may take the form of a Memorandum of Understanding (MOU) and/or a Partnership Protocol under the umbrella of an Affordable Homes Partnership which would be progressed in collaboration with Procurement and Legal Services.

Dynamic Purchasing System (DPS)

- 5.51 A Dynamic Purchasing System (DPS) is an electronic system used to purchase goods, works or services. Unlike a traditional framework it allows potential suppliers to join at any time. It is an open market solution designed to provide buyers (in this case, Caerphilly Homes) with access to a pool of pre-qualified suppliers (developers). Caerphilly Homes has already utilised a DPS on its WHQS programme with some success. It is particularly attractive to local small and medium sized businesses and relates in the main to smaller parcels or packages of land but a specific DPS to support our development proposals would need to be established.
- 5.52 In the context of the Caerphilly Homes development programme, available land could be packaged and released to potential suppliers on a design and build basis via a DPS. This would provide opportunities for developers to advise the Council on the number and type of units that could be accommodated in specific areas and potentially stimulate innovation and creativity.

Framework Arrangements

- 5.53 In order to develop new homes at pace and scale, Caerphilly Homes is exploring the option of working with a development partner. A development partner could bring a number of added benefits including the ability to work with Caerphilly Homes to undertake feasibility studies and architectural drawings in order to arrive at a standard design arrangement which could be configured differently according to the constraints and opportunities of each site. This would bring greater economies of scale, enhanced quality and also greater efficiency through the creation of a standard pattern book.
- 5.54 The selection of a development partner could be determined by the use of the SCAPE National Construction Framework Agreement, owned by SCAPE Procure Ltd, a public sector built environment specialist entirely owned and controlled by 60 UK local authorities who offer a suite of OJEU compliant frameworks and design solutions to other local authorities.
- 5.55 The Welsh Procurement Alliance (WPA) have developed a framework agreement which could be utilised to identify a potential development partner however, in contrast to the SCAPE arrangement it would mean that Caerphilly Homes would

have to appoint cost consultants and architects separately before working with an approved supplier.

Property Acquisitions

- 5.56 In an attempt to increase the number of affordable homes for social rent Caerphilly Homes may be willing to offer up to market value to acquire empty properties or properties that have been advertised for sale on the open market. The property must be sold with vacant possession and each party will be required to pay their own legal and valuation fees. A value for money assessment will be carried out and Caerphilly Homes will seek the best value price that does not exceed the home valuation report.
- 5.57 In order to respond to identified housing needs, Caerphilly Homes will show preference to purchasing 1 or 2 bedroom properties unless there is a business reason for purchasing a larger home i.e. that there are families with specific needs on the waiting list that require a larger home. All applications will be determined on the basis of business need.
- 5.58 Progress has already been made in relation to purchasing 10 additional homes with a further 6 purchases potentially in the pipeline. The purchases and refurbishment costs will be submitted to Welsh Government as an application for grant funding with a number already approved. The Affordable Housing Grant (AHG) will contribute towards 58% of the costs, but is payable as a revenue income stream with the full costs initially having to be financed by the HRA. This is explained further in section 10.

Other

- 5.59 Modern Methods of Construction (MMC) or homes that are created off-site are often highlighted as the answer to the UK's housing crisis. Homes that are built in factories, off-site and then assembled on site are quick to assemble, cost efficient and leave a much smaller carbon footprint than traditional housing. Homes using MMC are built off site are precision manufactured, energy efficient homes that are built with high levels of quality control.
- 5.60 The construction methods are often more sustainable than traditional methods and the materials utilised more energy efficient. The homes can also be assembled on site quickly (some within as few as 5 days) and can provide opportunities for the creation of a local factory to assemble the units and employment, skills and training for local people.
- 5.61 MMC homes could offer Caerphilly Homes the ability to build new Council homes on constrained or unconventional sites because the units can be lowered by crane. In addition, modular homes can easily be adapted to changing needs or circumstances with some that can be easily moved from one location to another.

In House

- 5.62 If Caerphilly Homes chooses to utilise the WPA framework to develop homes on some of its smaller, garage or infill sites, there is a possibility that the in house team could be utilised to fit out the house structures that are erected on site. The team already have the skills, having proven their abilities via the WHQS programme. Their attention to quality and to customer service has been applauded during the programme and could be applied within a new build context. This would provide a

planned and measured work programme for the in house team during the 5 year strategy period.

- 5.63 It would also provide additional options to upskill the in house team and to create new apprenticeship pathways in partnership with Coleg Y Cymoedd and Coleg Gwent and add value to the PSB Apprenticeship programme. An application for funding via the Welsh Government's Foundational Economy Challenge Fund has been successful with £100,000 allocated to develop a skills and apprenticeship programme specifically related to Modern methods of Construction (MMC).
- 5.64 The in house new build arrangement would run alongside any DPS or Development Partner arrangement that may also be in place thereby creating a number of work streams to underpin the *#BuildingTogether* programme, spreading risk and creating new and innovative opportunities for the Council's own workforce.

Planning

- 5.65 Planning will provide advanced notification of potential development sites and those where the use of Section 106 Agreements would apply, so these can be considered and, where feasible, factored in to future development plans and the HRA Business Plan.
- 5.66 In addition Housing Strategy Officers will continue to advise Planning on housing need for the area, to ensure that any developments undertaken privately or by RSL's, still contribute to meeting housing need and the requirements of the Local Housing Market Assessment and our Common Housing Register.
- 5.67 In a recent letter to local authorities (dated 8th July 2019), the Minister for Housing and Local Government noted that 'up to date Local Development Plans are the cornerstone for housing delivery by identifying the best sites for new homes'. She noted the most recent version of Planning Policy Wales requires local planning authorities to follow place making principles and adopt a people centred approach to planning, designing and managing communities to promote people's 'health, happiness and well-being, all of which must be central considerations when preparing LDPs and determining planning applications. Members will be aware that on the 23rd October 2019, Council resolved to commence work on a Replacement LDP for the county borough and this will be critical to the delivery of new homes and new affordable homes.

Conclusion

- 5.68 Following the completion of the WHQS programme and the removal of the borrowing cap by Welsh Government the HRA will be in an improved financial position which provides opportunities to invest in increasing the housing stock, in addition to maintaining the existing stock.
- 5.69 This report sets out how the supply of affordable housing, including social housing within our county borough can be increased in order to meet increasing demand, as well as the specific requirements of many of those applicants who are listed on our Common Housing Register.
- 5.70 Options within the report include acquisition of existing properties, acquisition of new build homes via Section 106 Agreements, Unilateral Undertakings and the development of new homes through partnership working, frameworks or other contract arrangements. A development table has been included as Appendix 2.

- 5.71 Caerphilly Homes will need to consider rent levels and charges for all new homes as these may differ from the rents attributed to our existing stock, however the new rent policy is yet to be finalised by Welsh Government. Ensuring rents remain affordable will be a key consideration.

6. ASSUMPTIONS

- 6.1 The Housing Business Plan whilst accounting for the delivery of the proposals contained within this report, also considers a number of assumptions which could impact on the extent to which the proposals can be met. Some of these assumptions include inflationary increases in relation to salaries, materials, office accommodation, transport etc. and also rent increase levels, ongoing maintenance of the existing stock, Major Repairs Allowance (MRA) allocation, interest rates and other potential funding restrictions.
- 6.2 Commercial terms and specifications for the new housing via Section 106 Agreements are assumed to result in properties being purchased at SPG rates and development proposals assume no issues are found with the site investigations or planning approval.

7. LINKS TO RELEVANT COUNCIL POLICIES

- 7.1 ***The Corporate Plan (CCBC, 2018-2023) - Well-being Plan Objective 2: Enabling Employment – Use investment in developing new homes to increase the number of skilled, qualified workers and tackle worklessness by providing apprenticeship, training and work placements with our in-house workforce and building contractors.***
- 7.2 ***The Corporate Plan (CCBC, 2018-2023): Well-being Objective 3: “Address the availability, condition and sustainability of homes throughout the county borough and provide advice, assistance or support to help improve people’s well-being.”***
- 7.3 ***Caerphilly County Borough Local Development Plan up to 2021: Key Objective 9 – “Ensure an adequate and appropriate range of housing sites are available across the County Borough in the most suitable locations to meet the housing requirements of all sections of the population.”***
- 7.4 ***Caerphilly Homes Service Plan (2018-2023), Priority Objective 2: “Increase the provision of new, affordable homes to meet identified needs, promoting ‘Lifetime Homes’ principles for grant funded delivery, and, where appropriate, supporting Welsh Government’s Innovative Housing Programme (IHP)”.***

Welsh Government Policies

- 7.5 ***Improving Lives and Communities: Homes in Wales (Welsh Government, 2010)***, which sets out the national context for improving homes and communities, including the energy efficiency of existing homes.

8. WELL-BEING OF FUTURE GENERATIONS

- 8.1 The underlying principles of the affordable housing new build programme concerns the provision of good quality, affordable homes, that are energy efficient and reduce fuel costs for the occupant, are constructed using materials which contribute to the

carbon reduction agenda, help to promote the sustainability of the communities in which they are built, contribution to positive health and wellbeing goals, and assist the Council in meeting its targeted recruitment and training objectives. The programme links to all of the 7 well-being goals in The Well-being of Future Generations (Wales) Act 2015, although some slightly more tenuously than others.

- 8.2 Our preferred approach to how the programme will be taken forward is consistent with the five ways of working as defined within the sustainable development principle in the Act:
- 8.2.1 **Long-term** - Housing is a long-term asset. We know that the homes we build today will be in use for many generations. These homes will, therefore, not only cater for the housing needs currently identified by the 2018 Local Housing Market Assessment but also for the emerging housing needs of future generations. We know over this time period that communities won't stand still and this is why we intend to build these homes based on the principles outlined in paragraph 8.1.
- 8.2.2 **Prevention** - The additional homes delivered through the new build programme will help to reduce the high level of housing needs in the borough. Failure to meet these needs could result in people living in overcrowded or unsanitary housing conditions and result in people becoming homeless or rough sleeping. The new build programme will positively impact on the objectives of other public sector organisations. There is a vast amount of literature which shows that poor housing is a key determinant of poor health. Providing good quality, affordable homes clearly links to the wider health improvement agenda. The way the homes are constructed links to the energy efficiency and carbon reduction agendas, and creating recruitment and training opportunities links to the worklessness agenda.
- 8.2.3 **Collaboration** - Section 5 of this report outlines the range of service areas and organisations that the Housing team will collaborate with to achieve the successful outcome of this programme.
- 8.2.4 **Involvement** - There may be an opportunity for tenants and prospective tenants to have an input to the development programme particularly during the design and specification stage. Post occupation surveys would be carried out to influence the nature of future developments. Local communities will also have the opportunity to comment on any proposed developments as part of the planning process.
- 8.2.5 **Integration** - The strategy looks to integrate property and environmental improvements that will benefit and transform lives and communities throughout the county borough. It further brings together a variety of stakeholders to deliver long term sustainable benefits for lives and communities including Social Services & Health.
- 8.2.6 Housing Services and our outlined priorities, contributes to a minimum of 6 out of the 7 well-being goals within the *Well-being of Future Generations Act (Wales) 2015*, including:-
- A prosperous Wales
 - A resilient Wales
 - A healthier Wales
 - A more equal Wales
 - A Wales of cohesive communities
 - A globally responsible Wales

9. EQUALITIES IMPLICATIONS

- 9.1 A screening form has been completed which has suggested that a full EqIA will need to be undertaken for each of the individual programmes and developments. A full EqIA will also be developed to underpin the Caerphilly Homes Development Strategy.
- 9.2 Equalities monitoring data is collected on the Common Housing Register application form and is regularly reviewed and analysed. Our assessment of housing need considers need by protected characteristic including age, disability, the gypsy and traveller community and carers under the Equality Act 2010.

10. FINANCIAL IMPLICATIONS

- 10.1 Achieving the WHQS programme has been the Caerphilly Homes priority over the need to directly increase housing supply. However, as we near the final stages of completing the programme, we can now investigate options to increase our stock and its financial impact.
- 10.2 The recent approval of AHG to part fund the buy back of 5 properties has been included in the business plan and does not require further borrowing to implement. The funding (£562k) will be taken from the HRA capital receipts reserve where we have retained 25% of our Right to Buy (RTB) sales. The AHG funding of £17k per annum over the next 29 years will in theory replenish 58% of the £562k capital used. Since the abolition of RTB's in January, there is no further opportunity to gain additional income in this way. The reserve is £4.7m, so would only be suitable to fund smaller projects.
- 10.3 To fund the larger type projects mentioned in this report would require borrowing in addition to the borrowing needed to complete the WHQS programme. The WHQS programme is currently projecting a borrowing requirement of £45m. This is mainly as a result of the change of the internal deadline from March 2020 to June 2020, where the programme has been extended into another financial year. Council originally approved £61m in October 2011 and although the projections are currently showing some headroom, it would be prudent to extend this approved limit to ensure there is adequate borrowing opportunity to commence our commitment to increase housing supply therefore approval would need to be sought to increase the level of borrowing to allow proposals within the report to proceed.
- 10.4 Scenarios have been tested against the latest plan and show that increased borrowing remains affordable. Since the removal of the HRA borrowing cap restriction, the affordability indicator is the test to ensure prudential borrowing. This is however based on all assumptions in the business plan remaining stable such as rent increases, interest rates and cost rises.
- 10.5 On the assumption that the WHQS borrowing remains at £45m by the end of the programme and therefore remains within its approved level of £61m, it will be necessary to seek approval for any remainder to be utilised to fund an affordable housing development programme along with approval for further borrowing up to £75m in total to fund the projects identified at this stage.
- 10.6 Increased borrowing to £75m would include funding towards achieving the WHQS programme up to £61m and a further £14m (plus any unused borrowing from WHQS) to be allocated for the draft development programme.

- 10.7 Further financial testing can be confirmed once projects have been approved and clearer costs identified, but the £14m plus any unused allocation should be adequate for the current draft proposal assuming the level of assumptions within the current business plan remain consistent, and the costs within the draft development programme do not deviate significantly. If there is any available resource within the HRA then this could also be allocated towards affordable housing before the final borrowing commitment is undertaken (as is currently the practise with the WHQS programme).
- 10.8 Further development programmes would require additional borrowing and would be subject to a further report as and when identified.
- 10.9 The borrowing rates from the Public Works Loan Board (PWLB) (The Councils lender) had fallen significantly over the past few years but recently the PWLB have increased their rates by 1% for all new loans. This appears to be as a deterrent for LA's to borrow for commercial enterprises which the Treasury sees as a high risk. However, this rate is still competitive although is likely to increase the costs previously estimated and there is uncertainty about future increases.

11. PERSONNEL IMPLICATIONS

- 11.1 A minor restructure has already been initiated within Caerphilly Homes to create a dedicated resource to focus on opportunities for increasing Council house supply and the establishment of a development strategy. It is clear however that if the proposals within this report are to be progressed, additional resources will be required to support the delivery of new affordable homes by Caerphilly Homes.
- 11.2 Additional resource requirements are outlined in 5.32 and 5.33.

12. CONSULTATIONS

- 12.1 Consultation responses have been reflected in this report.

13. STATUTORY POWER

- 13.1 Local Government Act 1972 and the Housing Wales Act 2014

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Rhian Kyte	Head of Regeneration & Planning
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Appendices:

Appendix 1	Supplementary Planning Guidance
Appendix 2	Draft Affordable Housing Programme

Appendix 1

Fixed Values for the transfer of units from a developer to the LA or an RSL

Discounted Fixed Values for Social Rented Units (Updated September 2018)

Unit Type	Type	Values
1 Bed *1 Person	Flat	£43,028
1 Bed *2 Person	Flat	£39,105
2 Bed 3 Person	Flat	£53,593
2 Bed *3 Person	House	£65,373
2 Bed *4 Person	House	£65,356
3 Bed *4 Person	House	£69,249
3 Bed *5 Person	House	£69,250
4 Bed *6 Person	House	£81,561
4 Bed *7 Person	House	£81,562
2 Bed *3 Person	Bungalow	£70,570

The table above identifies the values at which affordable housing should be transferred from a developer to either the LA or an RSL. These figures have been generated by capitalising the rental income i.e. the amount of borrowing that the net rent to the RSL or LA will support.

As these values are derived from the Table and Guidelines rents, which apply throughout the County Borough, there is no differentiation in values across the housing market viability areas and therefore these values should be used for all geographical locations.

Maximum Values for Intermediate Housing

The maximum prices that intermediate housing (for either intermediate rent or LCHO) have been derived from the latest Hometrack information (September 2018) on intermediate rents. This reflects Welsh Government's Rent First model which indicates intermediate rent levels were 80% of market rent. The income is calculated by annualising the weekly cost and multiplying it by 4 (using a quarter of gross income as the indicator of what is affordable). The affordable cost of the property is then derived by assuming a mortgage based upon a 3.5 times multiplier. This reflects the guidance in the LHMA Guide (2006).

These values are provided on an area-specific basis, equating to the viability areas defined.

Sub-market and property size	Weekly cost of intermediate housing	Implied price of intermediate housing
Caerphilly Basin		
1 bed	£82	£59,696
2 bed	£103	£75,105
3 bed	£117	£85,176
4 bed	£146	£105,997
Northern Connections Corridor		
1 bed	£80	£57,876
2 bed	£93	£67,903
3 bed	£102	£74,317
4 bed	£149	£108,229

Lower Islwyn and Aber Valley		
1 bed	£69	£49,941
2 bed	£89	£64,792
3 bed	£101	£73,649
4 bed	£149	£106,288
Heads of the Valleys Regeneration Area		
1 bed	£75	£54,782
2 bed	£77	£55,874
3 bed	£89	£64,468
4 bed	£115	£83,808

Appendix 2

Draft Affordable Housing Programme

Action/Site	Developer	Estimated Cost	Arrangement	Units (no. of new affordable homes)
Short Term (2019/20-2020/21)				
Purchase of Buy Back Properties and refurbishment costs – Tranche 1.	CCBC	£562,512 Overall cost (AHG @ 58% = £326,257)	Buy Back	5
Tranche 2 property acquisitions	CCBC	£712,196 overall cost (AHG @ 58% = £413,073)	Buy Back	5
Tranche 3 property acquisitions	CCBC	£500,000 overall cost (AHG @ 58% = £290,000)	Buy Back	4
Development of Bedwelty School Site (Llanmoor Homes)	CCBC	£500,000 for 8 properties in total	Section 106	8 (6 for social rent & 2 LCHO)
Development of Trecenydd and Bedwas	CCBC	Overall costs for both £2m. IHP funding to be sought if available	New Development (ND)	16
Hafod y Bryn, Risca	CCBC	£52,000	Conversion	1
Tredegar Court, Crosskeys	CCBC	£86,000	Conversion	2
Bereavement services properties	CCBC	£200,000		2
Cwrt Pen Capel, Caerphilly	Linc	£4.25m		38
Former Police Station, Caerphilly	Linc	£3m		34
Land at Newport Road, Pontymister	Linc	£1.4m		18
Hawtin Meadows, Pontllanfraith	Pobl	£2.93m		47
Chartist Gardens Village, Pontllanfraith	Pobl	£4.4m		83
Former Red Lion Public House, Blackwood	Pobl	£1.1m		17
Ton y Felin, Croespenmaen	Pobl	£1.9m		35
Coronation Road, Blackwood	Pobl	£660,000		7
Ty Mawr, Croespenmaen	Pobl	£3.6m	N/A	31
St Mary's Church, Pontllanfraith	Pobl	£713,000	N/A	7
Sir Ivors Road, Pontllanfraith	Pobl	£1.6m		20
Former Concrete Works, Deri	UWHA	£520,000		9
Former Cwm Ifor Primary School, Caerphilly	UWHA	£2.5m		19
Former De Winton Public House, Llanbradach	UWHA	£1.42m		14
Former Llanbradach Church Site, Llanbradach	UWHA	£800,000		10
Wingfield Crescent, Llanbradach	UWHA	£2.63m		30
Former Colliery Site, Penallta Road	UWHA	£4m		48
Former Ambulance Station, Nelson	UWHA	£450,000		5
Development of Nelson site	CCBC/ UWHA	£500,000 overall cost (AHG @ 58% applied for = £290,000, hence cost to Council £210,000.	Partnership	4

Medium Term (2021/22-2023/24)				
Development of Ty Darren (positive ageing accommodation including energy efficiency measures and new technology)	Caerphilly Homes	£5.5m overall (estimated)	WPA	40 (potential)
Coronation Road, Blackwood	Pobl	£655,000	N/A	7