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Place Scrutiny Committee Agenda

DARLINGTON BOROUGH COUNCIL

9.30 am Thursday, 25 October 2018
Committee Room 3, Town Hall,
Darlington, DL1 5QT

Members of the Public are welcome to attend this Meeting.

1. Introductions/Attendance at Meeting

2. Declarations of Interest

3. To receive the Minutes of the meeting of this Scrutiny Committee held on 6 September 2018 (Pages 1 - 6)

4. Matters Arising

5. Tees Valley Combined Authority Transport Strategy –
   Presentation - Mark Wilson, Tees Valley Combined Authority

6. Tees Valley Draft Waste Strategy

   (a) Presentation –
   Jim Busby, Project Director, Local Partnerships
   (Pages 7 - 22)

   (b) Report –
   Report of Director of Economic Growth and Neighbourhood Services
   (Pages 23 - 292)

7. Rail Heritage and 2025 Celebration –
   Presentation – Assistant Director, Railway Heritage and 2025

8. Work Programme for the Municipal Year 2018/19 –
   Report of Assistant Director of Law and Governance
   (Pages 293 - 304)

9. SUPPLEMENTARY ITEM(S) (if any) which in the opinion of the Chair of this Committee are of an urgent nature and can be discussed at this meeting

10. Questions

Luke Swinhoe
Assistant Director Law and Governance

Wednesday, 17 October 2018

Town Hall
Darlington.

Membership
Councillors Carson, Cossins, Donoghue, L Hughes, Kelly, Lyonette, Marshall, M Nicholson, Tostevin and Wright

If you need this information in a different language or format or you have any other queries on this agenda please contact Karen Graves, Democratic Officer, Resources Group, during normal office hours 8.30 a.m. to 4.45 p.m. Mondays to Thursdays and 8.30 a.m. to 4.15 p.m. Fridays email: Karen.Graves@darlington.gov.uk or telephone 01325 405801

ITEM NO 3

PLACE SCRUTINY COMMITTEE

6 September 2018

PRESENT – Councillor Carson (in the Chair); Councillors Cossins, Donoghue, L Hughes, KE Kelly, Lyonette, Marshall, MR Nicholson, Tostevin and Wright.(10)

APOLOGIES – (0)

ALSO IN ATTENDANCE – Councillors Coultas and Kelley. (2)

OUTSIDE BODIES REPRESENTATIVE – Keith Wilson, Economic Strategy and Intelligence Manager, Tees Valley Combined Authority. (1)

OFFICERS IN ATTENDANCE – Ian Thompson, Assistant Director, Community Services; Dave Coates, Head of Planning Development Management and Environmental Health; David Hand, Place Policy Manager; Barbara Copson, Performance Manager; Dawn Taylor, Trading Standards and Animal Health Manager and Lead Officer; and Karen Graves, Democratic Officer.

P11. DECLARATIONS OF INTEREST – There were no declarations of interests reported at the meeting.

P12. MINUTES – Submitted – The Minutes (previously circulated) of the meeting of this Scrutiny Committee held on 28 June 2018.

RESOLVED – That the Minutes be agreed as a correct record.

P13. MATTERS ARISING – There were no matters arising.

P14. PERFORMANCE INDICATORS QUARTER 1 2018/19 – The Managing Director submitted a report (previously circulated) and detailed performance scorecard (also previously circulated) providing Members with Quarter 1 Performance Data against key performance indicators for 2018/19.

It was reported that the performance indicators were aligned with key priorities and the majority were used to monitor the Corporate Plan 2017/21. Many indicators for this Scrutiny Committee were reported annually and as quarterly updates were not available, all annual indicators would be included in the Quarter 4 report.

It was reported that the indicator set for this Scrutiny Committee had increased by eight and of the 39 indicators for Place Scrutiny Committee 17 were reported annually and one was reported six monthly at Quarters 2 and 4.

Details were provided for indicators which had previous data for comparison and it was noted that seven indicators had achieved or exceeded year-end targets, seven had not achieved year end targets and six did not have a year-end target.

It was reported that Planning Indicators ECI 104 – Percentage of major planning applications decided within 13 weeks or within agreed time, ECI 105 – Percentage of non-major planning development decisions within eight weeks or within agreed time and ECI 106 – 24 months to date percentage of non-major development decisions within 8 weeks or within agreed time were currently exceeding year-end targets. Environment indicators ENV 002 – Number of Street Champions who are actively involved in litter picking a minimum of once per month and ENV 005 – Local Environmental Quality Survey – percentage of 75 transpets inspected that pass the Litter Code of Practice list are both showing solid improvement at Quarter 1. REG 312a – Percentage of noise complaints investigated and completed within six weeks of the date of receipt (Except where diary sheet returned) is also showing good performance and CUL 071 - Visits to the Head of Steam is showing strong performance at Quarter 1.

Members requested that CUL 065 be split to show visits to both Crown Street and Cockerton Libraries separately and following a question were advised that CUL 030 was inaccurate as there was an anomaly with footfall counters in that they did not tally with income received and that more accurate data would be provided in future. Clarification was sought on CUL 038 – Number of individual attendances at Hippodrome Theatre shows and Members were advised that as this indicator was calculated cumulatively across the year it was unlikely to achieve end of year targets by the end of Quarter 1, however at this time it is anticipated that this indicator will reach its end of year target by the end of the year. Members welcomed the data in relation to CUL 071 – Number of visits to the Head of Steam and in relation to the Hullabaloo enquired if the number of visits not related to shows could be captured.

In relation to ECI 105 – Percentage of non-major planning development decisions within eight weeks or within agreed time, Members were informed that there was a slight delay in getting applications up and running but this was due to new system problems and Officers hoped to be in a better position in three months' time.

ECI 401 – New homes delivered against 5 year supply was currently on target with 139 completions being made at the of Quarter 1, however, Members were made aware that the figures were dependent upon the scheme operated by the developers i.e. build as sell or completion of all houses within the development.

Officers acknowledge that a better system was required to record the number of Street Champions actively involved in litter or ground maintenance projects (ENV 002) as there were more than the 77 registered with the Council.

In relation to ENV 006 – Total number of fly tips reported, Members were advised that this should reduce due to the allocation of additional resources. It was also stated that the Contract for the new litter scheme was due to start on 17 September for a trial period of six months.

The Assistant Director, Community Services advised Members that Cabinet approval was being sought to enter into consultation on the Joint Waste Management Strategy

for the Tees Valley and that this Scrutiny Committee would consider the strategy as part of that consultation process.

Members were informed that there had been around 1700 households wanting to access the garden waste service and that a further publicising exercise was to be undertaken.

In relation to REG 308 – Environmental Health: Percentage of premises broadly compliant for food hygiene Members were advised that the word 'broadly' was an official term used by the Food Standards Authority.

The Chair referred to TCP 600 – Number of people killed or seriously injured in road traffic accidents and made particular reference to two serious road accidents that had occurred, following the introduction of a new road scheme, at St Cuthbert's Way and requested that the Head of Highway Network Management attend the next meeting of this Scrutiny Committee scheduled for 25 October.

RESOLVED – (a) That the thanks of Scrutiny Committee be extended to Officers for their comprehensive accounts in relation to Performance Indicators.

(b) That the submitted report be noted.

(c) That the Head of Highway Network Management be requested to attend the next meeting of this Scrutiny Committee.

P15. BROADBAND INFRASTRUCTURE DELIVERY IN DARLINGTON 2012–20 – The Director of Economic Growth and Neighbourhood Services submitted a report (previously circulated) providing an update on past and future Broadband infrastructure roll out in the Borough and detailing other projects enhancing speed for digital use. A PowerPoint Presentation given by the Economic Strategy and Intelligence Manager of Tees Valley Combined Authority (TVCA) accompanied the submitted report.

The submitted report stated that TVCA and Broadband Delivery UK (BDUK) had committed funding for two phases of public sector funded Broadband infrastructure rollout programmes for the Borough with Digital Durham managing delivery of two Phases of the BDUK programme via Openreach in County Durham, Gateshead, Sunderland, North and South Tyneside and the five Tees Valley Local Authorities including Darlington Borough Council.

Members were informed that Phase 1 of the BDUK Programme had been delivered in the Town Centre and Central Park Enterprise Zone together with rural cabinets around Piercebridge, Merrybent, High and Low Coniscliffe, Hurworth Place and Bishopton resulting in a 93.5 per cent Borough coverage.

In 2017 Tees Valley Combined Authority took over responsibility for the management of Phase 2 of the roll out of Broadband. Following consultation with the Local Authorities a revised Phase 2 contract was negotiated which set a target of coverage of at least 98.1% coverage of premises in each of the 5 Local Authorities up to a maximum budget of £2.5m. The revised Phase 2 necessitated a change request with

Digital Durham, for which it was able to largely subsume existing contracts in Stockton, Middlesbrough and Redcar and Cleveland, but had to develop new plans for Darlington and Hartlepool.

It was also reported that TVCA aimed to apply for Government programmes such as the Local Full Fibre Network (LFFN) (based on full fibre solutions) which would offer new infrastructure provision for speeds up to 1 gigabit per sec level which would enable 5G solutions.

The report outlined the future needs for Superfast Coverage in Darlington through Phase 3 (2020 onwards) although stated that Darlington's Rural Areas to the West (Killerby, Summerhouse, Denton and Walworth Gate) and North East (Great Stainton and Barmpton) would be left uncovered by Fibre based solutions for Broadband.

It was stated that those areas which have not been covered by Phase 2 of the programme were eligible to bid through the Better Broadband Scheme administered by Digital Durham for grants in the form of a voucher (up to £350 for hardware and installation) for mobile or satellite broadband connection with Superfast speeds.

Consideration is also being given to working with the Neighbouring North Yorkshire Programme (NYNET) to cover the rural areas in the next Phase 3 (2020 onwards) due to the closeness of its fibre network to both Darlington and the Tees Valley and its considerable rural delivery experience.

Particular references were made to the future proofing considerations for the Tees Valley and Darlington as digital enhancements and technology are not standing still. Ambitions for economic growth are underpinned by digital speeds and the Tees Valley Combined Authority, including Darlington, aims to stay ahead in the digital speed race. In order to market the Tees Valley as a region for investment digital speeds have become a locational factor to attract investment into the region. The TVCA has subsequently earmarked Government programmes like Gigabit Vouchers for businesses, the 5G Testbed and Trial programme and the Local Full Fibre Network (LFFN) programme for up to 1gb/sec 5G technology. Applications for these programmes are being considered which would enhance Darlington's position in connectivity speed further in the future.

Discussion ensued on the timescale involved to provide broadband to the TVCA areas; the pros and cons of Fibre to the Cabinet and Fibre to the Home broadband; Darlington's change request to BT being subject to the deliberations of Central Government and BT due to the economic life of Fibre to the Cabinet which would need to be replaced after eight to ten years; rural areas to be provided having a certain amount of ambiguity until site investigations have been undertaken; the programme operating where there is not an existing provision; and the need to ascertain from BT where broadband provision was and whether or not it was value for money.

Concerns were expressed that nationally broadband provision was lacking compared to international employers and there was a need to future proof commercial and residential broadband provision for the region. It was stated that full fibre would ensure 5G; Phase 3 would use legacy funding and provide 100 per cent coverage; and that full fibre would ensure that any provider could deliver broadband leading to increased productivity and increased premises.

RESOLVED – (a) That the thanks of this Scrutiny Committee be extended to the Economic Strategy and Intelligence Manager of Tees Valley Combined Authority for his informative and interesting presentation.

(b) That the current position on Phase 1 of the Broadband Delivery UK Programme be noted.

(c) That the future aspirations of the Tees Valley Combined Authority regarding Local Full Fibre Network be noted.

(d) That an update on broadband provision be provided in six months' time.

P16. WORK PROGRAMME 2018/19 – The Assistant Director Law and Governance submitted a report (previously circulated) requesting that consideration be given to this Scrutiny Committee's work programme for the remainder of the Municipal Year 2018/19.

The work programme has been reviewed to link it to the outcomes and conditions in the Sustainable Community Strategy and each topic has been linked to performance indicators from the Performance Management Framework to provide accurate data for Members to use when considering topics and the work they wish to undertake.

The Lead Officer provided Members with an updated position in relation to individual items within the schedule.

Discussion ensued on the need to convene Special meetings to give consideration to the Library Consultation, the Local Plan and the Joint Waste Management Strategy for the Tees Valley (Minute P14 above refers).

RESOLVED – (a) That the current status of the Work Programme be noted.

(b) That the Work Programme be updated to reflect the decisions of this Scrutiny Committee.

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TEES VALLEY OBC UPDATE FOR DARLINGTON SCRUTINY

25TH OCTOBER 2018

JIM BUSBY

AGENDA

1. Local Partnerships
2. Waste Management in the Tees Valley
3. OBC Summary and Content
4. Development of the Waste Management Strategy
    - Policy Review
    - Collections
    - Waste Flows
    - Options Appraisal
    - SEA
5. Summary of JWMS
6. Preferred Option

LOCAL PARTNERSHIPS

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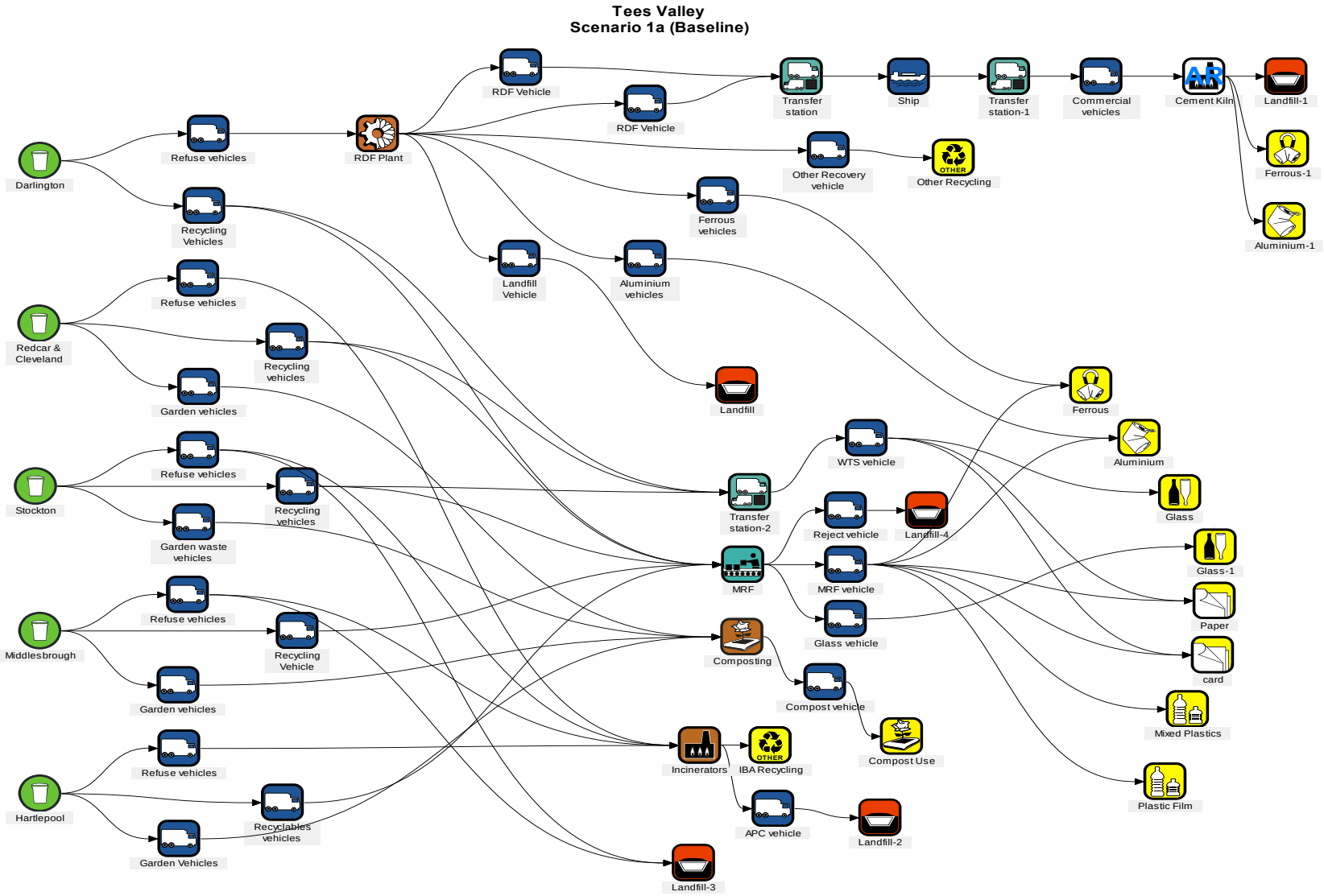
- Our role is to help the public sector to:
  - deliver infrastructure projects more effectively
  - obtain commercial advantage and value for money
- Unique position and ownership, we provide a bridge between central government policy and local government delivery.
- Only work for the public sector, so our clients can be assured that we are not commercially conflicted in the advice we give.
- Employ senior professionals with both private and public experience

WASTE MANAGEMENT IN THE TEES VALLEY

- Recycling and residual waste is collected by the 5 Tees Valley councils using a range of different frequencies and systems
- Overall 34% of waste is recycled whilst the remaining residual waste is sent to an energy from waste facility for treatment (Darlington 40%)
- The treatment contract has been extended until 2025 by which time an alternative residual waste solution will need to be operational
- This is the subject of the OBC

WASTE FLOWS



Date 15/06/2018
Software Version 4.0.1.0
Database Version 4.0.1.0

LOCAL PARTNERSHIPS

BACKGROUND TO OBC

- Structure of the OBC
  - Based on Treasury 5-case model adapted for waste management projects
  - Supporting work:
    - Member and officer workshop
    - Revised Joint Waste Management Strategy for Tees Valley
    - Strategic Environment Assessment
    - Collection scenarios modelling feeds into waste flow modelling
    - Waste flow modelling of future waste tonnages
    - Sites selection
    - Soft market testing/market interest day

OBC CONTENT

1. Executive Summary
2. Background
3. Strategic Waste Management Objectives
4. Procurement Strategy and Reference Project
5. Risk Management, Risk Allocation and Contractual Structures
6. Project Team and Governance
7. Sites, Planning and Design
8. Costs, Budget and Finance
9. Stakeholder Communications
10. Timetable

DEVELOPMENT OF THE JWMS

Joint Waste Management Strategy:

- Waste Hierarchy
- Policy Review – future targets and objectives
- Collections – improving recycling and reuse
- Waste Flows – waste growth and changes in material flows
- Options Appraisal – 20 different scenarios modelled
- SEA – environmental impacts

COLLECTION OPTIONS MODELLING

Industry standard Kerbside Analysis Tool (KAT)

- Modelling of current collection “baseline” for each Council and comparison with six alternative “future” scenarios
- Scenarios provide information on recycling levels, waste tonnages, costs and vehicle numbers
- Have to reflect what might be occurring post 2025 for up to 25 years

Scenarios:

Business as usual (BAU) + weekly food waste

BAU + charged garden waste service

BAU + 3 weekly residual

BAU + 2 weekly (120/l container)

Restricting residual

Combined option A: charged garden + restricted fortnightly residual

Combined option B: charged garden, weekly food, 3 weekly residual, 2 stream fortnightly dry

RESIDUAL WASTE OPTIONS APPRAISAL

The options considered were:

- Do nothing
- Residual waste solutions
  - Further contract extension
  - New Build Energy Recovery Facility (ERF)
  - New Build Refuse Derived Fuel Facility (RDF)
  - Utilising 3rd Party ERF Capacity
- Collection solutions
  - High Efficiency
  - High Recycling Performance
- Prevention, reuse and recycling initiatives
- Combination of options

STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

- Identified the key sustainability issues for the Tees Valley
- Developed a set of sustainability criteria (the measures by which JWMS will be assessed in the SEA)
- Key sustainability issues for the Tees Valley were identified and were circulated in the draft SEA scoping report,
- Suggested sustainability criteria for discussion / approval.

PREFERRED OPTION

The preferred option was:

- the adoption of prevention, reuse and recycling initiatives;
- the introduction of high recycling performance collections including separate food waste collections; and
- a new energy recovery facility with the ability to utilise the heat produced, through the development of Combined Heat and Power (CHP) facility.

SITE IDENTIFICATION AND SELECTION

Systematic approach to identify site(s) for future strategic waste infrastructure:

- Review of existing planning policy, identify potential sites
- Assess potential sites against agreed criteria
- Combined heat and power
- Identify step of securing preferred site
- Short list – site visits
- Reference site for OBC – create competition

SUMMARY OF JWMS AIMS AND OBJECTIVES

To deliver a high quality, accessible and affordable waste management service that:

- delivers customer satisfaction;
- reduces the amount of waste generated by householder and the Councils;
- increases reuse and recycling;
- maximizes recovery of waste;
- works towards zero waste to landfill;

and by doing so contributes to:

- economic regeneration, including employment and a more circular economy;
- the protection of the environment and natural resources and
- reducing the carbon impact of waste management.

Consistent with 2008 Strategy

NEXT STEPS

JWMS approved to go to Consultation

Consultation commenced 5th October 2018

Consultation to be via Council Websites for 8 weeks

Financial modelling

Stakeholder engagement

Delivery of draft OBC in March 2018

THANK YOU

LOCAL PARTNERSHIPS

PLACE SCRUTINY COMMITTEE
25 OCTOBER 2018

ITEM NO. .....

TEES VALLEY WASTE MANAGEMENT STRATEGY

Purpose of the report

1. To consider the Cabinet report (attached at Annex 1) that was presented to Cabinet on 11 September 2018.

Ian Williams
Director of Economic Growth and Neighbourhood Services

Ian Thompson: Extension 6628
CD

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CABINET
11 SEPTEMBER 2018

ITEM NO. .....

TEES VALLEY WASTE MANAGEMENT STRATEGY

Responsible Cabinet Member -
Councillor Nick Wallis, Leisure and Local Environment Portfolio

Responsible Director -
Ian Williams, Director of Economic Growth and Neighbourhood Services

SUMMARY REPORT

Purpose of the Report

1. To seek approval from Cabinet to enter into consultation on the Joint Waste Management Strategy (JWMS) for the Tees Valley.

Summary

2. The five Tees Valley Local Authorities are currently developing an outline business case for options on the future of waste treatment/disposal post 2025 when existing contractual arrangements come to an end. As part of this process, the JWMS for Tees Valley needs to be reviewed, refreshed and updated to take account of current policy direction. The existing JWMS for the Tees Valley covers the period up to 2025. The Councils have agreed that the new refreshed JWMS will cover the period from 2020 to 2035.

Recommendation

3. It is recommended that :-

   (a) Cabinet endorse the draft JWMS and supporting documents.

   (b) Approve commencing with public consultation from 1 October 2018 for 8 weeks.

Reasons

4. The recommendations are supported to enable the Council to consult on the JWMS.

Ian Williams
Director of Economic Growth and Neighbourhood Services

Background Papers
No background papers were used in the preparation of this report.

Ian Thompson : Extension 6628
CD

S17 Crime and Disorder	The content of this report does not impact on crime and disorder.
Health and Well Being	Effective safe management of waste can have a positive impact on the health and well being of residents.
Carbon Impact	As part of the production of the JWMS, the impact of carbon has been considered and modelled against the various options.
Diversity	There is no impact on diversity as a result of this report.
Wards Affected	There is no impact on any ward particularly as a result of this report, however should collection methods be changed in the future, it would impact on all Wards and all residents.
Groups Affected	No particular group is affected as a result of this report.
Budget and Policy Framework	This is not a change to the budget or policy framework.
Key Decision	No
Urgent Decision	No
One Darlington: Perfectly Placed	Waste management from collection to treatment/disposal has an impact on the Perfectly Placed agenda.
Efficiency	There is no impact on the Council's efficiency agenda as a result of this report.
Impact on Looked After Children and Care Leavers	This report has no impact on Looked After Children or Care Leavers

MAIN REPORT

Information and Analysis

Background

5. The Council entered into a medium term contract with Stonegrave Aggregate in April 2009 for 11 years to run through to March 2020. The contract is for the treatment, recycling and disposal of all local authority waste. The intention at the outset was for the contract to be co-terminus with the other four Tees Valley Authorities who are currently under contract with Suez (formerly SITA) to then give the opportunity for a large-scale procurement post 2020. Since the award of the initial contact, both Darlington and the other four Tees Valley Authorities have extended their contracts to 2025; again remaining co-terminus.

6. In order to plan for the future and place the Tees Valley in the strongest position, the Tees Valley Chief Executives agreed to develop a strategic outline business case to progress options for post 2025. Key to this is providing not only a long-term solution for dealing with waste but also a tangible contribution to local economic growth, turning our waste into opportunity and supporting the circular economy.

7. Underlining the strategic outline business case, the following outcomes of this programme of work were agreed:

   (a) Have a well-developed alternative option to contract extension giving the strong negotiating position in 2025 (with work beginning in 2017/18 in order to have enough development time for credible options).

   (b) Have a well-developed long-term solution and Waste Strategy 2025-2045 and beyond to provide certainty and financial stability for each authority.

   (c) Provide increased benefit from energy output of the Energy for Waste (EFW) where the current contract does not (relevant to the other four Tees Valley Authorities).

   (d) Contribute positively to the local circular economy, for example helping local energy intensive industries or extracting useful materials to be used locally.

   (e) Provide opportunities to increase recycling of our waste.

   (f) Contribute positively to the future regeneration and infrastructure of key development sites.

   (g) Promote jobs and growth.

Delivery of the Outline Business Case

8. One essential element to providing the Outline Business Case (OBC) is to ensure it is consistent with a valid waste management strategy, in this case one that is adopted by all Tees Valley Authorities.

9. The existing JWMS only covers the period up to 2020 and so it needs to be refreshed and updated to take account of current policy direction. The Councils have agreed that the new refreshed JWMS will cover the period from 2020 to 2035.

Joint Waste Management Strategy for Tees Valley

10. The JWMS for the Tees Valley, attached as **Appendix 1**, sets out the Council's approach to the management of local authority collected waste over the period from 2020 to 2035. The strategy will be supported by action plans that will provide the detail of each individual Council's activities at a local level. These will be prepared separately by each individual Council.

11. The strategy document has been developed in conjunction with:

    (a) An options appraisal, attached as **Appendix 2**, which considers a number of different ways to achieve the outcomes in this strategy, and

    (b) A Strategic Environmental Assessment (SEA), attached as **Appendix 3**, which has been carried out to assess if the proposed strategy is likely to have any adverse impact on the environment.

12. A review of existing and proposed policy at local, regional and national level has been carried out to inform the key themes of the JWMS. These were developed and agreed with Members (DBC representative Councillor Carson) and officers at a workshop in March 2018.

13. At the same time, the SEA scoping document was developed to ensure that the environmental issues most important to the Tees Valley area are included in the SEA.

14. The SEA scoping document was then subsequently sent out to the statutory consultees during June and July, and any responses received have been taken into account in the drafting of the SEA report that will accompany the JWMS for public consultation.

15. A second workshop was then held in May 2018 with officers to agree the evaluation criteria by which the strategy options were to be assessed together with weighting/prioritisation. This built on the earlier discussions with Members and officers at the March workshop. This process has now been completed and an options appraisal report produced.

16. The key stages in the options appraisal process have included:

    (a) Firstly developing the waste strategy objectives through workshop sessions with officers and Elected Members from each of the representative Councils that included identifying key issues/drivers for the strategy and by considering the policy and legislative context.

    (b) Identifying options for delivery of waste strategy objectives.

    (c) Agreed the options appraisal process, i.e. the assessment method scoring of evaluation criteria and weighting of the evaluation criteria.

    (d) Undertaking a detailed appraisal of each of the options based on the agreed evaluation criteria to help identify a preferred option.

17. The options considered were:

    (a) Do nothing

    (b) Residual waste solutions

        (i) Further contract extensions
        (ii) New built energy recovery facility
        (iii) New built refuse derived fuel facility
        (iv) Utilising third party energy recovery facility capacity

    (c) Collection solutions

        (i) High efficiency
        (ii) Higher recycling performance
        (iii) Prevention, reuse and recycling initiatives
        (iv) Combination of options

18. The preferred option selected was:

    (a) The adoption of prevention, reuse and recycling initiatives

    (b) The introduction of higher recycling performance collection

    (c) A new energy recovery facility with the ability to utilise the heat produced through the development of combined heat and power facility.

19. It should be noted that the options are consistent with the existing JWMS.

20. The JWMS together with the reporting options appraisal and SEA form the basis of consultation.

21. Essentially the new JWMS is an update version of the previous strategy. This strategy sets out the approach to the sustainable management of waste within the Tees Valley and the priorities for action over the next 15 years. It provides a framework for how the Councils will work towards reducing the amount of waste produced to recycle as much material as possible and find the most sustainable solution to deal with any waste that remains.

Tees Valley Vision for the Future – Sustainable Waste Management

22. The Tees Valley JWMS was built on the aims and objectives of the existing strategy and developed in conjunction with Members and officers. It aims to deliver:

    A high quality, accessible and affordable waste management service that contributes to:

(i) Economic regeneration including employment and a more circular economy

(ii) The protection of the environment and natural resources

(iii) Reducing the carbon impact of waste management

(iv) Delivers customer satisfaction

(v) Reduces the amount of waste generated by households in the Councils

(vi) Increases reuse and recycling

(vii) Maximises recovery of waste

(viii) Works towards zero waste to landfill

23. The Tees Valley Authorities work in partnership and are committed to work towards this vision for waste management and support the necessary changes in behaviour and practice to make this happen, whilst at the same time balancing financial commitments and budgets, and delivering a high quality service, supporting local self-sufficiency.

Timescales

24. The timescales associated with developing a new treatment option to replace the current arrangements across Tees Valley are such that it is essential that the public consultation commences on the draft JWMS on 1 October 2018 for an 8-week period to allow subsequent steps in the process to proceed.

Financial Implications

25. The Tees Valley Authorities outline business case for waste treatment and disposal 2025 is being funded by the Combined Authority.

26. Following the completion of the OBC towards the end of this year/early next year and dependent on the outcome, a further report will be brought to Cabinet with regard to the financial implications for the next stages of the process, which will include the requirement to move to a procurement project for a waste management solution for the Tees Valley post 2025.

Consultation

27. The draft JWMS consultation will take place from 1 October 2018 for an 8-week period with documents being available on the Council's website where comments can be posted. In addition, there will be a stakeholder session organised for interested organisations within the waste industry. Feedback from the public across the Tees Valley and industry will inform the final JWMS.

Draft Tees Valley Joint Waste Management Strategy for consultation

2020 to 2035

Contents

Introduction

This document is the Joint Waste Management Strategy for Tees Valley. It has been produced by the five local councils that comprise Tees Valley: Darlington Borough Council, Hartlepool Borough Council, Middlesbrough Council, Redcar and Cleveland Borough Council, and Stockton-on-Tees Borough Council.

The strategy sets out the joint approach to the sustainable management of waste within the Tees Valley and prioritises actions for the next fifteen years. It provides the framework for how the councils will work towards reducing the amount of waste produced, to recycle as much material as possible and find the most sustainable solution to deal with any waste that remains.

In recent years the amount of waste produced in Tees Valley has remained relatively constant and the amount of waste sent to landfill has reduced. However, there has been no increase in the amount of waste recycled. Currently only 34% of the household waste produced is recycled. So, there is still much more to be done before recycling becomes second nature and the amount of waste everybody produces each year falls.

Policy Context

The way that waste is managed in Tees Valley has been shaped by both National and European policies that has evolved over time setting out targets for recycling, limits on landfill, and encouraging activity around waste prevention.

The UK's decision to leave the European Union does create a degree of uncertainty over the future development and implementation of environmental policy and legislation, particularly over the next few years.

However, the 25-Year Environment Plan published by Defra in January 2018 makes a number of statements with regards to future environmental policy and legislation

In the Foreword, the Prime Minister states:

> '*When the United Kingdom leaves the European Union, control of important areas of environmental policy will return to these shores. We will use this opportunity to strengthen and enhance the protections that our countryside, rivers, coastline and wildlife habitats enjoy, and develop new methods of agricultural and fisheries support which put the environment first*.'

Further, in Section 2 on 'Putting the Plan into practice', it states:

> '*The Plan coincides with the once-in-a-generation opportunity presented by our leaving the EU. We will make the most of the chance to improve our environmental policy framework, align it with the ambitious goals we have set, and lead from the front in pursuit of higher standards across the world.*

The European Union (Withdrawal) Bill will ensure that the body of existing EU law, including environmental law, continues to hold sway in the UK. Key underlying principles of existing policy, such as the 'polluter pays' principle and the precautionary principle, are reflected in this legislation and in the historic judgements of the European Court, also covered by the Bill.

We will be consulting on the development of a policy statement on environmental principles to underpin policy-making post-EU Exit. This will provide maximum certainty about environmental regulations as we leave the EU.'

In addition, with regards to minimising waste, the 25-Year Plan makes the commitment:

'*meeting all existing waste targets*[1] *– including those on landfill, reuse and recycling – and developing ambitious new future targets and milestones*'.

A new Resources and Waste Strategy is expected to be published by Defra before the end of 2018. Defra's stated ambition is for the UK to '*become a world leader in resource efficiency, resource productivity and increasing competitiveness'*.

This strategy and current national policy are based on the principle of the waste hierarchy (Figure 1). The waste hierarchy is an important approach in waste management and it presents a number of waste management stages in their order of priority. It stresses the importance of preventing waste being created in the first instance as the main priority and disposal as the lowest priority option. Producing recyclable material of a high quality is also important so that further treatment and disposal is minimised.

Alongside the waste hierarchy is the concept of the circular economy (Figure 2), in which:

- resources are kept in use for as long as possible;
- the maximum value is extracted from them whilst in use;
- products and materials are recovered and regenerated at the end of each service life.

Figure 1 Waste hierarchy

[1] EU targets as well as UK

Figure 2 ***Tees Valley Strategic Economic Plan 2016 – 2026*** *(Tees Valley Combined Authority)*

To support the delivery of a circular economy the following targets have been agreed in Europe, which the UK are expected to adopt:

- 55% recycling target for municipal waste[2] by 2025
- 60% recycling target for municipal waste by 2030
- 65% recycling target for municipal waste by 2035
- 10% limit on the landfilling of municipal waste by 2035

[2] Municipal waste consists of the wastes collected and managed by local authorities (known as Local Authority Collected Waste (LACW)) and similar commercial and industrial wastes.

How our Strategy has been developed/evolved

In 2008 the Tees Valley councils produced a joint strategy for the wastes collected and managed by the councils. The principles of the 2008 strategy were:

- to reduce waste generation;
- to be achievable and affordable;
- to work towards zero landfill;
- to minimise the impact on climate change;
- to have an accountable and deliverable structure;
- to contribute towards economic regeneration.

This document considers the work that has been undertaken since the original JWMS was published in 2008 and reviews current performance. It also sets out the strategic objectives that are important to Tees Valley going forward and how it is proposed to support the changes required to meet these objectives.

This Strategy Document

This document covers the period from 2020 to 2035 and sets out Tees Valleys approach to the management of Local Authority Collected Waste (LACW) over this timeframe. The strategy will

subsequently be supported by action plans for each council, which provide detail of individual activities at a local level.

It is intended to review the strategy on a five-yearly basis.

This strategy document has been developed alongside and supported by:

- an Options Appraisal which considers a number of different ways to achieve the objectives in this strategy; and
- A Strategic Environmental Assessment (SEA), which has been carried out to determine if the activities that are proposed to progress in Tees Valley are likely to have any significant adverse impact on the environment.

Waste Management in Tees Valley

Tees Valley

Tees Valley covers an area of 790 km^2 hectares and has a rich industrial heritage with an economy based around key sectors including advanced manufacturing and engineering, aerospace, automotive, chemicals and processing and offshore oil and gas.

The population of the area is approximately 670,000, averaging 2.3 inhabitants per household, with much of the population centred around the River Tees and Teesmouth.

As with many areas that had a strong historic industrial heritage, there is a high level of deprivation amongst the population, which the Tees Valley Councils and the Tees Valley Combined Authority are working to overcome. It is well known that this situation also presents challenges for the provision and operation of efficient waste management services in particular waste avoidance and high recycling rates.

Council Waste Services

Waste collection services are provided by each local authority through in house services teams.

Kerbside Collections

All councils offer a fortnightly dry recycling collection service, the principal materials collected are paper, card, cans, glass, and plastic bottles. Some councils also collecting plastic tubs, pots and trays and drinks cartons. These materials are either sorted at the kerbside or at a Materials Recovery Facility (MRF) and then sent to a variety of end markets for sale or further reprocessing.

Refuse is collected weekly in Middlesbrough and Stockton-on-Tees and fortnightly in Darlington, Hartlepool and Redcar and Cleveland.

Garden waste is collected free of charge fortnightly by all authorities, with the exception of Darlington where no service is currently provided.

None of the authorities collect food waste, either mixed with the garden waste or separately as a dedicated service, it remains in the residual waste.

Bulky Collections and Trade Waste[3]

All Councils offer a charged bulky household waste collection for larger household items

Four of the five Tees Valley local authorities provide a trade waste service. In Middlesbrough businesses are directed to use suitable contracted services.

Household Waste Recycling Centres (HWRCs)

HWRCs are sites to which residents can take items that cannot be collected as they are either difficult or costly to collect from

[3]Waste collected by the councils from commercial properties

households, e.g. electrical items, household chemicals, furniture and rubble. There are currently four HWRCs across the Tees Valley, where residents can take household waste to be re-used, recycled or disposed of. Residents from each council have access to the HWRC in their home council area, with the exception of Middlesbrough where residents have access to the Haverton Hill HWRC (in Stockton-on-Tees), which is jointly managed by Middlesbrough and Stockton-on-Tees Councils.

A variety of materials are accepted for recycling at all of the HWRCs including wood, oil, batteries, paper, card, metals, textiles, glass, furniture, plastic bottles, garden waste and electrical equipment.

Treatment and Disposal

With the exception of Darlington, household residual waste is treated through an Energy from Waste (EfW) combustion facility at Billingham in Stockton-on-Tees. The residual waste collected from Darlington is currently treated through a residual waste MRF at Aycliffe Quarry, from where the Refuse Derived Fuel (RDF) produced is exported to an EU based EfW facility.

How much waste is produced in Tees Valley?

In 2016/2017 just over 350,000 tonnes of LACW was produced across Tees Valley. This tonnage is equivalent to approximately 1 tonne per household per annum (in 2016/17).

A summary of the total arisings in the Tees Valley is shown in **Error! Reference source not found.**, this covers the last 7 years and is colour coded by each Council's contribution to total arisings. The actual tonnage data are provided in the Annex.

In addition to the waste collected by local authorities there remains a significant proportion of waste that is generated by commercial and industrial, construction and demolition activities, which is managed by private waste contractors. This is not dealt with by local authorities' and is therefore not a focus of this strategy document.

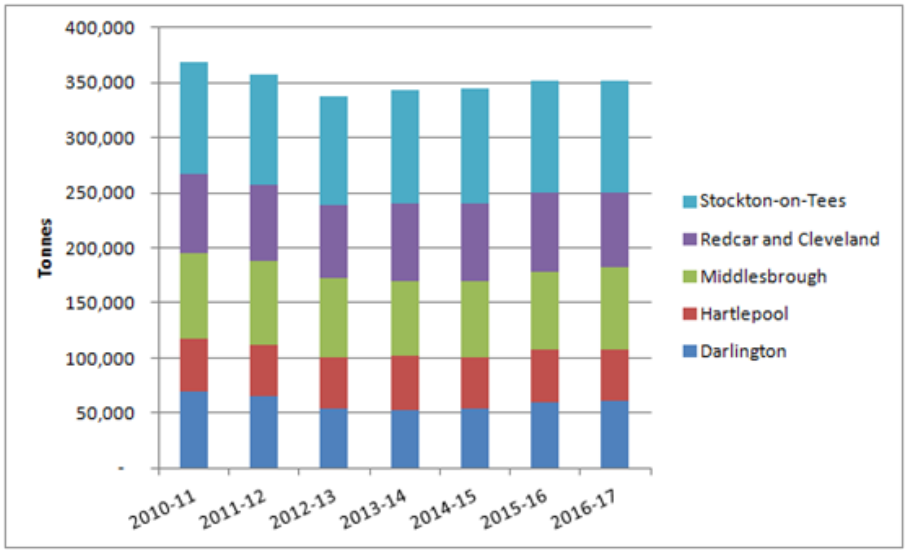


Figure 3 Total LACW produced in the Tees Valley 2010-11 to 2016-17

Waste Trends

The amount of waste produced in 2016/17 can be compared with the tonnage produced since 2010/11. The tonnage data shows a decline up to 2012/13 followed by a steady increase back to the 2010/11 figure. Over this time waste trends have tended to mirror patterns of economic decline and growth.

There are, however, other factors that influenced these figures including housing growth, local authority waste prevention activities and weather conditions (which has an impact on the amounts of garden waste produced). Overall since 2012/13, at the Tees Valley level, the waste produced per household has remained relatively static just below 1 tonne per household per year. At the individual council level, Darlington, Hartlepool and Stockton-on-Tees have seen small deceases whilst Middlesbrough and Redcar and Cleveland experiencing small increases.

Looking forward, across all the council areas population and housing is predicted to increase to 2035. These predicted increases in population and housing means that more waste is likely to be generated across the Tees Valley area, which will also need to be managed.

A range of waste growth scenarios have been considered based on local and national trends. The resulting waste forecasts indicate that between 373,000 to 399,00 tonnes of LACW (Figure 4) will be produced by 2035 compared to the 352,000 tonnes produced in 2016/17. If the economic regeneration planned by the Tees Valley Combined Authority is realised, this could increase population and housing further resulting in between 392,00 to 420,00 tonnes of LACW by 2035.

For the purposes of waste strategy planning it has been assumed that the future waste growth rate will be approximately 0.25% per annum.

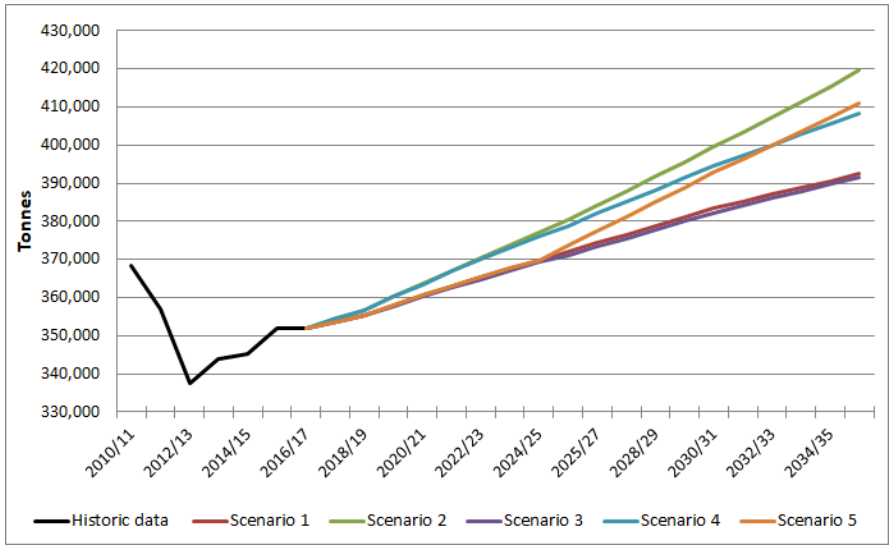


Figure 4 Range of forecast tonnages up to 2035

Recycling and Composting Performance

Over the last seven years there has been little change in the quantity of material collected for recycling and composting across Tees Valley. In 2016/17, the combined household waste recycling rate for the Tees Valley Councils was 34%.

Figure 5 shows the household recycling rates between 2010/11 and 2016/17 for England, the North East region and the combined rate for the Tees Valley Councils. The figure highlights that whilst the performance in Tees Valley is below the national average, the trend is consistent with national performance with household recycling rates remaining relatively static.

In addition, the household recycling rates in Tees Valley are comparable with those achieved across the North East region.

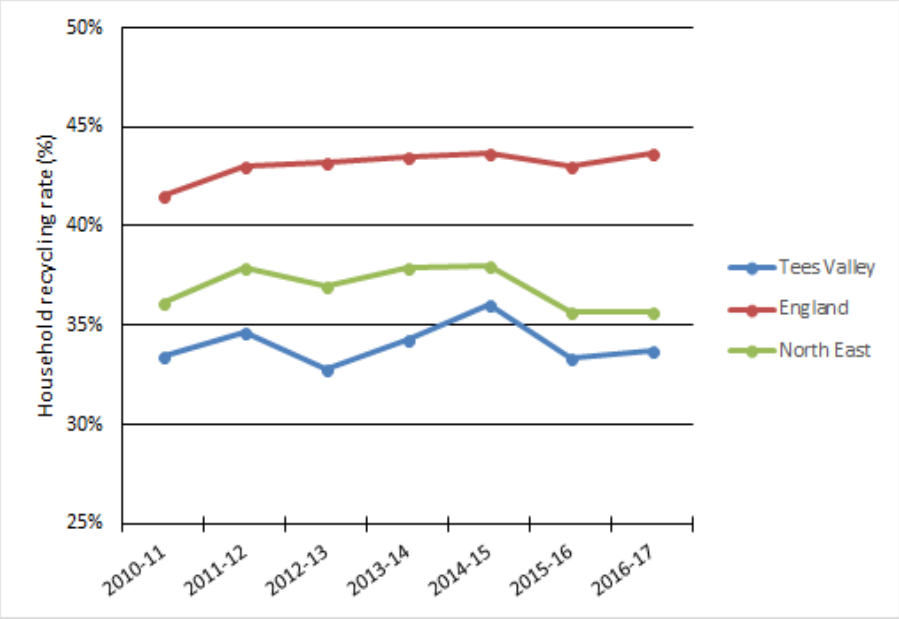


Figure 5 Household recycling rates for Tees Valley, England and the North East region

Treatment and Disposal Performance

Whilst recycling performance has not changed over recent years, there has been a notable improvement in the recovery of LACW and its diversion from landfill.

Figure 6 shows that since 2010/11 there has been:

- a 13% increase in the amount of waste recovered through energy recovery;
- a 10% reduction in the amount of waste sent to landfill

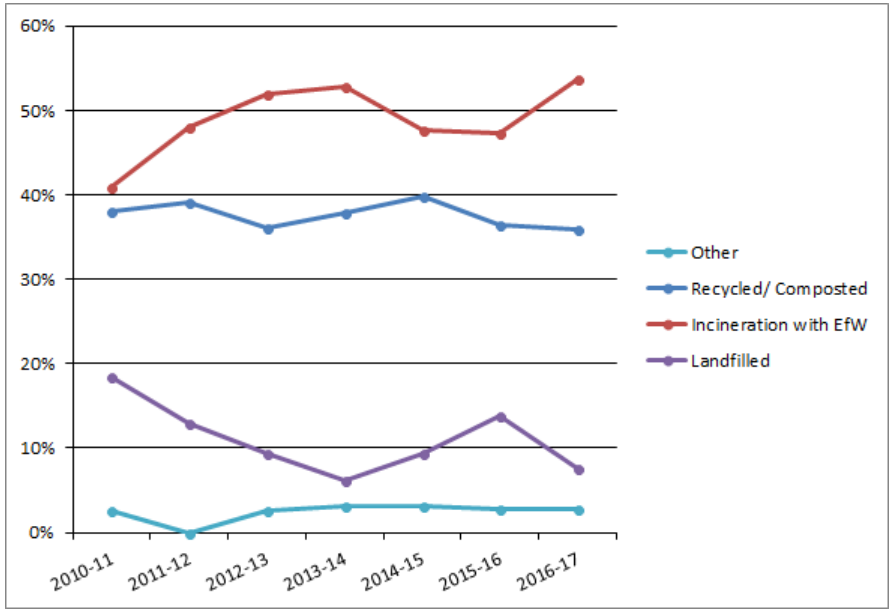


Figure 6 Tees Valley LACW Management Methods 2010/11 to 2016/17

Our Vision for the Future – Sustainable Waste Management

The Tees Valley Joint Waste Management Strategy aims to deliver a high quality, accessible and affordable waste management service that contributes to:

- economic regeneration, including employment and a more circular economy;
- the protection of the environment and natural resources; and
- reducing the carbon impact of waste management.

and:

- delivers customer satisfaction;
- reduces the amount of waste generated by householders and the Councils;
- increases reuse and recycling;
- then maximises recovery of waste, and;
- works towards zero waste to landfill.

The Tees Valley Councils, acting in partnership, are committed to working towards this vision for waste management. This includes supporting the necessary changes in behaviour and practice whilst at the same time balancing financial commitments and budgets to provide a high-quality service supporting local self-sufficiency.

Strategy Objectives

Over the period of the strategy the Tees Valley Councils will seek to achieve the following objectives, always recognising the challenges of delivering increasing levels of high quality recycling efficiently and economically and support from central Government:

Waste generation:

- Aim to maintain the current level of below 1 tonne of household waste per household.

Reuse and recycling:

Increase reuse, recycling and composting of household waste from the current levels to:

- 45% to 50% in the first five year of this strategy (2020 to 2025);
- between 2025 and 2030 seek to further improve reuse, recycling and composting beyond the 2025 levels;
- set targets for beyond 2030 during the strategy review in 2025.

Waste recovery and landfill diversion:

- provide sufficient waste recovery capacity to ensure that no more than 10% of LACW waste is landfilled.

How Do We Achieve the Strategy Vision?

To achieve the strategy for waste management in Tees Valley all parties and stakeholders will need to work together; this means all residents participating and contributing, supported by initiatives from the Tees Valley Councils. There are many different actions that can be taken to support the strategy and produce a visible change. Education will be key in changing attitudes and behaviour and thus improving performance against the objectives and targets.

A wide range of options across the waste hierarchy have been considered, with different combination of the following options being testing through an options appraisal.

Waste Prevention, Reuse and Recycling Options

Raising waste awareness and education campaigns	Various campaigns designed to raise awareness and increase participation in waste prevention and reuse activities, including: ▪ general education and waste prevention initiatives; ▪ general reuse initiatives ▪ Love Food Hate Waste ▪ Junk Mail ▪ promoting smart shopping practices
Home Composting / Digestion	Promote home composting (or anaerobic digestion) to reduce the demand on collection services and treatment capacity
Reuse at HWRCs	Install facilities at HWRCs that allow members of the public to leave and collect items such as furniture, including awareness and promotional campaigns of the service.
Bulky Collection Reuse	Sorting of bulky waste collections to extract reusable goods with a view to refurbishment, reuse and resale, including awareness and promotional campaigns.

Recycling and Composting Collection Options

High efficiency scenario	Which would look at increasing dry recycling performance, through a reduction in residual waste collection capacity and introducing a charge for garden waste services
High recycling performance scenario	Which would look at increasing dry recycling performance through introducing separate food waste collections, reducing residual waste collection capacity and introducing a charge for garden waste services

Alongside these primary options:

Bulky Waste Recycling	Sorting of bulky waste collections to extract recyclable goods in order to improve recycling performance, including awareness and promotional campaigns of the services provided.
Quality: Reducing contamination in recycling/composting	Stronger engagement with residents to increase public understanding of the issues associated with contamination of recycling/composting collections to deliver behaviour change. Combined with tighter management of contamination across all Tees Valley councils.

Residual Waste Treatment Options

The primary waste treatment option at the Tees Valley level:

- Further contract extension (beyond 2025) for the existing EfW contract
- New build energy recovery facility
- New build refuse derived fuel facility (RDF)
- Utilise third party energy recovery facility capacity

Options Appraisal

Twenty combinations of these options were considered against the following criteria:

- Delivers an accessible service with engagement and customer satisfaction
- Reduces the amount of waste generated by householder and managed by the Councils from baseline forecast
- Increases reuse and recycling
- Maximises recovery of waste
- Working towards zero waste to landfill
- Economic regeneration, including employment and a more circular economy
- Protection of the environment and natural resources
- Reducing the carbon impact of waste management
- Affordable (long term measure)
- Deliverability

Full details of the assessment are included in the Options Appraisal Report.

The Preferred Option

The Options Appraisal process identified the following preferred option:

- adoption of prevention, reuse and recycling initiatives;
- the introduction of high recycling collections including separate food waste collections; and
- a new energy recovery facility with the ability to utilise the heat produced, through the development of Combined Heat and Power (CHP).

The Preferred Option would:

- Contribute to reducing the amount of waste generated compared to the baseline forecast;
- Increase the recycling and composting rate by 13-14% by the midpoint of the Strategy period (2027) to bring the overall recycling and composting rate to between 45-50%. This is a significant improvement on the current performance and reflects the challenges faced in an urban industrial setting;
- Further increase the recovery of waste by 3-4%;
- Further reduce the waste sent to landfill;
- Reduce the carbon impact of waste management; and
- Create/secure employment within Tees Valley.

Delivering the Preferred Option

The 2008 JWMS set out a series of policies to support the implementation of the strategy. These existing policies are still valid and consistent with the refreshed strategy aims and objectives.

Therefore, the existing policies are to be retained to help each Council develop local solutions against a consistent policy framework.

Policy 1: Joint Working

We will continue to work together in partnership with other stakeholders in order to ensure sustainable waste management within the Tees Valley to protect the natural environment. We will strive for sub-regional self-sufficiency and be mindful of the proximity principle.

Policy 2: Sustainable Waste Management

We will ensure that the services delivered by the Tees Valley Authorities implement methods of sustainable waste management in line with the Waste Hierarchy.

Policy 3: Waste Awareness and Prevention

We will work with partners to promote waste awareness and prevention and encourage householders, schools and local businesses to reduce the impact of their behaviour with regards to their waste stream.

Policy 4: Waste Collections

We will increase the proportion of material that is collected for recycling and composting through kerbside schemes, bring sites and HWRCs.

Policy 5: Waste Treatment Facilities

We will maximise the amount of material that is recycled, composted or recovered from the residual waste stream.

Policy 6: Residual Waste Stream

We will minimise the amount of waste that is disposed of in line with our principle of working towards zero waste to landfill.

Policy 7: Monitoring and Review

We will regularly monitor and review this Strategy in consultation with stakeholders and the public to ensure that it links with other plans and strategies.

Next Steps

This overarching Strategy document provides a framework for action in Tees Valley.

Following the adoption of the overarching Strategy, each of the Tees Valley Councils will develop an individual action plan to tailor the delivery of the preferred option to complement their current services and reflect their specific local circumstances and operations.

Measuring Success

There are several ways in which success can be measured and progress against the strategy can be determined.

The performance of the JWMS will be monitored against the following performance measures.

Performance measures	**Unit/metric**
Waste generation:	Waste generated per household per year
Reuse and recycling	% of waste recycled per year
Waste recovery and landfill diversion	% of waste landfilled per year

The Strategy will be reviewed every five years. Progress on delivery of this Strategy will be regularly reported.

Glossary of Terms

AD	Anaerobic Digestion
AQMA	Air Quality Management Area
BAP	Biodiversity Action Plan
CH_4	Methane
CHP	Combined Heat and Power
CO_2	Carbon dioxide
DCLG	Department of Communities and Local Government
DECC	Department of Energy and Climate Change
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EU ETS	EU Emission Trading System
TVJWMS	Tees Valley Joint Municipal Waste Management Strategy
GHG	Greenhouse Gases
GWP	Global Warming Potential
HPA	Health Protection Agency
HWRC	Household Waste Recycling Centre
JWMS	Joint Municipal Waste Management Strategy
LACW	Local Authority Collected Waste
LATS	Landfill Allowance Trading Scheme
MRF	Materials Recovery Facility
N_2O	Nitrous Oxide
PO_4	Phosphates
RDF	Refuse Derived Fuel
SEA	Strategic Environmental Assessment
SO_2	Sulphur Dioxide
SPA's	Special Protection Area's
SPZ's	Source Protection Zones
SSSI	Site of Special Scientific Interest
WEEE	Waste Electrical and Electronic Equipment
WRAP	Waste and Resources Action Programme
WRATE	Waste and Resources Assessment Tool for the Environment

Annex: Waste Management Data

Total LACW arisings in the Tees Valley 2010-11 to 2016-17

Authority	Tonnes of LACW						
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Darlington	68,880	65,009	53,809	53,215	54,255	60,221	61,115
Hartlepool	48,995	46,951	46,456	48,394	46,985	46,914	46,524
Middlesbrough	76,858	75,417	71,817	68,235	67,888	71,364	74,399
Redcar and Cleveland	71,715	69,537	66,462	70,384	71,804	70,995	67,612
Stockton-on-Tees	101,997	99,983	99,121	103,582	104,218	102,613	102,466
Tees Valley	368,444	356,897	337,664	343,809	345,150	352,107	352,116
Source: Department for Environment, Food & Rural Affairs							

Management of LACW in the Tees Valley 2010-11 to 2016-17

Authority	Management of LACW (tonnes and %)[3]						
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Recycled/ Composted	138,616 38%	139,754 39%	121,598 36%	130,009 38%	137,252 40%	127,986 36%	126,369 36%
Incineration with EfW	149,359 41%	171,063 48%	175,456 52%	181,777 53%	164,675 48%	166,280 47%	188,870 54%
Incineration without EfW	7 0%	8 0%	5 0%	5 0%	6 0%	24 0%	5 0%
Landfilled	67,056 18%	46,078 13%	31,560 9%	21,116 6%	32,514 9%	48,331 14%	26,956 8%
Other[1]	9,699 3%	- 0%	9,037 3%	10,904 3%	10,706 3%	9,482 3%	9,909 3%
Total[2]	364,737	356,902	337,656	343,811	345,151	352,103	352,108

Notes:

1. Other includes waste treated/disposed through other unspecified treatment processes as well as process and moisture loss.
2. Total Local Authority collected waste managed may not match total Local Authority collected waste arisings due to stockpiling of waste between reporting periods.
3. Inputs to intermediate plants e.g. MBT, Residual MRFs, RDF and other plants prior to treatment and disposal and included in the final treatment and disposal figures.

Source: Department for Environment, Food & Rural Affairs

Options Appraisal Report

To inform the development of the Joint Municipal Waste Strategy

1 Introduction

The current Tees Valley Joint Waste Management Strategy (JWMS) was developed to cover the period between 2008 until 2020. Since then there have been developments and changes to waste management policy that means that the existing strategy needs revision. This document refreshes the previous JWMS and extends it until 2035 with particular regard to:

- moving waste up the waste hierarchy of options through prevention, reuse, recycling and composting activities; and
- the identification of a long-term residual waste treatment solution for the region.

This work is supported by a series of supplementary reports that provide technical waste management information and discuss in further detail the considerations used in the preparation of the Strategy. This Options Assessment Report is one of the supporting documents and describes the options appraisal process undertaken by the Tees Valley Councils which resulted in the selection of a draft Preferred Option.

1.1 Options Assessment Process

Key stages in the options appraisal process have included:

- developing the waste strategy objectives, through workshop sessions with officers and members from each of the representative Councils, including the identification of the key issues and drivers for the strategy by reference to existing and proposed policy and legislation.
- identifying options for delivering the waste strategy objectives with input from officers and members.
- agreeing the options appraisal process, i.e. the assessment method, scoring of evaluation criteria, weighting of evaluation criteria;
- development of a waste flow model for the Tees Valley area which enables forecasts of future waste flows and types, and costs (described in Appendix 3)
- undertaking a detailed appraisal of each of the options based on the agreed evaluation criteria to help identify a draft Preferred Option.

2 Waste Strategy Objectives

2.1 Historical perspective

The 2008 JWMS had six key principles:

- to reduce waste generation
- to work towards zero landfill
- to be achievable and affordable
- to have an accountable and deliverable structure
- to minimise the impact on climate change
- to contribute towards economic regeneration

There was also a number of additional policy commitments including; managing waste in line with the waste hierarchy, maximising the amount of material that is recycled, composted or recovered from the residual waste stream and minimising the amount of waste sent to landfill.

2.2 Policy Driver Developments

The first step in reviewing and refreshing the waste strategy objectives was the identification of key policy drivers and related objectives within other relevant strategies and plans. This provided the means to establish an initial set of potential strategic outcomes and allowed the outcomes to be compared to the current position. This information was also used as part of the Strategic Environmental Assessment (SEA[1]).

The initial identification of policy drivers involved a desk-based assessment and review of current policy and strategy impacting on the way that waste is managed and is likely to be managed in Tees Valley up to 2035. This was carried out at an EU, national and local level and covered strategic waste management, planning policy, climate change and low carbon initiatives, e.g. Clean Growth Strategy, the Industrial Strategy White Paper, the Tees Valley Strategic Economic Plan 2016-2026.

Other key proposals and consultations relating to future policy and legislative change that may impact on waste management policy and decision making were also reviewed. Such documents included Defra's 25-Year Environment Plan and the European Circular Economy Package.

The policy documents were reviewed and analysed for common issues resulting in the identification of a list of thirty policy and strategy themes related to waste management. The detailed review is provided in Appendix 1 of the Environmental Report prepared for the SEA.

As a number of the themes overlapped or used different terminology to describe the same purpose the themes were rationalised to provide a consolidated list of themes for consideration as part of developing the revised JWMS. The consolidated list of themes together with a commentary is provided in Table 2.1.

[1] All central and local Government plans and strategies that can have a significant effect on the environment are required to be assessed regarding how they contribute to Sustainable Development. An assessment of how a strategy meets the aims of Sustainable Development can be delivered through an approach known as a Strategic Environmental Assessment.

Table 2.1: Consolidated list of themes for the consideration in the revised JWMS

Key Themes	Comments
Waste prevention	Whilst these themes could be combined under the theme of the waste hierarchy, within a JWMS it is important that they are considered as individual themes. The elements of waste hierarchy will also contribute to renewable energy generation and the emerging theme of zero avoidable waste.
Reuse, recycling and composting	
Energy recovery from waste	
Landfill diversion	
Reducing the carbon impact of waste management	Covering climate change and including carbon / greenhouse gas emissions, low carbon economy, reducing transport impacts.
Affordability	Including value for money and the potential for delivering cost savings.
Circular economy	Encompassing resource efficiency / productivity, industrial symbiosis, developing markets for recyclable materials and sustainable procurement as a means of completing the circle.
Limiting environmental impacts and harm to human health	Including environmental protection, sustainable communities.
Reducing fly-tipping and litter	Encompassing the quality of the local amenity and contributing to green infrastructure
Managing the impact of food waste	Two very topical themes, which could be considered under different elements of the waste hierarchy but could be specific themes within the JWMS.
Managing the impact of plastic wastes	
Management of all municipal waste	With the emergence of municipal waste, targets cover commercial wastes similar in nature to household waste.
Raising waste awareness and education	On-going behaviour change.

These themes were subsequently explored at a Members and Officers Workshop which resulted in the addition of three additional themes:

- Economic regeneration and job creation: These are a priority in Tees Valley; and whilst the circular economy theme incorporates an element of resource efficiency and economic benefit, ‘economic regeneration and job creation’ should be included as a standalone theme.

- Income generation: The potential to generate income from waste management activities is an important consideration for Tees Valley and needs to be considered in the themes. It was agreed that it was not a specific theme in its own right but formed an important element of ‘Affordability’ as options that can provide an income will contribute to the overall affordability of any solution.

- Service Quality and Customer Satisfaction: Whilst the themes identified covered the key policy areas, it was highlighted that a key priority for the Councils is to provide a high-quality

service that encourages all residents to participate in recycling activities whilst delivering customer satisfaction. Therefore 'Service Quality / Customer Satisfaction' was added as a separate theme.

Future recycling targets and objectives were also discussed at the Workshop in order to determine the level of ambition and commitment to recycling, by the Councils, as part of the development of the revised JWMS. It was accepted that the level of recycling and composting achieved by the Councils would be largely dependent on a combination of the collection systems offered by each Council, education and enforcement over time. This is turn would determine the quantity of residual waste requiring treatment post 2025.

In this context, the ability of the Councils to achieve the recently agreed EU Circular Economy targets of 55% recycling by 2025, 60% recycling by 2030 and 65% recycling by 2035, was also discussed. It was noted in the discussion that rural Councils typically achieve higher recycling rates than urban Councils due to the increased availability of green waste for composting and that those Councils with higher levels of deprivation are frequently associated with lower recycling rates. Therefore, it was concluded that for Tees Valley as a whole, to achieve a recycling rate in excess of 55% by 2025 would be challenging, even though there is an aspiration to reach such a target.

To develop a set of refreshed aims and objectives for the revised JWMS, the themes identified above were prioritised and the following order resulted (highest priority first):

1 Affordability / Income Generation

2 Reuse, recycling and composting

3 Raising waste awareness and education

4 Service Quality / Customer Satisfaction

5 Waste prevention

6 Regeneration / Job Creation

7 Reducing fly-tipping and litter

8 Limiting environmental impacts and harm to human health

9 Circular economy

10 Energy recovery from waste

11 Landfill diversion

12 Reducing the carbon impact of waste management

13 Managing the impact of plastic wastes

14 Management of all municipal waste

15 Managing the impact of food waste

The resulting ranking of the themes was broadly consistent with the principles and policies within the existing JWMS. These were therefore revised to reflect emerging waste management policies and the comments from members and officers. The following draft aims and objectives, were proposed for the revised JWMS:

To deliver a high quality, accessible and affordable waste management service that contributes to:

- economic regeneration, including employment and a more circular economy;
- the protection of the environment and natural resources; and
- reducing the carbon impact of waste management.

and:

- delivers customer satisfaction;
- reduces the amount of waste generated by householders and the Councils;
- increases reuse and recycling;
- then maximises recovery of waste, and;
- works towards zero waste to landfill;

3 Options Appraisal Methodology

3.1 Evaluation Criteria

The evaluation criteria for assessing potential options were developed from the draft aims and objectives of the JWMS. The draft evaluation criteria and potential assessment methods, Table 3.1, were presented to officers, from each of the representative Councils, at an Options Appraisal Workshop. Following discussion of the criteria, officers agreed that Criterion 1 (Delivers engagement and customer satisfaction) and Criterion 9 (Accessible) should be combined into a single criterion because their assessments are very closely linked. The revised list of 10 criteria and their method of assessment are set out in Table 3.2

It was also agreed that the assessment of Criterion 7 (Protection of the environment and natural resources) should include the total waste transport mileage, as a means of considering local air quality.

Table 3.1: Proposed criteria and potential assessment method

No.	Criterion	Potential assessment method
1	Delivers engagement and customer satisfaction	Qualitative assessment of levels of engagement e.g. promotional/educational activity to encourage behavioural change and/or deemed levels of householder acceptability of the option
2	Reduces the amount of waste generated by the householder and the Councils	Qualitative assessment of the reduction in the waste arisings
3	Increases reuse and recycling	Change in reuse and recycling performance from base position
4	Maximises recovery of waste	Change in the percentage of non-recycled waste which is recovered
5	Zero waste to landfill	Change in percentage of waste diverted from landfill compared to base position
6	Economic regeneration, including employment and a more circular economy	Semi-qualitative assessment of employment (jobs created and type of employment) using case studies / waste industry reports for likely employment & training opportunities, combined with the 'Resource use' factor as a European person – Equivalent, which can be extracted from WRATE
7	Protection of the environment and natural resources	Semi-qualitative assessment using the following (quantified) outputs from WRATE: • Acidification (kg SO_2) • Human Toxicity (kg 1, 4 – DCB eq.) • Freshwater Aquatic Toxicity (kg 1, 4 – DCB eq.) • Eutrophication (PO4 kg eq.)
8	Reducing the carbon impact of waste management	Change in tonnes of CO_2 equivalent emissions from base position
9	Accessible	Qualitative assessment of how easy it was for householders to use/access the service.
10	Long-term affordable	Percentage change in Net Present Value (NPV) from baseline position
11	Deliverability	Qualitative assessment of procurement risk, planning, technology risk, etc.

Table 3.2: Revised criteria and assessment method

No.	Criterion	Potential assessment method
1	Delivers an accessible service with engagement and customer satisfaction	Qualitative assessment of how easy it is for householders to use/access the service taking account of the levels of engagement e.g. promotional/educational activity to encourage behavioural change and/or deemed levels of householder acceptability of the option
2	Reduces the amount of waste generated by the householder and the Councils	Qualitative assessment of the reduction in the waste arisings
3	Increases reuse and recycling	Change in reuse and recycling performance from base position
4	Maximises recovery of waste	Change in the percentage of non-recycled waste which is recovered
5	Working towards zero waste to landfill	Change in percentage of waste diverted from landfill compared to base position
6	Economic regeneration, including employment and a more circular economy	Semi-qualitative assessment of employment (jobs created and type of employment) using case studies / waste industry reports for likely employment & training opportunities, combined with the 'Resource use' factor as a European person – Equivalent, which can be extracted from WRATE
7	Protection of the environment and natural resources	Semi-qualitative assessment informed by the following (quantitative) outputs from WRATE: • Resource use (kg Sb eq.) • Acidification (kg SO_2) • Human Toxicity (kg 1, 4 – DCB eq.) • Freshwater Aquatic Toxicity (kg 1, 4 – DCB eq.) • Eutrophication (PO4 kg eq.) • Total waste transport mileage
8	Reducing the carbon impact of waste management	Change in tonnes of CO_2 equivalent emissions from base position
9	Long-term affordable	Percentage change in NPV from baseline position
10	Deliverability	Qualitative assessment of procurement risk, planning, technology risk, etc.

3.2 Evaluation Criteria Scoring

A proposed scoring mechanism was presented at the Options Appraisal Workshop and adapted following officers' comments. The resulting scoring mechanism is set out in Table 3.3 with each criterion assigned a scale to score the options from 0 – 5, with 0 representing the lowest score and 5 the highest score. For quantitative criteria which use numerical values, the figures in Table 3.3 have been based on a range of output values derived from the waste flow model or the WRATE [2]analysis.

[2] Forecasts of future waste flows in the Tees Valley were determined using a waste flow model. WRATE is a tool developed by the Environment Agency for quantifying the environmental impact of various waste management systems (see section 4.2.5).

Table 3.3: Scoring for evaluation criteria

Criterion	Evaluation Criteria	Score
1.Delivers an accessible service with engagement and customer satisfaction	High levels of accessibility (>90%) with levels of engagement that should lead to increased understanding and high customer satisfaction	5
	Moderate levels of accessibility (70%-90%) with levels of engagement that should lead to increased understanding and high customer satisfaction	4
	Lower levels of accessibility (<70%) with levels of engagement that should lead to increased understanding and customer satisfaction	3
	Moderate levels of accessibility (70%-90%) with levels of engagement that may lead to increased understanding but neutral/reduced customer satisfaction	2
	High / moderate levels of accessibility with limited levels of engagement & / or potential customer dissatisfaction	1
	Lower levels of accessibility with no engagement and /or potentially high levels of customer dissatisfaction	0
2. Reduces the amount of waste generated by householder and managed by the Councils from baseline forecast	**Evaluation Criteria**	**Score**
	Very high reduction in waste arisings (>2%)	5
	High reduction (1 - 2%)	4
	Medium reduction (0.51- 0.99%)	3
	Minor reduction (<0.50%)	2
	No change in waste arising	1
	Increase in waste arising	0
3. Increases reuse and recycling	**Evaluation Criteria**	**Score**
	High increase in reuse/recycling/composting rate (>10%)	5
	Medium increase in reuse/recycling/composting rate (5 - 9.99%)	4
	Reasonable increase in reuse/recycling/composting rate (2 - 4.99%)	3
	Minor increase in reuse/recycling/composting rate (0.1 - 1.99%)	2
	No change in reuse/recycling/composting rate	1
	Decrease in reuse/recycling/composting rate	0
4. Maximises recovery of waste	**Evaluation Criteria**	**Score**
	Reasonable increase in proportion of non-recycled household waste recovered (5 – 14.99%)	5
	Minor increase in proportion of non-recycled household waste recovered (1 – 4.99%)	4
	No change in proportion of non-recycled household waste recovered (+/- 0.99%)	3
	Minor decrease in proportion of non-recycled household waste recovered (1 – 4.99%)	2
	Reasonable decrease in proportion of non-recycled household waste recovered (5 – 14.99%)	1
	High decrease in proportion of non-recycled household waste recovered (>15%)	0
5. Working towards zero waste to landfill	**Evaluation Criteria**	**Score**
	High decrease in waste to landfill (2.5 - 5%)	5
	Medium decrease in waste to landfill (1 - 2.49%)	4
	Reasonable decrease in waste to landfill (0.5 – 0.99%)	3
	Minor decrease in waste to landfill (<0.5%)	2
	No change in landfill diversion	1
	Increase in waste to landfill	0

	Evaluation Criteria	Score
6. Economic regeneration, including employment and a more circular economy	Medium positive contribution to jobs created / potentially secured and a reduction in the Resource use Eur.Person.Eq from the baseline which could benefit Tees Valley	5
	Minor positive contribution to jobs created / potentially secured and a reduction in the Resource use Eur.Person.Eq from the baseline which could benefit Tees Valley	4
	No net additional jobs created and/or no wider employment security and reasonable reduction in the Resource use Eur.Person.Eq (10 - 50% from baseline) which could benefit Tees Valley	3
	No net additional jobs created and/or no wider employment security and no significant change in the Resource use Eur.Person.Eq (+/-9.99% from baseline) which could benefit Tees Valley	2
	Job losses and/or no wider employment security but a reasonable reduction in the Resource use Eur.Person.Eq (10 - 50% from baseline) which could benefit Tees Valley	1
	Job losses and/or no wider employment security and no significant change in the Resource use Eur.Person.Eq (+/-9.99% from baseline) which could benefit Tees Valley	0
7. Protection of the environment and natural resources	**Evaluation Criteria**	**Score**
	High level of improvement in environmental protection based on resource use, acidification, human toxicity, freshwater aquatic toxicity, eutrophication and mileage	5
	Medium level of improvement in environmental protection based on resource use, acidification, human toxicity, freshwater aquatic toxicity, eutrophication and mileage	4
	Minor improvement in the level of environmental protection based on resource use, acidification, human toxicity, freshwater aquatic toxicity, eutrophication and mileage	3
	No change in the level of environmental protection based on resource use, acidification, human toxicity, freshwater aquatic toxicity, eutrophication and mileage	2
	Decrease in the level of environmental protection based on resource use, acidification, human toxicity, freshwater aquatic toxicity, eutrophication and mileage	1
	Significant decrease in the level of environmental protection based on resource use, acidification, human toxicity, freshwater aquatic toxicity, eutrophication and mileage	0
8.Reducing the carbon impact of waste management	**Evaluation Criteria**	**Score**
	Significant reduction in tonnes of CO_2 equivalents (>30,000 tonnes CO2-Eq)	5
	High reduction in tonnes of CO_2 equivalents (20,000-30,000 tonnes CO2-Eq)	4
	Medium reduction in tonnes of CO_2 equivalents (10,000-19,999 tonnes CO2-Eq)	3
	Minor reduction in tonnes of CO_2 equivalents (1,000-9,999 tonnes CO2-Eq)	2
	No change in tonnes of CO_2 equivalents from baseline (+/- 999 tonnes CO2-Eq)	1
	Increase in tonnes of CO_2 equivalents (>1,000 tonnes CO2-Eq)	0
9. Affordable (long term measure)	**Evaluation Criteria**	**Score**
	Significant percentage savings in NPV achieved (>10%)	5
	High percentage savings achieved in NPV (-7.5 to -10%)	4
	Medium percentage savings in NPV (-5% to -7.49%)	3
	Minor percentage savings in NPV (-2.5% to -4.99%)	2
	No significant percentage change in NPV (+/- 2.49%)	1
	Some percentage increase in NPV (>+2.5%)	0
10. Deliverability	**Evaluation Criteria**	**Score**
	No major deliverability challenges envisaged	5
	Some minor deliverability issues	4
	Some moderate deliverability issues	3
	Some substantial deliverability issues	2
	Major deliverability risks	1
	High chance of being undeliverable	0

3.3 Weighting of Evaluation Criteria

It is common practice to weight evaluation criteria to reflect local conditions. It was agreed at the Options Appraisal Workshop that the weightings should be based on the prioritisation at the Members and Officers Workshop but also revised to more broadly reflect the Tees Valley Combined Authority aims of driving economic growth and for Tees Valley to become a high-value, low-carbon, diverse and inclusive economy. The weightings are shown in Table 3.4.

Table 3.4: Weighting for Evaluation Criteria

Evaluation Criteria	Weighing
Delivers an accessible service with engagement and customer satisfaction	3
Deliverability	3
Affordable (long term measure)	3
Increases reuse and recycling	3
Reduces the amount of waste generated by householders and the Councils	3
Economic regeneration, including employment and a more circular economy	3
Protection of the environment and natural resources	2
Reducing the carbon impact of waste management	2
Maximises recovery of waste	2
Working towards zero waste to landfill	1

4 Options Appraisal Scenarios

Whilst a key output of the revised JWMS is to help determine the nature of any future residual waste treatment facility for the Tees Valley, it is also intended that the revised JWMS helps each Council make decisions about waste prevention, reuse and recycling options they may wish to adopt in the future. Therefore, a range of options were agreed across the waste hierarchy having regard to the policy and legislation review, potential collection systems for the Tees Valley Authorities and the ranking of themes at the first workshop.

The agreed options for consideration in the options appraisal process are:

Waste Prevention, Reuse and Recycling Initiatives

Raising waste awareness and education campaigns	Various campaigns designed to raise awareness and increase participation in waste prevention and reuse activities, including: • general education and waste prevention initiatives; • general reuse initiatives • Love Food Hate Waste • Junk Mail • promoting smart shopping practices
Home Composting / Digestion	Promote home composting (or anaerobic digestion) to reduce the demand on collection services and treatment capacity
Reuse at HWRCs	Install facilities at HWRCs that allow members of the public to leave and collect items such as furniture. This can include awareness and promotional campaigns of the service.
Bulky Collection Reuse	Sort bulky waste collections to extract reusable goods with a view to refurbishment, reuse and resale. This can include awareness and promotional campaigns.

Recycling and Composting Options

High efficiency scenario	Which would look at increasing dry recycling performance, through a reduction in residual waste capacity and introducing a charge for garden waste services
High recycling performance scenario	Which would look at increasing dry recycling performance through introducing separate food waste collections, reducing residual waste capacity and introducing a charge for garden waste services

Alongside these primary options, the following Initiatives would be assessed:

Bulky Waste Recycling	Sort bulky waste collections to extract recyclable goods in order to improve recycling performance across the councils in Tees Valley. This can include awareness and promotional campaigns of the services provided.
Reducing contamination in recycling/composting	Stronger engagement with residents to increase public understanding of the issues associated with contamination of recycling/composting collections to deliver behaviour change. Combined with tighter management of contamination across all Tees Valley councils.

Residual Waste Treatment Options

The primary waste treatment scenarios that would be assessed on the Tees Valley level are:

- Contract extension (beyond 2025) for existing EfW contract
- New build energy recovery facility
- New build refuse derived fuel facility (RDF)
- Utilise third party energy recovery facility capacity

4.1 Scenarios Assessment

It was agreed that the options would be grouped together into scenarios to highlight what could be achieved by:

- residual waste treatment options alone;
- implementing the residual waste treatment option alongside collection changes; or
- by implementing a full range of prevention, reuse and recycling options alongside collection changes and residual waste treatment options.

This approach provided an insight into how the different waste management 'building blocks' could be arranged, what might be achieved and how the combination of variables effect the residual waste treatment options. The scenarios are summarised in Figure 4.1 and Table 4.1; this approach is broadly consistent with the approach taken in the 2008 options appraisal.

Table 4.1: Assessment Scenarios

Scenario	Prevention, reuse and recycling	Collection	Residual Treatment
1a	No change	No change	Contract extension (beyond 2025) for existing EfW contract (No change)
1b	No change	No change	New build energy recovery facility
1c	No change	No change	New build refuse derived fuel facility (RDF)
1d	No change	No change	Utilise 3rd party energy recovery facility capacity
2a	No change	High efficiency	Contract extension (beyond 2025) for existing EfW contract
2b	No change	High efficiency	New build energy recovery facility
2c	No change	High efficiency	New build refuse derived fuel facility (RDF)
2d	No change	High efficiency	Utilise 3rd party energy recovery facility capacity
2e	No change	High recycling performance	Contract extension (beyond 2025) for existing EfW contract
2f	No change	High recycling performance	New build energy recovery facility
2g	No change	High recycling performance	New build refuse derived fuel facility (RDF)
2h	No change	High recycling performance	Utilise 3rd party energy recovery facility capacity
3a	All measures	High efficiency	Contract extension (beyond 2025) for existing EfW contract
3b	All measures	High efficiency	New build energy recovery facility
3c	All measures	High efficiency	New build refuse derived fuel facility (RDF)
3d	All measures	High efficiency	Utilise 3rd party energy recovery facility capacity
3e	All measures	High recycling performance	Contract extension (beyond 2025) for existing EfW contract
3f	All measures	High recycling performance	New build energy recovery facility
3g	All measures	High recycling performance	New build refuse derived fuel facility (RDF)
3h	All measures	High recycling performance	Utilise 3rd party energy recovery facility capacity

Figure 4.1: Assessment Scenarios

Scenario	Prevention, reuse and recycling	Collection	Residual Treatment
1 Residual waste solutions	Do nothing	Do nothing	Contract extension (beyond 2025) for existing EfW contract New build energy recovery facility New build refuse derived fuel facility (RDF) Utilise third party energy recovery facility capacity
2 Collection changes only with residual waste solutions	Do nothing	High efficiency scenario	Contract extension (beyond 2025) for existing EfW contract New build energy recovery facility New build refuse derived fuel facility (RDF) Utilise third party energy recovery facility capacity
		High recycling performance scenario	
3 All Options with residual waste solutions	Raising waste awareness and education campaigns Home Composting / Digestion Bulk waste reuse and recycling Reuse at HWRCs and increase recycling Reducing contamination	High efficiency scenario	Contract extension (beyond 2025) for existing EfW contract New build energy recovery facility New build refuse derived fuel facility (RDF) Utilise third party energy recovery facility capacity
		High recycling performance scenario	

4.2 Key Assumptions

As part of the options appraisal process assumptions were made around potential performance and costs. The key assumptions relate to:

- Waste forecasts in future years.
- The performance of prevention, reuse and recycling initiatives (based on the impact on current systems and publicly available information)
- Alternative collection scheme performance and costs – based on a set of agreed assumptions applied in WRAP's KAT model for the high efficiency and high recycling performance scenario as described in Section 4.0 above
- Waste treatment options performance and costs – based on existing publicly available information.

Details are provided below.

4.2.1 Waste forecasts

National Planning Practice Guidance on waste (NPPG: Waste) provides information in support of the implementation of waste planning policy. It includes guidance on how waste planning authorities should forecast municipal waste arisings and preparing waste growth profiles. The NPPG: Waste methodology was used to prepare a range of growth profiles to estimates future arisings, the detailed analysis is provided in Appendix A.

The analysis resulted in five waste growth scenarios, which are summarised in Table 4.2, with the resulting tonnage forecasts based on MHCLG[3] housing forecast provided in Table 4.3 and Figure 4.2.

Table 4.2: Waste Growth Scenarios

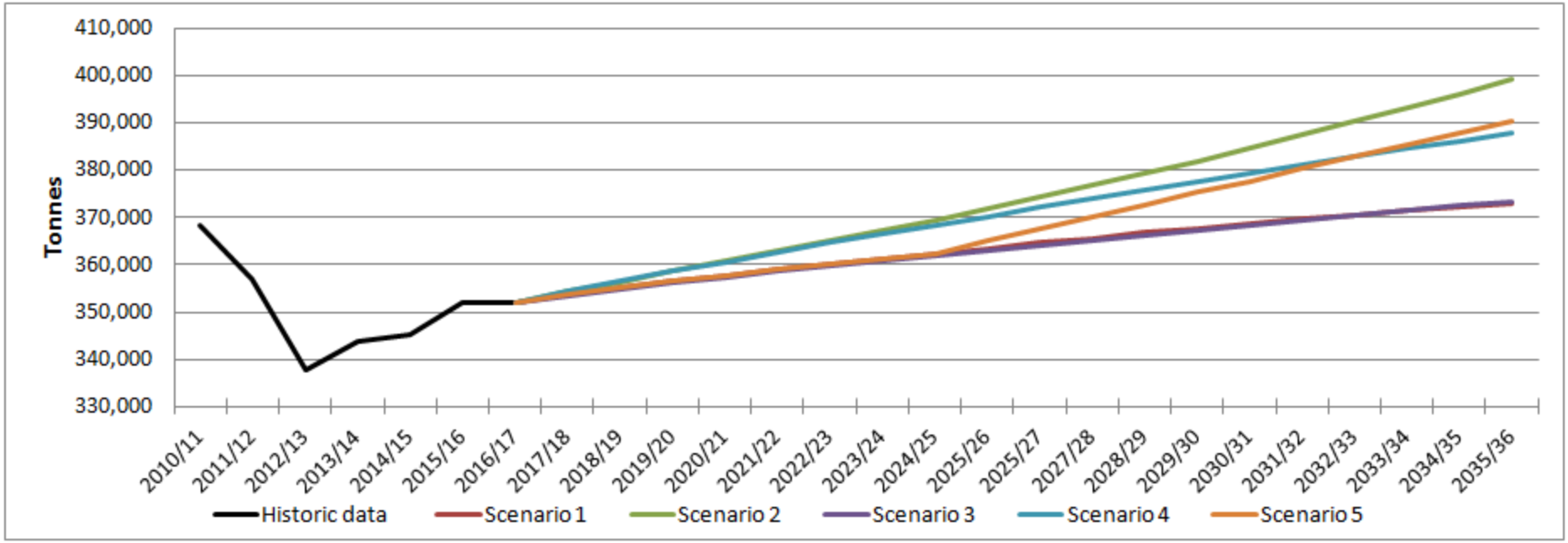
Scenario	Household waste per household assumptions	Non-household waste assumptions
1	Static household waste per household based the 2016/17 figure	Non-households waste remains static at 2016/17 level.
2	The household waste per household changes from the 2016/17 figure based on the annual average change since 2014/15	Non-households waste remains static at 2016/17 level.
3	The household waste per household changes from the 2016/17 figure based on the annual average change since 2012/13	Non-households waste remains static at 2016/17 level.
4	The household waste per household increases at 0.25% per annum from the 2016/17.	Non-households waste remains static at 2016/17 level.
5	As per Scenario 1 up to 2024/25, then a 0.5% per annum increase in household waste per household	Non-households waste remains static at 2016/17 level.

[3] Ministry of Housing, Communities and Local Government (formerly DCLG)

Table 4.3: Forecast Tonnage based on MHCLG housing forecast

	2020/21	2025/26	2030/31	2035/36
Scenario 1	357,700	363,500	368,600	373,100
Scenario 2	360,800	371,800	384,600	399,200
Scenario 3	357,400	362,900	368,300	373,300
Scenario 4	360,600	370,200	379,400	388,000
Scenario 5	357,700	365,000	377,700	390,300
Range	357,400 to 360,800	362,900 to 371,800	368,300 to 384,600	373,100 to 399,200

Figure 4.2: Forecast Tonnage based on MHCLG housing forecast



The proposed waste forecasts were agreed at the Options Appraisal Workshop, with Waste Forecast Scenario 4 being used as the forecast in the waste flow model. However, it was also agreed to run a sensitivity analysis on the waste forecasts using the percentage changes in household numbers which are proposed in upcoming Local Plans for some of the constituent Councils. The tonnage forecasts based on the housing growth proposed by each Council is provided in Table 4.4, and highlight that if the housing growth proposed within Local Plans is achieved there is the potential for an additional 18,000 to 20,000 tonnes of waste to be managed per annum.

Table 4.4: Forecast Tonnage based on constituent Council housing forecast

	2020/21	2025/26	2030/31	2035/36
Scenario 1	360,600	372,000	383,400	392,400
Scenario 2	363,600	380,500	399,600	419,600
Scenario 3	360,200	371,200	382,300	391,700
Scenario 4	363,500	378,900	394,500	408,200
Scenario 5	360,600	373,600	393,000	410,900
Range	360,200 to 363,600	371,200 to 380,500	382,300 to 399,600	391,700 to 419,600

4.2.2 Prevention, reuse and recycling initiatives assumptions

For the prevention, reuse and recycling initiatives (including bulky waste recycling and minimisation of contamination in dry recycling and composting), a series of performance and cost assumptions were developed based on information produced by WRAP and industry knowledge. The assumptions are provided in Appendix B. The assumptions were fed into the waste flow model. Appendix C provides an overview of the waste flow model.

4.2.3 Collection modelling assumptions

The collection system modelling was undertaken using WRAP's Kerbside Analysis Tool (KAT). This provided a means to calculate the amount of residual waste requiring treatment depending on the alternative collection system modelled and the level of recycling achieved.

Each Council was provided with KAT data pro-formas to obtain data on their current collection service performance and operation. The pro-formas captured data under the following general headings:

- Vehicle requirements;
- Vehicle specifications / costs / operational parameters and performance;
- Operational and capital costs, financing arrangements and infrastructure procurement details;
- Collection tonnages;
- Round data; and
- Staffing levels.

This data was then used to develop a baseline model. The baseline model reflects the current service operation and therefore provides an accurate representation of the existing service to compare against the alternative collection scenarios. All cost elements are annualised, including existing bins, vehicles etc. This approach allows a 'like for like' comparison against alternative collection systems.

A number of assumptions were made to supplement the information provided. These were based on industry practice, either in the form of WRAP guidance or prior experience from comparable

authorities. All assumptions were agreed with officers prior to modelling. A summary of the KAT modelling assumptions is provided in Appendix D

The outputs from KAT modelling were fed into the waste flow model. In addition, the outputs from KAT have been used to inform the assessment of:

- Criterion 6: Economic regeneration, including employment and a more circular economy, in term of the employment implications of different collection scenarios;
- Criterion 7: Protection of the environment and natural resources, with the different mileage from the different collection scenarios being fed to the WRATE analysis.

4.2.4 Waste treatment options assumptions

The waste flow model allows the performance of each of the scenarios to be tested and provides outputs for the assessment of:

- Criterion 2: Reduces the amount of waste generated by householder and managed by the Councils from baseline forecast;
- Criterion 3: Increases reuse and recycling;
- Criterion 4: Maximises recovery of waste;
- Criterion 5: Working towards zero waste to landfill; and
- Criterion 9. Affordable (long term measure).

To inform the inputs to the waste flow model a series of assumptions were needed about the waste treatment options.

Contract extension (beyond 2025) for existing EfW contract

Under this option, it has been assumed that the existing Haverton Hill EfW continues to be used under an extension to the existing agreements. The performance of the facility remains the same with waste being received from Hartlepool, Middlesbrough, Redcar and Cleveland and Stockton-on-Tees with Darlington continuing to use the Stonegrave treatment facility to prepare an RFD.

The agreed cost profile for the Haverton Hill EfW continues up 2025 after which the gates fee is aligned with market prices.

New build energy recovery facility

The term energy recovery facility can cover a range of technologies and facility designs, such Incineration (which usually involves the combustion of unprepared residual waste) or Advanced Thermal Treatment (ATT) - the principal processes being gasification and pyrolysis. Both Incineration and ATT technologies offer the option of treating residual waste and recovering energy. However, these technologies are different in how the waste is processed and the energy liberated for recovery, i.e. combustion directly releases the energy in the waste, whereas pyrolysis and gasification thermally treat the waste to generate secondary products (gas, liquid and/or solid) from which energy can be generated.

In the UK, there is a proven commercial and operational track record for incineration, whereas there has been limited success with ATT technologies. Therefore, for the purposes of the options appraisal process it has been assumed that the energy recovery facility would be a new EfW and both electricity only and CHP facilities have been considered. In the result for these scenarios, the assessment only uses the scores for the CHP facility to show the potential benefits from developing a CHP facility. In this scenario it is assumed that waste for all the Councils is sent for the new energy recovery facility from 2025.

In addition, the use of an EfW in the options appraisal process would not prevent an ATT facility being brought forward by a potential contractor in any subsequent procurement process.

New build refuse derived fuel facility (RDF)

Under this option, it has been assumed that waste for all the Councils is sent to a new RDF facility from 2025 with the RDF being exported to Europe, as is the case with the RDF currently produced from Darlington's waste at Stonegrave treatment facility.

Utilise third party energy recovery facility capacity

Under this option, it has been assumed that, from 2025, capacity at an existing EfW facility outside Tees Valley in the UK is secured for the waste for all the Councils. So, alongside the gate fee for the 3rd party EfW facility there is a transport cost of transferring the waste to the energy recovery facility.

4.2.5 WRATE assumptions

The WRATE (Waste and Resources Assessment Tool for the Environment) software developed by the Environment Agency was used to perform a life cycle analysis for the baseline and alternative scenarios (primarily the collection and residual treatment options). WRATE is applied to assess environmental impacts of waste management activities during their whole life cycle. The model incorporates the EcoInvent life cycle database, allowing the environmental impacts of the material inputs and outputs to be calculated. The model includes peer reviewed waste management data and processes to facilitate the benefits and disbenefits of waste treatment, recycling and disposal.

The WRATE results include the following parameters which have been utilised for the Strategy development process, either in terms of this options appraisal or the Strategic environmental assessment:

- Climate Change impacts
- Human Toxicity
- Acidification
- Eutrophication
- Resource Use
- Freshwater Aquatic Toxicity
- Land Take
- Vehicle Mileage data

It should be noted that WRATE is not a good tool for measuring waste prevention or re-use activity, and for these options alternative approaches have been used within the options appraisal.

A comparison of alternative collection and treatment options and the effect of implementing alternative collection systems was modelled using the 2027 waste arisings (from the waste flow model) and associated estimated energy mix (within WRATE). This is the mid-point of the strategy and a point by which alternative residual waste treatment systems are assumed to have been implemented.

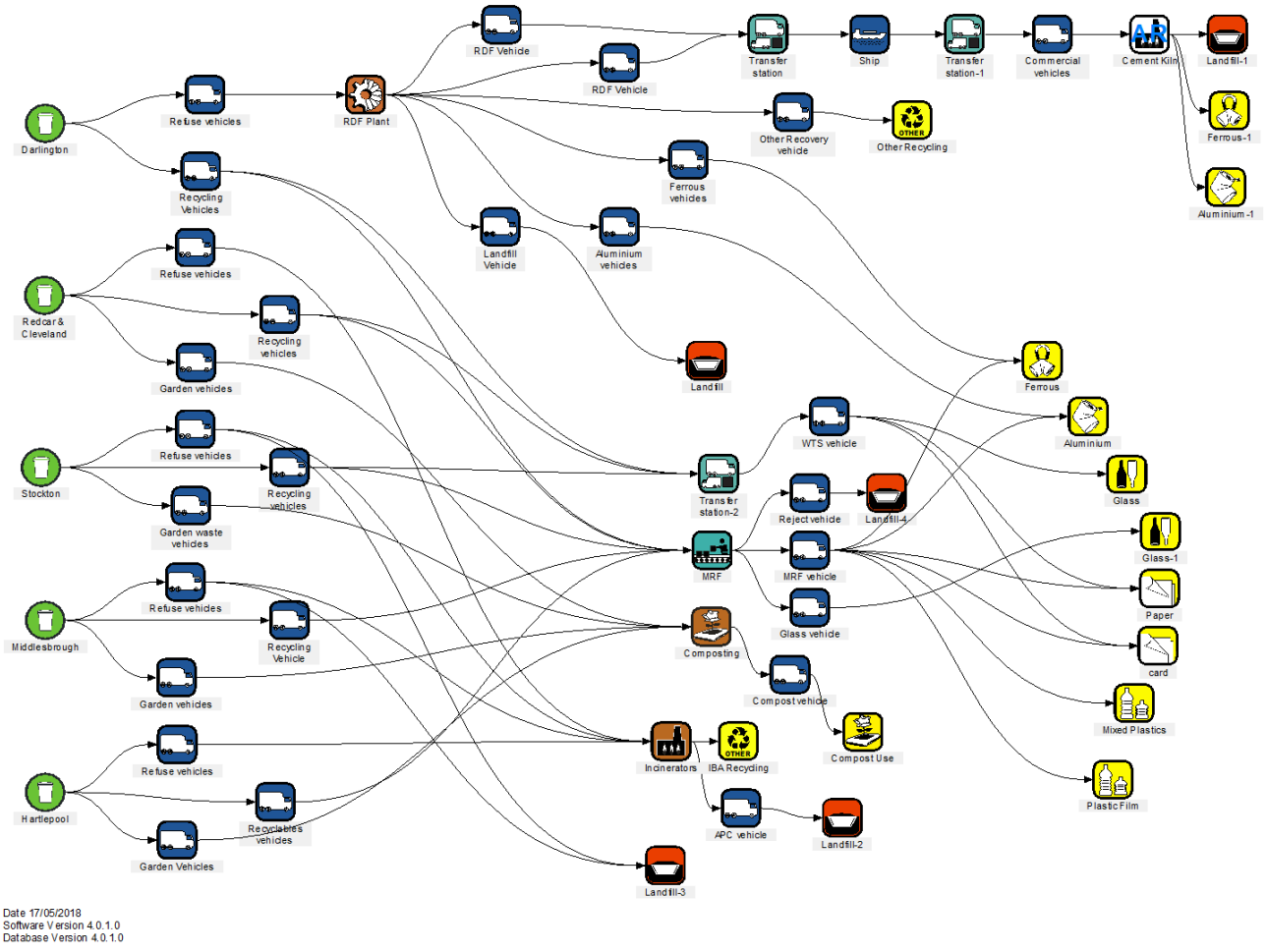
The assumptions applied within the models incorporated the data from the collection modelling (KAT), waste growth assumptions and the waste flow model assumptions. Other key assumptions applied to the modelling are:

- Default technologies and closest vehicles applied from WRATE database

- Existing mass balances and energy recovery efficiency applied for the RDF and EfW plants respectively
- New EfW plant scenario has 29% electrical efficiency
- Third party EfW plant assumed at 50-mile A-B distance from waste arisings
- Anaerobic Digestion assumed for food waste processing
- Where waste is displaced (e.g. via the charged garden collection), this is sent to home composting in the model as a proxy of impact
- Collection mileages from KAT are inflated by the same factor as waste growth (in 2027) as a proxy of vehicle impacts
- RDF is exported as per actual situation, to Latvia
- All reprocessors / non-specific outputs are set as 20km (A-B) distance, with the exception of Air Pollution Control residues which are 50km. Incinerator Bottom Ash (IBA) assumed to be processed at the EfW site, as per current arrangement
- Separated recyclate fractions are sent straight to a transfer station, comingled recyclate streams to an MRF

Figure 4.3 illustrates the structure of a scenario being modelled using WRATE.

Figure 4.3: Schematic of the Tees Valley WRATE Model



4.2.6 Other Assumptions

2016/17 figure were used for the base year for the waste arisings from WasteDateFlow[4].

The inflation rate for all costs is assumed to be 2.5% pa other than where future price profiles have been provided.

The changes in the collection arrangements has been modelled to start from 1st April 2020 for all authorities.

In the scenarios where additional recycling communications are employed, and additional activities are used to enhance the recycling at HWRCS, this has been modelled as a 2.5% increase in the amount of recyclates in the first year and a 0.5% increase for the subsequent 9 years ending in 2030. This has been assumed to cost £1 per household in addition to the normal collection costs. The impact of the HWRC interventions will lead to an increase in recycling and reuse of 11% for Middlesbrough, Stockton and Hartlepool or 12% for Redcar and Cleveland and Darlington. The costs to set this up are £50k per site plus an annual cost of £25k for additional staffing.

Anaerobic Digestion

Where scenarios utilise separate food waste collection this is sent to anaerobic digestion, which is modelled as a facility within the Tees Valley area, but no specific facility is represented. A gate fee of £20/t is assumed

New RDF production facility

Based on a typical performance of 33% mass loss, 2% recycling, 35% RDF, 30% landfill.

Costs are £25/t operational cost, RDF gate fee of £100/t and landfill at the prevailing costs (gate fee plus landfill tax)

New EfW

For the scenario analysis, data from a range of facilities has been collated and two options have been assessed. A local facility of 250ktpa capacity and a larger (450ktpa) remote “merchant” facility. The costs for the local facility is estimated at £83.56 /t on a 2016/17 basis and inflated at 2.5% pa. The larger non-local facility was assumed to cost £68.14/t but require £15/t in additional transport costs, but again on a 2016/17 basis plus 2.5% inflation.

The mass balance assumed was, 3.6% APCR and unrecovered IBA to landfill, 2% recycled, 73% process loss and 21.4% recovered IBA.

Landfill

The model assumes a single gate fee of £24.95 plus the landfill tax at the current rate and in subsequent years inflated in line with the other cost in the model at 2.5%. Landfill of asbestos is costed at £181.75/t plus tax.

[4] the web-based system for LACW data reporting by UK local authorities to government

5 Assessment Results

The options appraisal process involved evaluating the twenty scenarios against the evaluation criteria set out in Table 3.3. A summary of the outputs from the various models used to support the assessment are provided in the following appendices:

- Appendix E: Summary of KAT model outputs
- Appendix F: Summary of waste flow model outputs
- Appendix G: Summary of WRATE outputs

The assessment results are provided in Table 5.1 and graphically in Figure 5.1 which shows the unweighted scores and Figure 5.2 which presents the weighted scores.

For both the unweighted and weighted scores the options which included building of a new energy recovery facility scored best within each scenario. With Scenario 3f, which includes all prevention, reuse and recycling initiatives, high recycling collections and new energy recovery facility, scoring highest overall.

The detailed assessment of each scenario is provided in Appendix H.

Table 5.1: Assessment results

Scenario	1. Delivers an accessible service with engagement and customer satisfaction	2. Reduces the amount of waste generated by householder and managed by the Councils	3. Increases reuse and recycling	4. Maximises recovery of waste	5. Working towards zero waste to landfill	6. Economic regeneration, including employment and a more circular economy	7. Protection of the environment and natural resources	8. Reducing the carbon impact of waste management	9. Affordable (long term measure)	10. Deliverability	Unweighted Score	Weighted Score
1a: Contract extension only	1	1	1	3	1	2	2	1	1	0	**13**	**31**
1b: New energy recovery only	1	1	1	4	4	5	4	5	1	1	**27**	**60**
1c: New RDF only	1	1	1	0	0	4	3	0	1	2	**13**	**36**
1d: 3rd Party EfW	1	1	1	3	4	0	3	3	1	2	**19**	**40**
2a: High efficiency collection with contract extension	2	4	2	3	2	0	1	2	3	0	**19**	**47**
2b: High efficiency collection with new energy recovery	2	4	2	4	4	4	1	5	3	1	**30**	**72**
2c: High efficiency collection with new RDF facility	2	4	2	0	0	2	2	1	4	2	**19**	**54**
2d: High efficiency collection with 3rd Party EfW	2	4	2	4	4	0	0	4	3	2	**25**	**59**
2e: High recycling collection with contract extension	3	4	4	3	3	4	0	2	2	0	**25**	**64**
2f: High recycling collection with new energy recovery	3	4	4	4	5	5	0	5	1	2	**33**	**80**
2g: High recycling collection with new RDF facility	3	4	4	0	0	4	0	2	2	3	**22**	**64**
2h: High recycling collection with 3rd Party EfW	3	4	4	4	5	2	0	4	1	3	**30**	**72**
3a: Waste prevention with high efficiency collection and contract extension	3	5	3	3	2	0	2	2	4	0	**24**	**61**
3b: Waste prevention with high efficiency collection and new energy recovery	3	5	3	4	4	4	2	5	3	1	**34**	**83**
3c: Waste prevention with high efficiency collection and new RDF facility	3	5	3	0	0	2	3	2	4	2	**24**	**67**
3d: Waste prevention with high efficiency collection and 3rd Party EfW	3	5	3	4	4	1	1	4	3	2	**30**	**73**
3e: Waste prevention with high recycling collection and contract extension	3	4	5	3	4	4	1	2	2	0	**28**	**70**
3f: Waste prevention with high recycling collection and new energy recovery	3	4	5	4	5	5	1	5	1	3	**36**	**88**
3g: Waste prevention with high recycling collection and new RDF facility	3	4	5	0	0	4	1	3	2	4	**26**	**74**
3h: Waste prevention with high recycling collection and 3rd Party EfW	3	4	5	4	5	3	1	4	1	4	**34**	**83**

Figure 5.1: Assessment results – unweighted scores

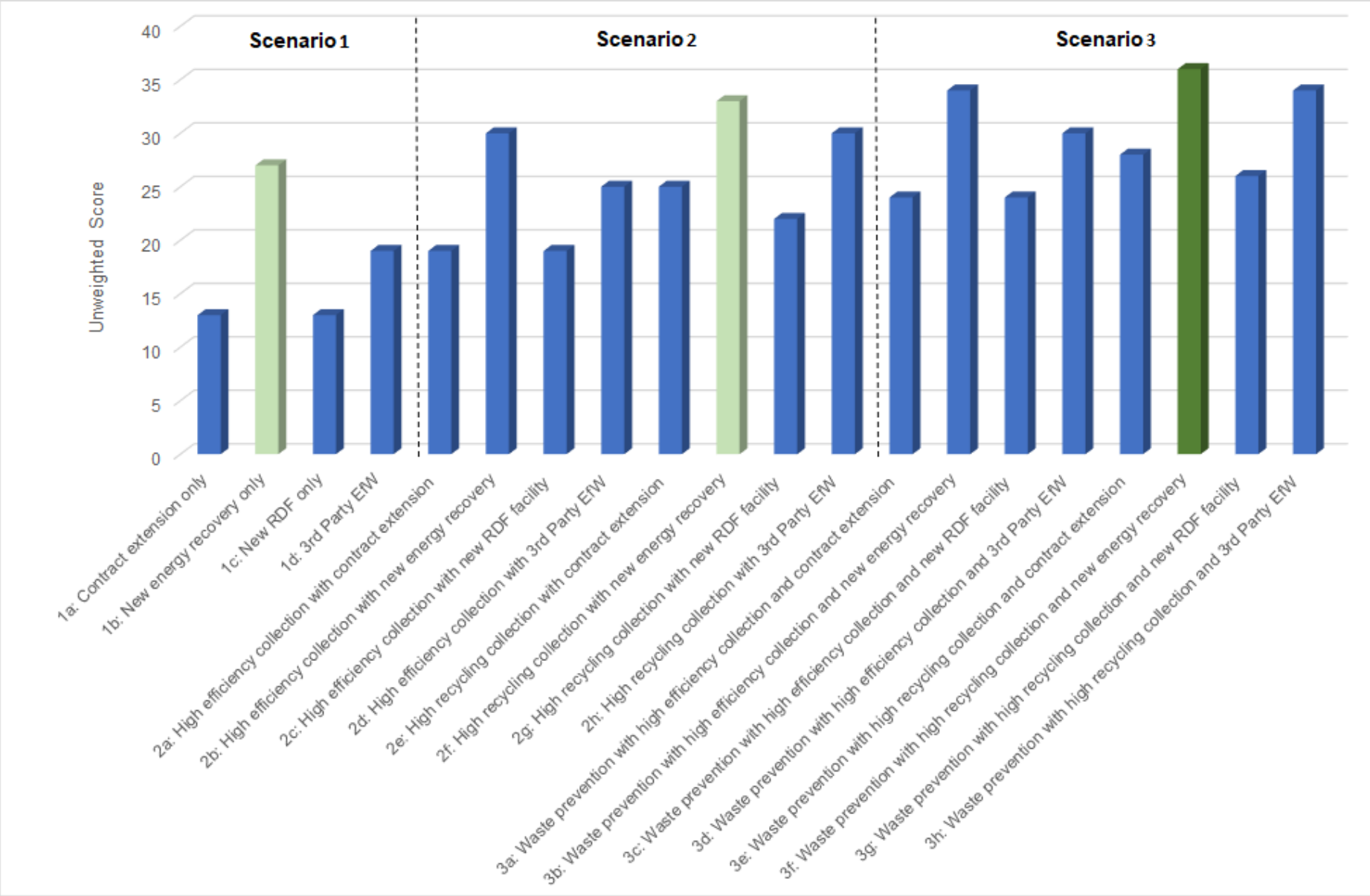
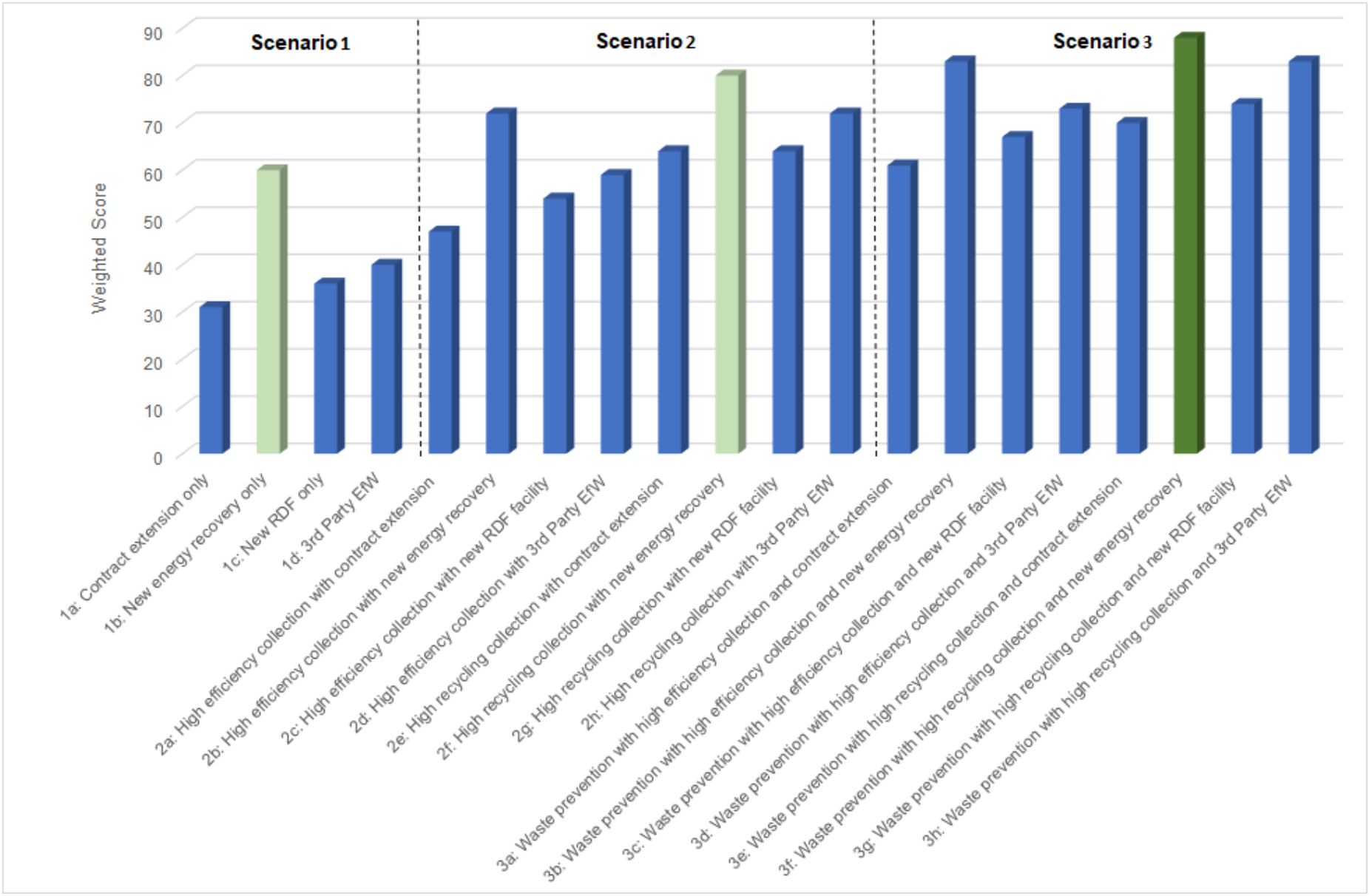


Figure 5.2: Assessment results –weighted scores



6 Discussion

The key factors that influenced the performance of different scenarios were;

6.1 Collection Scenarios

Both the baseline position and the high efficiency collection scenarios in isolation have no or limited impact on the level of reuse or recycling and as a result score less well than the high recycling collection scenarios. In addition, the high efficiency collection scenarios reduce the coverage and frequency of certain collections services which results in a loss of collection jobs; whereas the high recycling collection scenarios increases the number of collection jobs.

6.2 Prevention, reuse and recycling initiatives

The various waste prevention, reuse and recycling initiatives contribute to improved engagement, reuse and recycling, resource recovery and increased deliverability (due to consistency with current and emerging national policy). Therefore, Scenario 3s score better than the comparable Scenario 2s.

6.3 Waste treatment options

The different waste treatment options have a range of influencing factors:

- Scenarios based on a contract extension (beyond 2025) of the existing EfW contract perform poorly in terms of: economic regeneration/employment because no new jobs are created and is unlikely to help to secure other jobs in Tees Valley; the carbon impact of waste management because of the efficiency of the facility and no CHP capability; and deliverability mainly due to the fact that further extension to the current contract without competition is highly likely to be in breach of procurement rules.
- Scenarios which include a new build energy recovery facility score well because: they have the potential to secure jobs in the construction engineering sectors during construction of a new facility and if a CHP facility is developed it could help to secure employment in the energy use and manufacturing sector; also, a CHP facility would significantly reduce the carbon impacts of waste management. However, there are some deliverability issues related to securing funding and locating a suitable site.
- Scenarios which include a new build refuse derived fuel facility (RDF) perform poorly in terms of maximising recovery, diversion of waste from landfill and reducing the carbon impacts of waste management. This is because there is a significant increase in the amount of waste sent to landfill when compared to the current situation and the other technology options considered.
- Scenarios which utilise 3rd party energy recovery facility capacity score poorly on economic regeneration/employment because it is assumed that the 3rd party facility is located outside Tees Valley, resulting in a loss of jobs in the waste management sector. It also scores less well than the new build energy recovery facility on reducing carbon impacts, as it was assumed that the 3rd party facility is not CHP enabled and there is additional transport.

Therefore, based on the agreed evaluation criteria, and regardless of weighting, the preferred option would be; all prevention, reuse and recycling initiatives, high recycling collections and new energy recovery facility. The outcome is consistent with the approach adopted in the existing Waste Strategy.

Appendix A: Waste Forecast

Methodology

National Planning Practice Guidance on waste (NPPG: Waste) provides information in support of the implementation of waste planning policy. It includes guidance on how waste planning authorities should forecast municipal waste arisings preparing growth profiles. Box A1 reproduces the guidance for the 2014 revision (https://www.gov.uk/guidance/waste accessed 3rd February 2018)

Box A1: National Planning Practice Guidance: Waste

How should waste planning authorities forecast waste arisings?

Waste planning authorities should anticipate and forecast the amount of waste that should be managed at the end of the plan period. They should also forecast waste arising at specific points within the plan period, so as to enable proper consideration of when certain facilities might be needed. However, the right balance needs to be made between obtaining the best evidence to inform what will be necessary to meet waste needs, while avoiding unnecessary and spurious precision.

Paragraph: 028 Reference ID: 28-028-20141016

How should waste planning authorities forecast future municipal waste arisings?

Forecasts of future municipal waste arisings are normally central to the development of Municipal Waste Management Strategies.

It will be helpful to examine municipal waste arisings according to source (ie household collections, civic amenity site wastes, trade waste etc.). This may allow growth to be attributed to particular factors and to inform future forecasts.

A 'growth profile', setting out the assumed rate of change in waste arisings may be a useful starting point for forecasting municipal waste arisings. The growth profile should be based on 2 factors:

- household or population growth; and
- waste arisings per household or per capita.

Paragraph: 029 Reference ID: 28-029-20141016

How is a growth profile prepared?

A growth profile is prepared through a staged process:

- calculate arisings per head by dividing annual arisings by population or household data to establish short- and long-term average annual growth rates per household and
- factor in a range of different scenarios, e.g. constant rate of growth, progressively lowering growth rates due to waste minimisation initiatives.

The final forecast can then be modelled with scenarios based on the long- and short-term rate of growth per household, together with household forecasts.

Paragraph: 030 Reference ID: 28-030-20141016

Housing data and forecasts

To analyse the trends in waste generation per household, historic household numbers 2016/17 are required, along with household forecasts up to 2031 to consider future trends.

Ministry of Housing, Communities and Local Government (MHCLG formerly DCLG) housing data[5] cover the period from 2010 to 2039. This data allows current trends in waste per household to be analysed using the same dataset that will be used for estimating future arisings, ensuring the dataset is internally consistent.

[5] Table 406 of the Household_Projections_Published_Tables spreadsheet published in July 2016. https://www.gov.uk/government/statistical-data-sets/live-tables-on-household-projections

3 to 5 Year Trends

The trends are considered over the last three to five years as this coincides with the low point in LACW arisings both in Tees Valley and nationally following the impact of the recession on waste generation levels, see Table A1.

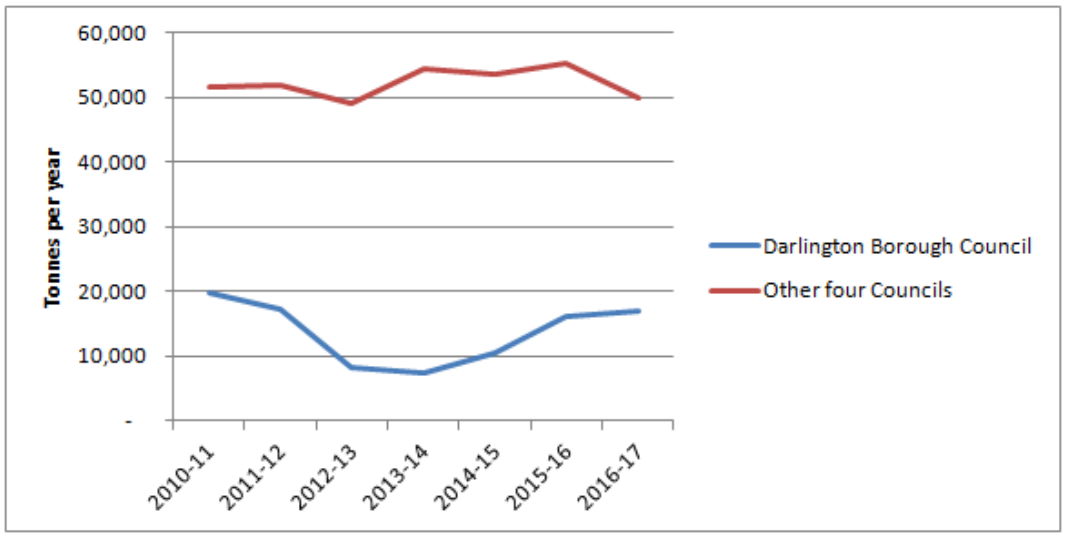
Household waste growth is broadly consistent with growth in the number of households, with the growth in LACW being driven more by the growth in non-household waste. The change in the non-household waste over the last five years is effectively as a result of the increase of 9,000 in Darlington over the last five years, with total for the other four authorities sitting between 50,000 and 55,000 tpa over the last five years, see Figure A1. Figure A1 also highlights that the non-household waste in Darlington has recover to the pre 2012-13 levels.

Table A1: Tees Valley LACW tonnage Trends

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Number of Households ('0000) Source: MHCLG[1]	281.40	283.05	284.31	285.50	286.79	288.14	289.70
Annual average change since 2014/15						0.51%	
Annual average change since 2012/13					0.47%		
Total LACW	368,444	356,897	337,664	343,809	345,150	352,107	352,116
Annual average change since 2014/15						1.00%	
Annual average change since 2012/13					1.05%		
Total household waste	296,970	287,654	280,321	281,885	281,138	280,538	285,160
Annual average change since 2014/15						0.71%	
Annual average change since 2012/13					0.43%		
Total non-household waste	71,474	69,243	57,343	61,924	64,014	71,570	66,956
Annual average change since 2014/15						2.27%	
Annual average change since 2012/13					3.95%		

1. Ministry of Housing, Communities and Local Government (formerly DCLG)

Figure A1 Total non-household waste, 2010-11 to 2016-17



The overall household waste per household for Tees Valley has been effectively static over the last three to five years, as shown in Table A2 below. Although, there are differences in the trends between the authorities but there is no consistent trend.

Table A2: Trends in household waste per household

Household waste per household	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Darlington	1.06	1.02	0.98	0.98	0.93	0.94	0.93
Annual average change since 2014/15						-0.15%	
Annual average change since 2012/13					-1.17%		
Hartlepool	1.06	1.03	1.01	1.05	1.01	1.00	0.99
Annual average change since 2014/15						-0.70%	
Annual average change since 2012/13					-0.52%		
Middlesbrough	1.09	1.04	1.00	0.97	0.97	0.98	1.02
Annual average change since 2014/15						2.96%	
Annual average change since 2012/13					0.55%		
Redcar and Cleveland	1.01	0.97	0.92	0.93	0.96	0.96	0.95
Annual average change since 2014/15						-0.32%	
Annual average change since 2012/13					0.97%		
Stockton-on-Tees	1.06	1.03	1.02	1.02	1.02	0.99	1.00
Annual average change since 2014/15					-0.70%		
Annual average change since 2012/13			-0.31%				
Tees Valley	1.06	1.02	0.99	0.99	0.98	0.97	0.98
Annual average change since 2014/15						0.21%	
Annual average change since 2012/13					-0.04%		

Economic growth and waste generation

Historical trends in most industrial economies show that resource use and the resulting waste generation is linked to economic activity. Decoupling economic growth from waste generation is the main objective of recent waste policies (e.g. waste prevention, resource efficiency, circular economy) across Europe. Consequently, there have been a number of studies over the last few years that look at the relationship between waste growth and economic growth.

At the end of 2012, WRAP published a report[6] highlighting that household waste arisings peaked between 2003 and 2007 and started to fall before the start of the recession, showing strong evidence of decoupling. For England, there was strong evidence of decoupling of household waste arisings from Gross Disposable Household Income[7] and a short period of decoupling with Gross Value Added[8]. However, from 2005/06 waste rose and fell in line with Household Expenditure[9], suggesting a strong link, or coupling, between Household Expenditure and household waste arisings, as would be expected.

It also highlighted that the perception of the 2007 credit crunch precipitated a loss of consumer confidence, with Household Expenditure falling while income was yet unaffected, and that household waste arisings are not coupled to Gross Disposable Household Income at a time of low consumer confidence (although they may well be at other more positive times).

More recent modelling[10] undertaken by the National Infrastructure Commission (NIC) to inform the National Infrastructure Assessment highlighted that historical data shows that waste generation is correlated with economic activity. However, recent trends indicate that economic growth and LACW arisings may be decoupling (i.e. using less resources and generating less waste per unit of economic activity). Due to the uncertainty around the rate at which waste arisings may decouple from economic growth in the future, a sensitivity analysis of the degree of decupling was factored into this modelling of future LACW arisings.

The NIC modelling of future LACW arisings suggested LACW arisings of between 31 million tonnes and 59 million tonnes by 2050; with the exception of the model which assumed a high decoupling rate, which indicated a reduction to 23 million tonnes compared with a 2015 arising of 26 million tonnes.

Therefore, when forecasting future LACW arisings, there is a need to recognise a degree of decoupling of waste growth from economic growth but a correlation of house expenditure with LACW growth is still evident.

Therefore, three growth scenarios based on the trends over the last five years have been considered along with two scenarios that assume a level of economic growth which increase the waste generation per household:

- One scenario considers a small increase of 0.25% per annum in household waste per household from 2016/17; and

[6] WRAP, Decoupling of Waste and Economic Indicators, October 2012

[7] Gross Disposable Household Income (GDHI) – an alternative measure of income; it measures what is available for households to spend or save once taxes, social contributions, pension contributions and property ownership have been taken into account.

[8] Gross Value Added (GVA) measures the contribution to the economy of each individual producer, industry or sector in the United Kingdom and is a headline measure used to monitor economic performance.

[9] Household Expenditure (HE) encompasses all domestic outlays (by residents and non-residents) for individual needs, including expenditure on goods and services.

[10] Infrastructure Commission (NIC) Modelling Results Roundtable, London, June 2017

- Another scenario seeks to reflect an increase in the UK economy from growth in manufacturing within the UK, as a result of the UK's decision to leave the European Union. However, there is clearly a degree of uncertainty over how the UK economy will change as a result of Brexit.

The scenarios are summarised in Table A3

Table A3: Waste Growth Scenarios

Scenario	Household waste per household assumptions	Non-household waste assumptions
1	Static household waste per household based the 2016/17 figure	Non-households waste remains static at 2016/17 level.
2	The household waste per household changes from the 2016/17 figure based on the annual average change since 2014/15	Non-households waste remains static at 2016/17 level.
3	The household waste per household changes from the 2016/17 figure based on the annual average change since 2012/13	Non-households waste remains static at 2016/17 level.
4	The household waste per household increases at 0.25% per annum from the 2016/17.	Non-households waste remains static at 2016/17 level.
5	As per Scenario 1 up to 2024/25, then a 0.5% per annum increase in household waste per household	Non-households waste remains static at 2016/17 level.

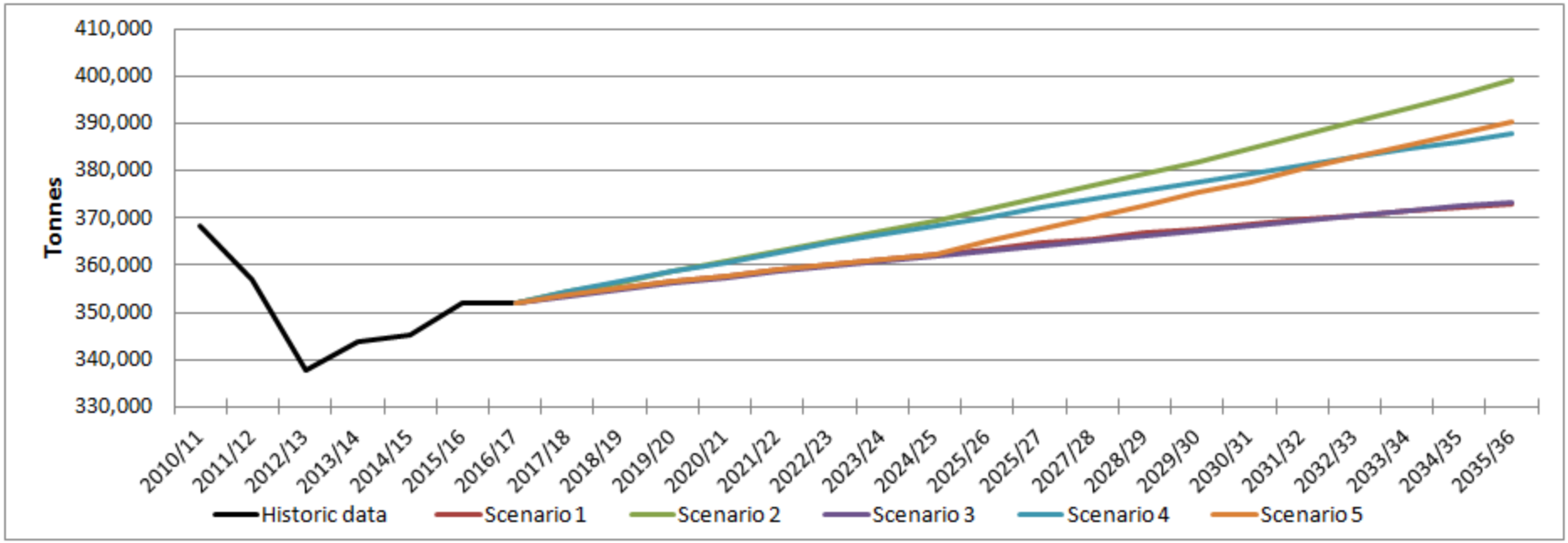
Table A4 and Figure A2 at a 'Tees Valley' level shows Scenarios 1 and 3 are almost identical with an average annual growth equivalent to 0.3%. Scenario 2 shows a higher growth, equivalent to 0.7% average annual growth, mainly due to the 3% increase in the household waste per household in Middlesbrough over the last three years. Scenarios 4 and 5 show average annual growth equivalent to 0.5% and 0.55% respectively and therefore sit between Scenarios 1 & 3 and Scenario 2.

Table A4: Forecast Tonnage based on MHCLG housing forecast

Waste Forecast	2020/21	2025/26	2030/31	2035/36
Scenario 1	357,700	363,500	368,600	373,100
Scenario 2	360,800	371,800	384,600	399,200
Scenario 3	357,400	362,900	368,300	373,300
Scenario 4	360,600	370,200	379,400	388,000
Scenario 5	357,700	365,000	377,700	390,300
Range	357,400 to 360,800	362,900 to 371,800	368,300 to 384,600	373,100 to 399,200

The proposed waste forecasts were agreed at the Options Appraisal Workshop, with Waste Forecast Scenario 4 being used as the central forecast in the waste flow model. However, it was also agreed to run a sensitivity analysis on the waste forecasts using the percentage changes in household numbers which are proposed in upcoming Local Plans for some of the constituent Authorities.

Figure A2: Forecast Tonnage based on MHCLG housing forecast



Appendix B: Waste Prevention, Reuse and Recycling Initiatives Assumptions

Option	Raising waste awareness and education campaigns
Current Activity	Overall communications are focussed on operational information (including social media, calendars, leaflets, bin stickers, vehicle side advertisements, press releases, council magazine) with limited budget allocated to campaigns on raising waste awareness and education. Annual budgets for waste related communications are • Darlington: £3k • Hartlepool: £12k • Middlesbrough: None Allocated • Redcar &Cleveland: None Allocated • Stockton-on-Tees: None Allocated
Description	A rolling programme of campaigns designed to raise awareness and increase participation in waste prevention and reuse activities, including: • General education and waste prevention initiatives; • General reuse initiatives • Love Food Hate Waste • Junk Mail • Promoting smart shopping practices
Performance Assumptions	There is no definitive evidence base on the impact of communications campaigns due to the range of variables related to the impacts. Modelling assumption: 2.5% uplift in recycling in year 1 followed by 0.5% per annum Modelling assumption: .0.1% waste prevention per annum
Cost Assumptions	WRAP - Improving recycling through effective communications: '*There is, unfortunately, no simple formula to determine how much needs to be spent on communications to achieve any given desired result. There are too many variables and too many ways of achieving results for such a formula to exist. As a rule of thumb, however, experience suggests that an effective campaign costs a minimum of £1.00 per household (NB. This will vary and for small LAs the figure could be greater as core costs for activities like monitoring etc will absorb a greater proportion of your funding). Your budget may also need to be proportionally greater if, for example, you are launching a new authority-wide service. If your plan requires a budget of much less or more than this figure (e.g. £0.50 - £1.50 per household) it is not necessarily wrong but you should reconsider it and satisfy yourself that your proposed budget is neither too high nor too low. These figures will give you an approximate target budget to aim at*.' Modelling assumption: £1/household per year

Option	Home Composting / Digestion
Current Activity	The Council currently do not heavily promote composting. A couple of council's direct residents to the RecyleNow composting website and another directs to the getcomposting.com website for subsidised home composting bins.
Description	Actively promote home composting (or anaerobic / aerobic digestion) to reduce the demand on collection services and treatment capacity by providing a £5 subsidy per composting bin.
Performance Assumptions	Modelling assumption: 1000 composting bins requested per annum for 5 years 150kg diversion per composting bin per year Lapse rate 5% per annum Tonnage diversion Year 1: 150 tonnes Year 2: 293 tonnes Year 3: 428 tonnes Year 4: 557 tonnes Year 5: 679 tonnes etc Based on WRAP Waste Prevention Calculator from 2010
Cost Assumptions	Modelling assumption: £5 subsidy per composting bin. Communications costs covered as part of overall waste awareness and education campaigns options.

Option	Recycling & Reuse at Household Waste Recycling Centres (HWRC)
Current Activity	There is a high level of landfill diversion (96%) from the HWRCs due to the majority of residual waste being diverted to the Haverton Hill EfW facility. However, the recycling rates (excluding rubble) at the HWRCs are low (30%-43%) compared to the UK average of 62% in 2015/16[1]
Description	Install facilities at HWRCs that allow members of the public to leave and collect items such as furniture. This can include awareness and promotional campaigns of the service. The WRAP HWRC Toolkit has been used to estimate the impact of: • Introducing reuse system; • Introducing/expanding 'meet and greet' policy with an additional staff member; • Rebranding the site as strongly focused on recycling and reuse; and • Introducing activities that strongly promote on recycling and reuse or displaying current recycling rate on site.
Performance Assumptions	The WRAP HWRC Toolkit indicates that the above activities could increase the recycling rates (excluding rubble) at the HWRCs as follows: • Haverton Hill: +11% • Burn Rd: +11% • Dunsdale Rd: +12% • Mewburn Rd: +12%
Cost Assumptions	WRAP: HWRC shops overview 2016:

	'Smaller shops cost an average of £12,000 to set up (approximately £200 per sq. metre). Larger shops cost an average of £135,000, or £380 per sq. metre, to set up'. '*Most shops cover their running costs and larger shops can generate substantial tonnage and profit returns.'* Modelling assumption: One off set up cost of £50,000 per site and cost neutral running costs. Modelling assumption: £25,000 per annum per additional staff member, assume one per site (4 in total) Communications costs covered as part of overall waste awareness and education campaigns options.
1. WRAP HWRC Toolkit (May 2017)	

Option	**Bulky waste collection reuse and recycling**
Current Activity	There is limited information on the extent of bulky waste collection reuse and recycling. • Darlington: Charged (£16.83 for 6 items) 472 tonnes collected, from 4,577 collections Recycled, reuse and resale – Not known Cost of service £74.6k, Income ~£77k (based on collections) • Hartlepool: Charged (£20 for 3 items) 243 tonnes collected 12% recycled (scrap metal, wood, WEEE), no reuse and resale Cost of service £25k, Income £31.6k • Middlesbrough: Charged (£10 for up to 5 Items) 500 tonnes collected (estimated) 20% recycled, no reuse and resale No separate cost information • Redcar &: Cleveland Charged (£18/6 items; £29/7-12 items; £39/13-18 items) 291 tonnes collected (budgeted) Recycled, reuse and resale – Not known No separate cost information, Income £80k • Stockton Charged (£15 for 6 items) 749 tonnes collected 36% recycled, no reuse and resale No separate cost information
Description	Sort bulky waste collections to extract reusable goods with a view to refurbishment, reuse and resale either by 3rd sector organisations or via re-use shops at HWRCs. Awareness and promotional campaigns to support this option would be included as part of the overall waste awareness and education campaigns options.
Performance Assumptions	WRAP - Composition and reuse potential of household bulky waste in the UK (2012): "*For items collected via bulky waste collections, surveyors estimated that across all types of items 24% of bulky items were re-usable, with a further 16% assessed as re-usable with slight repair*". Modelling assumption 25% of collected bulky is diverted to reuse.

Cost Assumptions	Awareness and education costs covered as part of overall waste awareness and education campaigns options. No net changes in service delivery costs as assumed that any additional costs would be reflected in charges. Cost saving from avoided treatment disposal costs of material reused.

Option	**Reducing contamination**
Current Activity	There is limited information on the extent of bulky waste collection reuse and recycling. • Hartlepool 22% • Darlington 15% • Middlesbrough 12.2% - 14% (KAT modelling used the 12.2%) • Redcar & Cleveland 25.1% • Stockton on Tees 2.8%
Description	A combination of communication and enforcement reduce the contamination levels in the dry recycling collection. Awareness and promotional campaigns to support this option would be included as part of the overall waste awareness and education campaigns options.
Performance Assumptions	There is no definitive evidence base on the impact of communications campaigns and enforcement on reducing the level of contamination due to the range of variables related to the impacts. Modelling assumption: A reduction of one third in the level of contamination of the single and two stream collection of recycling, which is correctly place in the residual waste stream
Cost Assumptions	Awareness and education costs covered as part of overall waste awareness and education campaigns options. Modelling assumption: £30,000 per annum per add additional staff member, assume one per Council collecting dry recycling co-mingled Cost saving on tonnage entering the MRF

Appendix C: Tees Valley Waste Flow Model

Overview

The waste flow model for this project has been developed to allow the quick evaluation of changes to the ways waste is managed over time. The model allows the impacts of alternative collection scenarios and treatment processes thought to the end disposal points or markets to be determined. In addition, it is possible to model alternative disposal arrangements so that the scale of facilities that might be considered can be determined and the resultant costs evaluated.

The model also captures the costs associated with the various treatment operations and the different collection schemes. This is carried out in a simple method of applying gate fee type calculations to the tonnages processed or a cost per household to the collection costs. This provides a consistent methodology for comparing the cost impacts resulting from the alternative waste management systems considered.

Appendix D: Summary of KAT Modelling Assumptions

High efficiency collection scenario

This represents a 'high efficiency' option incorporating a charged garden waste service and a fortnightly residual waste collection using 140 litre wheeled bins. Dry recycling remains as per the current systems, albeit with higher performance due to the restricted residual capacity[11]. The assumptions used for the garden waste service can be found within Table D1. Due to the restricted residual service it was assumed that only 20% of the garden waste no longer collected via the charged system would be put into the residual stream and 30% would be sent to HWRC's. The remaining 50% of 'non-collected' garden waste is assumed to be prevented / home composted. It was also assumed that as the service is a charged service, garden waste contamination would be 0%.

Table D1: Assumptions used for the modelling of High Efficiency scenario

Assumptions	
Subscription fee	£35/hh
Take up (of those that received the free garden waste collection)	30%
Set out amongst subscribers	95%
Participation amongst subscribers	100%
Proportion of GW Tonnage collected[12]	45%

High recycling collection scenario

This scenario models a 'high recycling performance option'. It applies a charged garden waste service (as outlined in the High Efficiency Scenario), a separate weekly food waste collection, a fortnightly 2 stream dry recycling collection and a three-weekly residual collection in 240l wheeled bins. A restricted residual waste service combined with regular recycling collections was modelled to maximise the amount of material segregated for recycling. The assumptions used for the increase in recycling performance are outlined in Table D2.

Table D2: Assumptions used for the modelling of the enhanced dry recycling

Assumptions- dry recycling stream	
Participation	+ 7.5%
Set out	+ 5%
Capture	+ 2.5%
Contamination	+ 2%

In addition, the food waste collection was modelled to deliver a high yield of food waste via the weekly service. The data was sourced from the WRAP 'Ready Reckoner' formula and assuming a 60% participation rate.

[11] The enhanced dry recycling is the same as the increase shown in Table D2 (High recycling scenario)

[12] Versus the free service, as currently offered in all Tees Valley Authorities except Darlington

Appendix E: Summary of KAT model outputs

Table E3: Indicative annualised collection costs and kerbside recycling performance for all Councils

Gross annualised collection costs/kerbside recycling performance (%)						
Council	**Baseline**		**High efficiency option**		**High recycling option**	
Darlington	£3,068,664	21%	£3,248,679	29%	£3,615,253	45%
Hartlepool	£3,478,372	32%	£2,533,937	27%	£3,370,668	41%
Middlesbrough	£4,455,631	31%	£3,163,232	28%	£3,869,119	36%
Redcar & Cleveland	£5,281,723	43%	£4,461,639	39%	£5,169,295	52%
Stockton-on-Tees	£6,236,458	21%	£6,015,219	21%	£6,806,005	31%
Tees Valley	**£22,520,848**	**29%**	**£19,422,706 [£17,383,088*]**	**28%**	**£22,830,340 [£20,790,722*]**	**40%**
***** includes Garden waste service subscription net revenue						

Table E4: Number of front line roles required to operate collection service for all Councils

Council	Baseline	High efficiency option	High recycling option
Darlington	39	42	53
Hartlepool	36	30	46
Middlesbrough	57	39	54
Redcar & Cleveland	76	64	78
Stockton-on-Tees	91	78	98
Tees Valley	**299**	**253**	**329**

Table E5 Collection mileage, derived from KAT and inflated to 2027 projection (km)

Council	Baseline	High efficiency option	High recycling option
Darlington	342,029	359,292	492,353
Hartlepool	623,680	309,909	474,569
Middlesbrough	250,001	199,404	259,744
Redcar & Cleveland	1,041,667	884,785	1,386,169
Stockton-on-Tees	591,697	587,813	794,664
Tees Valley	**2,849,074**	**2,341,204**	**3,407,500**

Appendix F: Summary of waste flow model outputs

Scenario 1a (Baseline)		2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	358,024	360,016	361,934	363,711	365,511	367,313	369,224	371,049	372,838	374,567	376,317	378,145	379,860	381,553	383,138	384,737
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	34.1%	34.1%	34.0%	34.0%	34.0%	34.0%	33.9%	33.9%	33.9%	33.9%	33.8%	33.8%	33.8%	33.8%	33.7%	33.7%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.4%	89.4%	89.4%	89.4%	89.4%	89.5%	89.5%	89.5%	89.5%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	6.2%	6.2%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%
	NPV	£505,244,769																			
Scenario 1b		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	358,024	360,016	361,934	363,711	365,511	367,313	369,224	371,049	372,838	374,567	376,317	378,145	379,860	381,553	383,138	384,737
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	34.1%	34.1%	34.0%	34.0%	34.0%	34.2%	34.2%	34.1%	34.1%	34.1%	34.0%	34.0%	34.0%	34.0%	34.0%	33.9%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.4%	93.3%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	6.2%	6.2%	6.1%	6.1%	6.1%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
	NPV	£514,479,309																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	4.0%	4.0%	4.0%	4.0%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%
	9: % change in NPV	1.8%																			
Scenario 1c		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	358,024	360,016	361,934	363,711	365,511	367,313	369,224	371,049	372,838	374,567	376,317	378,145	379,860	381,553	383,138	384,737
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	34.1%	34.1%	34.0%	34.0%	34.0%	34.2%	34.2%	34.1%	34.1%	34.1%	34.0%	34.0%	34.0%	34.0%	34.0%	33.9%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.4%	64.9%	64.9%	64.9%	65.0%	65.0%	65.0%	65.0%	65.1%	65.1%	65.1%	65.1%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	6.2%	6.2%	6.1%	6.1%	6.1%	20.2%	20.2%	20.2%	20.2%	20.2%	20.2%	20.3%	20.3%	20.3%	20.3%	20.3%
	NPV	£494,885,562																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-24.5%	-24.5%	-24.5%	-24.4%	-24.4%	-24.4%	-24.4%	-24.4%	-24.4%	-24.4%	-24.4%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.1%	14.1%	14.1%	14.1%	14.1%	14.1%	14.1%	14.1%	14.1%	14.1%	14.1%
	9: % change in NPV	-2.1%																			
Scenario 1d		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	358,024	360,016	361,934	363,711	365,511	367,313	369,224	371,049	372,838	374,567	376,317	378,145	379,860	381,553	383,138	384,737
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	34.1%	34.1%	34.0%	34.0%	34.0%	34.2%	34.2%	34.1%	34.1%	34.1%	34.0%	34.0%	34.0%	34.0%	34.0%	33.9%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.3%	89.4%	93.3%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	6.2%	6.2%	6.1%	6.1%	6.1%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
	NPV	£513,847,597																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	4.0%	4.0%	4.0%	4.0%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%
	9: % change in NPV	1.7%																			

Scenario 2a		2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	351,723	353,674	355,551	357,293	359,055	360,821	362,693	364,481	366,235	367,930	369,645	371,437	373,117	374,777	376,331	377,899
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	34.4%	34.4%	34.4%	34.4%	34.3%	34.3%	34.3%	34.3%	34.2%	34.2%	34.2%	34.2%	34.1%	34.1%	34.1%	34.1%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.6%	89.6%	89.6%	89.6%	89.6%	89.6%	89.6%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
	NPV	£468,574,929																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.34%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.13%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%
	9: % change in NPV	-7.3%																			
Scenario 2b		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	351,723	353,674	355,551	357,293	359,055	360,821	362,693	364,481	366,235	367,930	369,645	371,437	373,117	374,777	376,331	377,899
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	34.4%	34.4%	34.4%	34.4%	34.3%	34.5%	34.5%	34.5%	34.4%	34.4%	34.4%	34.4%	34.3%	34.3%	34.3%	34.3%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.5%	89.5%	89.5%	89.5%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	6.0%	6.0%	6.0%	6.0%	6.0%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
	NPV	£477,748,444																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.3%	0.3%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%
	9: % change in NPV	-5.4%																			
Scenario 2c		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	351,723	353,674	355,551	357,293	359,055	360,821	362,693	364,481	366,235	367,930	369,645	371,437	373,117	374,777	376,331	377,899
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	34.4%	34.4%	34.4%	34.4%	34.3%	34.5%	34.5%	34.5%	34.4%	34.4%	34.4%	34.4%	34.3%	34.3%	34.3%	34.3%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.5%	89.5%	89.5%	89.5%	64.8%	64.9%	64.9%	64.9%	64.9%	65.0%	65.0%	65.0%	65.1%	65.1%	65.1%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	6.0%	6.0%	6.0%	6.0%	6.0%	20.1%	20.1%	20.1%	20.1%	20.1%	20.1%	20.1%	20.1%	20.1%	20.1%	20.1%
	NPV	£458,598,575																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.3%	0.3%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	-24.5%	-24.5%	-24.5%	-24.5%	-24.5%	-24.5%	-24.4%	-24.4%	-24.4%	-24.4%	-24.4%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	13.9%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%
	9: % change in NPV	-9.2%																			
Scenario 2d		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	351,723	353,674	355,551	357,293	359,055	360,821	362,693	364,481	366,235	367,930	369,645	371,437	373,117	374,777	376,331	377,899
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	34.4%	34.4%	34.4%	34.4%	34.3%	34.5%	34.5%	34.5%	34.4%	34.4%	34.4%	34.4%	34.3%	34.3%	34.3%	34.3%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.5%	89.5%	89.5%	89.5%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%	93.4%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	6.0%	6.0%	6.0%	6.0%	6.0%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
	NPV	£477,131,043																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%	-1.8%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.3%	0.3%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%	-2.3%
	9: % change in NPV	-5.6%																			

Scenario 2e		2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	351,908	353,859	355,738	357,480	359,243	361,009	362,882	364,671	366,425	368,121	369,836	371,628	373,309	374,969	376,523	378,091
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	43.3%	43.3%	43.3%	43.3%	43.2%	43.2%	43.2%	43.1%	43.1%	43.1%	43.1%	43.0%	43.0%	43.0%	43.0%	42.9%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.4%	89.4%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.6%	89.6%	89.6%	89.6%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%
	NPV	£492,540,215																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	9.2%	9.2%	9.2%	9.2%	9.2%	9.2%	9.2%	9.2%	9.2%	9.2%	9.2%	9.2%	9.2%	9.2%	9.2%	9.2%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.09%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-0.8%	-0.8%	-0.8%	-0.8%	-0.8%	-0.8%	-0.8%	-0.85%	-0.9%	-0.9%	-0.9%	-0.9%	-0.9%	-0.9%	-0.9%	-0.9%
	9: % change in NPV	-2.5%																			
Scenario 2f		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	351,908	353,859	355,738	357,480	359,243	361,009	362,882	364,671	366,425	368,121	369,836	371,628	373,309	374,969	376,523	378,091
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	43.3%	43.3%	43.3%	43.3%	43.2%	43.4%	43.3%	43.3%	43.3%	43.3%	43.2%	43.2%	43.2%	43.2%	43.1%	43.1%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.4%	89.4%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	5.3%	5.3%	5.3%	5.3%	5.3%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
	NPV	£500,738,857																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	9.2%	9.2%	9.2%	9.2%	9.2%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-0.8%	-0.8%	-0.8%	-0.8%	-0.8%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%
	9: % change in NPV	-0.9%																			
Scenario 2g		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	351,908	353,859	355,738	357,480	359,243	361,009	362,882	364,671	366,425	368,121	369,836	371,628	373,309	374,969	376,523	378,091
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	43.3%	43.3%	43.3%	43.3%	43.2%	43.4%	43.3%	43.3%	43.3%	43.3%	43.2%	43.2%	43.2%	43.2%	43.1%	43.1%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.4%	89.4%	64.3%	64.4%	64.4%	64.4%	64.5%	64.5%	64.5%	64.6%	64.6%	64.6%	64.6%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	5.3%	5.3%	5.3%	5.3%	5.3%	17.8%	17.8%	17.8%	17.8%	17.8%	17.8%	17.9%	17.9%	17.9%	17.9%	17.9%
	NPV	£483,813,313																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	9.2%	9.2%	9.2%	9.2%	9.2%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	-25.0%	-25.0%	-25.0%	-25.0%	-25.0%	-24.9%	-24.9%	-24.9%	-24.9%	-24.9%	-24.8%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-0.8%	-0.8%	-0.8%	-0.8%	-0.8%	11.7%	11.7%	11.7%	11.7%	11.7%	11.7%	11.7%	11.7%	11.7%	11.7%	11.7%
	9: % change in NPV	-4.2%																			
Scenario 2h		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	351,908	353,859	355,738	357,480	359,243	361,009	362,882	364,671	366,425	368,121	369,836	371,628	373,309	374,969	376,523	378,091
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	43.3%	43.3%	43.3%	43.3%	43.2%	43.4%	43.3%	43.3%	43.3%	43.3%	43.2%	43.2%	43.2%	43.2%	43.1%	43.1%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.4%	89.4%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%	93.2%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	5.3%	5.3%	5.3%	5.3%	5.3%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
	NPV	£500,193,169c																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%	-1.7%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	9.2%	9.2%	9.2%	9.2%	9.2%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%	9.4%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-0.8%	-0.8%	-0.8%	-0.8%	-0.8%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%	-2.7%
	9: % change in NPV	-1.0%																			

Scenario 3a		2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	350,427	352,369	354,238	355,970	357,725	359,482	361,345	363,125	364,871	366,559	368,266	370,050	371,722	373,375	374,922	376,483
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	37.0%	37.1%	37.1%	37.1%	37.2%	37.2%	37.3%	37.3%	37.3%	37.4%	37.3%	37.3%	37.3%	37.3%	37.2%	37.2%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.5%	89.6%	89.6%	89.6%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%
	NPV	£467,033,114																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	2.9%	3.0%	3.1%	3.1%	3.2%	3.3%	3.3%	3.4%	3.4%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.09%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.4%	-0.4%	-0.36%	-0.4%	-0.4%	-0.4%	-0.4%	-0.4%	-0.4%	-0.4%	-0.4%
	9: % change in NPV	-7.6%																			
Scenario 3b		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	350,427	352,369	354,238	355,970	357,725	359,482	361,345	363,125	364,871	366,559	368,266	370,050	371,722	373,375	374,922	376,483
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	37.0%	37.1%	37.1%	37.1%	37.2%	37.4%	37.5%	37.5%	37.5%	37.6%	37.5%	37.5%	37.5%	37.5%	37.4%	37.4%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.5%	89.5%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.4%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	5.8%	5.8%	5.8%	5.8%	5.8%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%
	NPV	£475,864,465																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	2.9%	3.0%	3.1%	3.1%	3.2%	3.5%	3.5%	3.6%	3.6%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-2.4%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%
	9: % change in NPV	-5.8%																			
Scenario 3c		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	350,427	352,369	354,238	355,970	357,725	359,482	361,345	363,125	364,871	366,559	368,266	370,050	371,722	373,375	374,922	376,483
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	37.0%	37.1%	37.1%	37.1%	37.2%	37.4%	37.5%	37.5%	37.5%	37.6%	37.5%	37.5%	37.5%	37.5%	37.4%	37.4%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.5%	89.5%	64.7%	64.7%	64.7%	64.7%	64.8%	64.8%	64.8%	64.8%	64.9%	64.9%	64.9%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	5.8%	5.8%	5.8%	5.8%	5.8%	19.4%	19.4%	19.3%	19.3%	19.3%	19.3%	19.3%	19.3%	19.3%	19.3%	19.3%
	NPV	£457,570,071																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	2.9%	3.0%	3.1%	3.1%	3.2%	3.5%	3.5%	3.6%	3.6%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	-24.7%	-24.7%	-24.7%	-24.7%	-24.7%	-24.6%	-24.6%	-24.6%	-24.6%	-24.6%	-24.6%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%
	9: % change in NPV	-9.4%																			
Scenario 3d		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	350,427	352,369	354,238	355,970	357,725	359,482	361,345	363,125	364,871	366,559	368,266	370,050	371,722	373,375	374,922	376,483
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	37.0%	37.1%	37.1%	37.1%	37.2%	37.4%	37.5%	37.5%	37.5%	37.6%	37.5%	37.5%	37.5%	37.5%	37.4%	37.4%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.5%	89.5%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.3%	93.4%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	5.8%	5.8%	5.8%	5.8%	5.8%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%
	NPV	£475,274,645																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%	-2.1%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	2.9%	3.0%	3.1%	3.1%	3.2%	3.5%	3.5%	3.6%	3.6%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-2.4%	-2.5%	-2.45%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%	-2.5%
	9: % change in NPV	-5.9%																			

Scenario 3e		2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	350,790	352,764	354,667	356,433	358,221	360,011	361,909	363,723	365,503	367,225	368,935	370,722	372,398	374,053	375,603	377,166
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	46.2%	46.3%	46.3%	46.4%	46.5%	46.5%	46.6%	46.7%	46.7%	46.8%	46.8%	46.7%	46.7%	46.7%	46.7%	46.6%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.4%	89.4%	89.4%	89.4%	89.4%	89.4%	89.4%	89.4%	89.5%	89.5%	89.5%	89.5%	89.5%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	5.1%	5.1%	5.1%	5.1%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
	NPV	£490,596,307																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-1.97%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	12.1%	12.2%	12.3%	12.4%	12.5%	12.6%	12.7%	12.8%	12.8%	12.9%	12.9%	12.9%	12.9%	12.9%	12.9%	12.9%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.02%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%
	9: % change in NPV	-2.9%																			
Scenario 3f		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	350,790	352,764	354,667	356,433	358,221	360,011	361,909	363,723	365,503	367,225	368,935	370,722	372,398	374,053	375,603	377,166
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	46.2%	46.3%	46.3%	46.4%	46.5%	46.7%	46.8%	46.8%	46.9%	47.0%	46.9%	46.9%	46.9%	46.9%	46.8%	46.8%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.4%	89.4%	93.0%	93.0%	93.0%	93.0%	93.1%	93.1%	93.1%	93.1%	93.1%	93.1%	93.1%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	5.1%	5.1%	5.1%	5.1%	5.0%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
	NPV	£498,429,872																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-1.97%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	12.1%	12.2%	12.3%	12.4%	12.5%	12.7%	12.8%	12.9%	13.0%	13.1%	13.1%	13.1%	13.1%	13.1%	13.1%	13.1%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-2.8%	-2.8%	-2.8%	-2.8%	-2.9%	-2.9%	-2.9%	-2.9%	-2.9%	-2.9%	-2.9%
	9: % change in NPV	-1.3%																			
Scenario 3g		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	350,790	352,764	354,667	356,433	358,221	360,011	361,909	363,723	365,503	367,225	368,935	370,722	372,398	374,053	375,603	377,166
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	46.2%	46.3%	46.3%	46.4%	46.5%	46.7%	46.8%	46.8%	46.9%	47.0%	46.9%	46.9%	46.9%	46.9%	46.8%	46.8%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.4%	89.4%	64.1%	64.1%	64.1%	64.2%	64.2%	64.2%	64.3%	64.3%	64.3%	64.3%	64.4%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	5.1%	5.1%	5.1%	5.1%	5.0%	17.0%	17.0%	17.0%	16.9%	16.9%	16.9%	16.9%	16.9%	16.9%	16.9%	16.9%
	NPV	£482,459,135																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	12.1%	12.2%	12.3%	12.4%	12.5%	12.7%	12.8%	12.9%	13.0%	13.1%	13.1%	13.1%	13.1%	13.1%	13.1%	13.1%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	-25.3%	-25.3%	-25.3%	-25.2%	-25.2%	-25.2%	-25.2%	-25.2%	-25.2%	-25.1%	-25.1%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	10.8%	10.8%	10.8%	10.8%	10.8%	10.8%	10.8%	10.8%	10.8%	10.8%	10.8%
	9: % change in NPV	-4.5%																			
Scenario 3h		**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**	**2035/36**
WfM outputs	Total LACW arisings	351,644	351,860	353,917	356,011	350,790	352,764	354,667	356,433	358,221	360,011	361,909	363,723	365,503	367,225	368,935	370,722	372,398	374,053	375,603	377,166
	Reuse and recycling	34.2%	34.2%	34.2%	34.1%	46.2%	46.3%	46.3%	46.4%	46.5%	46.7%	46.8%	46.8%	46.9%	47.0%	46.9%	46.9%	46.9%	46.9%	46.8%	46.8%
	Recovery of waste	88.1%	89.3%	89.3%	89.3%	89.4%	89.4%	89.4%	89.4%	89.4%	93.0%	93.0%	93.0%	93.0%	93.1%	93.1%	93.1%	93.1%	93.1%	93.1%	93.1%
	Waste to landfill	6.8%	6.2%	6.2%	6.2%	5.1%	5.1%	5.1%	5.1%	5.0%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
	NPV	£497,914,968																			
Options appraisal criterion	2: % change in arisings	0.0%	0.0%	0.0%	0.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
	3: Change in % recycling	0.0%	0.0%	0.0%	0.0%	12.1%	12.2%	12.3%	12.4%	12.5%	12.7%	12.8%	12.9%	13.0%	13.1%	13.1%	13.1%	13.1%	13.1%	13.1%	13.1%
	4: Change in % recovery	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%
	5: Change in % landfill	0.0%	0.0%	0.0%	0.0%	-1.1%	-1.1%	-1.1%	-1.1%	-1.1%	-2.8%	-2.8%	-2.8%	-2.8%	-2.9%	-2.9%	-2.9%	-2.9%	-2.9%	-2.9%	-2.9%
	9: % change in NPV	-1.5%																			

Appendix G: Summary of WRATE outputs

Raw Data	Unit	Sc1a (Baseline)	Sc1b EfW (electricity only)	Sc1b EfW (CHP)	Sc1c	Sc1d	Sc2a	Sc2b EfW (electricity only)	Sc2c	Sc2d	Sc2e	Sc2f EfW (electricity only)	Sc2g	Sc2h
Climate change: GWP 100a	kg CO2-Eq	-10,090,974	-29,507,099	-52,175,384	-7,479,756	-27,927,226	-14,563,558	-33,067,854	-10,936,213	-31,427,214	-15,182,048	-31,777,034	-15,756,06	-30,649,906
Climate change: GWP 100a Change from baseline	t CO2-Eq		-19,400	-42,100	2,600	-17,800	-4,500	-23,000	-800	-21,300	-5,100	-21,700	-5,700	-20,600
Acidification potential: average European	kg SO2-Eq	-113,435	-111,320	-133,577	-217,651	-102,795	183,710	184,925	81,331	193,779	207,962	206,909	116,398	212,991
Eutrophication potential: generic	kg PO4-Eq	21,249	12,971	12,862	53,109	14,605	87,601	79,919	119,739	81,616	89,458	83,331	115,427	84,496
Freshwater aquatic ecotoxicity: FAETP infinite	kg 1,4-DCB-Eq	-7,922,771	-8,538,891	-8,536,584	-7,713,597	-8,392,579	-8,617,423	-9,216,150	-8,373,291	-9,064,210	-8,565,552	-9,145,763	-8,300,587	-9,041,380
Human toxicity: HTP infinite	kg 1,4-DCB-Eq	-96,566,232	-99,971,347	-102,687,607	-97,228,199	-99,267,663	-100,769,624	-104,112,354	-100,942,537	-103,381,605	-100,589,203	-103,807,886	-100,713,163	-103,305,857
Resources: depletion of abiotic resources	kg antimony-Eq	-750,360	-816,308	-999,816	-1,425,738	-802,791	-772,400	-839,637	-1,417,230	-825,600	-766,045	-825,077	-1,413,915	-815,433
Normalised data (Eur.Person.Eq)	Unit													
Acidification potential: average European	Eur.Person.Eq	-1,586	-1,556	-1,867	-3,042	-1,437	2,568	2,585	1,137	2,709	2,907	2,892	1,627	2,977
	% change from baseline		-2%	18%	92%	-9%	-262%	-263%	-172%	-271%	-283%	-282%	-203%	-288%
Eutrophication potential: generic	Eur.Person.Eq	636	388	385	1,589	437	2,621	2,391	3,583	2,442	2,677	2,493	3,454	2,528
	% change from baseline		39%	39%	-150%	31%	-312%	-276%	-463%	-284%	-321%	-292%	-443%	-297%
Freshwater aquatic ecotoxicity: FAETP infinite	Eur.Person.Eq	-6,009	-6,476	-6,474	-5,850	-6,365	-6,536	-6,990	-6,350	-6,874	-6,496	- 6,936	-6,295	-6,857
	% change from baseline		8%	8%	-3%	6%	9%	16%	6%	14%	8%	15%	5%	14%
Human toxicity: HTP infinite	Eur.Person.Eq	-4,886	-5,058	-5,195	-4,919	-5,022	-5,098	-5,268	-5,107	-5,231	-5,089	-5,252	-5,096	-5,227
	% change from baseline		4%	6%	1%	3%	4%	8%	5%	7%	4%	7%	4%	7%
Resources: depletion of abiotic resources	Eur.Person.Eq	-9,418	-21,125	-25,874	-36,896	-20,775	-19,988	-21,728	-36,676	-21,365	-19,824	-21,352	-36,590	-21,102
	% change from baseline		9%	33%	90%	7%	3%	12%	89%	10%	2%	10%	88%	9%
Note: For the % change from baseline, a positive value is an improvement in performance and a negative value is a deterioration in performance														

Appendix H: Detailed assessments of scenarios

Refer to options appraisal scoring spreadsheet.

NOTE!

Tables will be inserted once they are agreed.

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TEES VALLEY COMBINED AUTHORITY

Tees Valley Strategic Environmental Assessment Draft Environmental Plan

Version No: One

Issue Date: Wednesday, 17 October 2018

DARLINGTON BOROUGH COUNCIL HARTLEPOOL BOROUGH COUNCIL REDCAR & CLEVELAND BOROUGH COUNCIL Middlesbrough moving forward Stockton-on-Tees BOROUGH COUNCIL

Non-Technical Summary

Introduction

This is the non-technical summary of the Environmental Report for the Strategic Environmental Assessment (SEA) of the Tees Valley Waste Partnership review of the Tees Valley Joint Waste Management Strategy (JWMS). The Strategy review provides the objectives, policies, actions and targets to be delivered relating to Local Authority Collected Waste (LACW) management from 2020-2035.

The Tees Valley Waste Partnership

The Tees Valley Waste Partnership comprises all the local authorities in Tees Valley including Darlington Borough Council, Hartlepool Borough Council, Middlesbrough Council, Redcar and Cleveland Borough Council, and Stockton-on-Tees Borough Council.

Unitary Authorities (UAs)

These councils are responsible for waste collection, treatment and disposal within their Boroughs and are classified as Unitary Authorities.

This SEA involves a review of key central and local Government plans and strategies that have the potential to influence the management of waste, as a basis for considering the appropriateness of the Tees Valley JWMS. The assessment also considers the local environmental, social and economic context of Tees Valley insofar as it is relevant to the waste management services and their impacts. This is described as the Baseline within the SEA. The key parts of the draft Tees Valley JWMS are assessed against criteria, known as SEA sustainability objectives, to ensure an appropriate Strategy is developed. All of these aspects have been subject to consultation and this draft Environmental Report represents the public consultation stage of the SEA process.

Descriptions of Waste Streams Referred to in this Document

Household Waste

Household waste includes household collection rounds ('bin' waste), other household collections such as bulky waste collections, waste from services such as litter collections, waste from Household Waste Recycling Centre (HWRC) sites and wastes separately collected for recycling or composting through bring/drop off schemes, kerbside schemes and at HWRC sites.

Local Authority Collected Waste

Local Authority Collected Waste (LACW) is that which comes under the possession or control of the local authority and includes household waste and other wastes collected by a waste collection authority or its agents, such as municipal parks and gardens waste, commercial or industrial waste, and waste resulting from the clearance of fly-tipped materials. This should not be confused with the broader term Municipal Waste which also includes wastes of a similar composition which is collected by commercial operators.

The focus of this part of the consultation is the method by which the strategy has been assessed in terms of its impact on the environment.

The consultation takes place alongside the draft Tees Valley JWMS consultation exercise which allows interested parties to voice their opinions on the proposed Tees Valley JWMS.

Methodology

The SEA process adopted for the review of the Tees Valley JWMS is illustrated in the timeline below. A series of workshops were undertaken early in (and throughout) the process in order to identify key local issues and ensure that the SEA Scoping Report and Environmental Report are as accurate and balanced as possible. The series of workshops included those attended by councillors and officers from all the councils. The chart below illustrates this process.

Screening	**Spring 2018** It was decided that the revised Tees Valley JWMS constituted a significant environmental effect and therefore required a full SEA.
Internal Consultation and Workshops	**Spring 2018** Workshops with councillors and officers from the Tees Valley councils were held to help inform and develop the strategy objectives.
Scoping Report	**May 2018** The Scoping Report was issued to the statutory consultees in May 2018, including details of the environmental baseline, proposed strategy objectives, SEA sustainability objectives, strategy options and any relevant plans or programmes.
Scoping Consultation Responses	**May/June 2018** Scoping opinions were received from Natural England, Historic England, the Environment Agency and North York Moors National Park Authority during May and June 2018. Responses were considered and incorporated as appropriate into the Environmental Report. Further details are reported in Appendix 5 and 6
Draft Environmental Report	**October 2018** This draft Environmental Report is issued in October 2018. The report has been informed by the consultation process to date and includes independent testing and impact assessment of the strategy objectives and approach, and potential alternatives, against the SEA sustainability objectives. The report also considers mitigation of any potential adverse effects and identifies monitoring criteria to observe any environmental impacts.
Environmental Report Consultation	**October – December 2018** A 8-week public consultation period for members of the public, and stakeholders, to review and comment on the proposed Tees Valley JWMS and SEA draft Environmental Report.
Environmental Report	**January 2019 (anticipated)** Following feedback from the public and consultees the Environmental Report will be published with the final Tees Valley JWMS.

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The Context of this Strategic Environmental Assessment

All central and local Government plans and strategies that can have a significant effect on the environment are required to be assessed regarding how they contribute to sustainable development. This is done by means of a SEA. The Tees Valley Joint Waste Management Strategy is one such plan which requires a SEA, as defined in the 'Environmental Assessment of Plans and Programmes (SEA) Regulations 2004'[1].

The UK Government's Sustainable Development Strategy[2] states that:

> 'The goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations.'

An early stage of a SEA is to scope out the key 'sustainability' issues relevant to a plan or strategy and the particular area in which that plan or strategy is due to be implemented. This was contained in the Scoping Report of the SEA. These aspects have been subject to consultation from statutory consultees.

Key aspects of the Scoping Report, and subsequently this Environmental Report, have been informed by initial internal consultations and consultation workshops undertaken in the Spring of 2018. The workshops involved local authority officers and members and were designed to raise awareness and seek views on:

- The draft Tees Valley JWMS Vision and Strategic Outcomes for the Tees Valley JWMS;
- The SEA process and draft SEA sustainability objectives;
- The list of waste management options to be considered in the Tees Valley JWMS.

This Environmental Report is for wider (public) consultation and includes the following aspects:

- Baseline Report
- Sustainability Issues
- SEA Sustainability Objectives
- Vision, Aims and Objectives of the Strategy & Assessment
- An Environmental Appraisal of Waste Management Options
- The Conclusions of Appraisal & Mitigations
- Monitoring
- Consultation Process & Next Steps

Sustainability Issues

As part of developing the SEA for the review of the Tees Valley JWMS it is important to consider the local environmental, social and economic circumstances, known as the 'baseline'. An assessment of the baseline position for Tees Valley has been carried out as

[1] SI 2004 No. 1633
[2] 'Securing the Future: The UK Government Sustainable Development Strategy', HM Government, March 2005

part of the SEA. From this review, the key sustainability issues identified for Tees Valley JWMS review include climate change, local environmental quality, air quality, economics and natural resources. All have been assessed as part of the appraisal.

It is also important to take account of interrelationships between issues of climate change and natural resources. Products that we consume and then discard, end up as a waste stream that needs to be managed / disposed of, whilst also using up scarce natural resources in their production. The waste services that are provided could have impacts in terms of environmental quality, air quality and economics that are tested through the SEA.

The key sustainability issues identified from the baseline assessment are:

- Waste prevention
- Reuse, recycling and composting
- Energy recovery from waste
- Landfill diversion
- Reducing the carbon impact of waste management
- Affordability
- Circular economy
- Limiting environmental impacts and harm to human health
- Reducing fly-tipping and litter
- Managing the impact of food waste
- Managing the impact of plastic wastes
- Management of all municipal waste
- Raising waste awareness and education

SEA Sustainability Objectives

These sustainability issues are used to inform the SEA sustainability objectives, by which the strategy options for delivery are assessed. The SEA sustainability objectives have been derived from:

- Review of Programmes and Plans – this gives rise to the identification of key themes
- The SEA sustainability objectives for the previous Tees Valley JWMS (2006)
- The Baseline Review & Sustainability Issues for Tees Valley
- The Environmental Assessment of Programmes & Plans Regulations for England (2004)
- Consultation with officers and councillors
- The Scoping Report Consultation undertaken as part of this SEA process, during which the wording of the objectives was refined in response to comments

The objectives are set out in the table below:

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Objective 1	To reduce waste generation
Objective 2	To support the beneficial re-use and recycling of waste
Objective 3	To divert waste away from landfill
Objective 4	To manage waste in a manner that limits transport impacts
Objective 5	To improve access to waste services and facilities
Objective 6	To make better use of all resources
Objective 7	To maintain and enhance good air and environmental quality for all
Objective 8	To protect and enhance the quality of the sub regions water resources
Objective 9	To protect and enhance the sub-regions biodiversity and geodiversity[3] (minerals & soils);
Objective 10	To protect and enhance the quality and diversity of the rural land and landscapes
Objective 11	To reduce the causes and impacts of climate change from waste management activities
Objective 12	To reduce waste related crime
Objective 13	To contribute to high and stable levels of employment and economic growth
Objective 14	To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes

Draft Tees Valley JWMS Aims, Objectives and Options

The proposed vision and strategic objectives of the Tees Valley JWMS were informed by a review of key strategy and policy. They were also the subject of officer and councillor workshops held during the spring of 2018, and refined as an outcome of these processes, they were also part of the SEA Scoping Report consultation issued in May 2018.

Strategy Aims and Objectives

Following an initial series of workshops with local authority officers and councillors the aims and objectives for the draft Tees Valley JWMS were developed as follows:

[3] Geodiversity is the variety of earth materials, forms and processes that constitute and shape the Earth, either the whole or a specific part of it. Relevant materials include minerals, rocks, sediments, fossils, soils and water.

The Tees Valley JWMS aims to deliver to deliver a high quality, accessible and affordable waste management service that contributes to:

- economic regeneration, including employment and a more circular economy;
- the protection of the environment and natural resources; and
- reducing the carbon impact of waste management.

and:

- delivers customer satisfaction;
- reduces the amount of waste generated by householders and the Councils;
- increases reuse and recycling;
- then maximises recovery of waste; and;
- works towards zero waste to landfill.

Strategy Options for Delivery

A number of options were produced to support the delivery of the strategy objectives. These were discussed in workshops with councillors and officers. The following represents the options considered important for detailed consideration as part of the Tees Valley JWMS development. They are listed and briefly described in the order of the waste hierarchy.

Waste Prevention Options

Raising waste awareness and education campaigns	Various campaigns designed to raise awareness and increase participation in waste prevention and reuse activities, including: • general education and waste prevention initiatives; • general reuse initiatives • Love Food Hate Waste • Junk Mail • promoting smart shopping practices
Home Composting / Digestion	Promote home composting (or anaerobic / aerobic digestion) to reduce the demand on collection services and treatment capacity
Reuse at Household Waste Recycling Centres (HWRC)	Install facilities at HWRCs that allow members of the public to leave and collect items such as furniture. This can include awareness and promotional campaigns of the service.
Bulky Collection Reuse	Sort bulky waste collections to extract reusable goods with a view to refurbishment, reuse and resale. This can include awareness and promotional campaigns.

Recycling and Composting Options

'High Efficiency' scenario	Which will look at increasing dry recycling performance, through a reduction in residual waste capacity and introducing a charge for garden waste services
'High recycling' performance scenario	Which will look at increasing dry recycling performance through introducing separate food waste collections,

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	reducing residual waste capacity and introducing a charge for garden waste services

Alongside these primary options, the following will be assessed:

Bulky Waste Recycling	Sort bulky waste collections to extract recyclable goods in order to improve recycling performance across the councils in Tees Valley. This can include awareness and promotional campaigns of the services provided.
Reducing contamination in recycling/composting	Stronger engagement with residents to increase public understanding of the issues associated with contamination of recycling/composting collections to deliver behaviour change. Combined with tighter management of contamination across all Tees Valley councils.

Residual Waste Treatment Options

The primary waste treatment scenarios that will be assessed at the Tees Valley level are:

- Further contract extension (beyond 2025) for existing EfW contract[4]
- New build energy recovery facility
- New build refuse derived fuel facility (RDF)
- Utilise third party energy recovery facility capacity

Assessment of Options

The Strategy alternative options have been assessed against the SEA sustainability objectives and analysed according to an impact/effect appraisal scale. The nature of impacts will vary between the options being considered and not all measures will be relevant in each case. Impacts on the environment can vary from those that have a direct impact to those exhibiting indirect, cumulative or one-off, temporary or permanent and short/medium/long term impacts and these are summarised in accompanying assessments within the report.

Scope of the Assessment

The geographical scope of the assessment is limited to Tees Valley however some environmental impacts (e.g. global warming impacts) will clearly exhibit impacts wider than the area covered by the Tees Valley JWMS. The Tees Valley JWMS considers a number of options for dealing with waste management in the future, these activities and facilities will ultimately require a site(s). Sites are not identified as part of this assessment and therefore the issues of land use are assessed on a generic basis, with detailed consideration in the local development documents associated with waste planning.

SEA Conclusions and Mitigations

The following points are key conclusions and mitigation issues arising from this SEA of the draft Tees Valley JWMS. The strategy seeks to improve on the baseline situation through improved resource management and continuing to move waste management activities in the

[4] and the RDF facility for residual waste from Darlington

Tees Valley up the waste hierarchy. This is consistent with good practice in the area of local authority waste management.

Specific points arising from the assessment are:

- *Resource Management*: The draft JWMS considers improving performance on waste management activities at the top end of the waste hierarchy through prevention, re-use and enhanced recycling activity. These have strong environmental benefits against most criteria. It should be noted that significant increases in recycling performance will be required by most of the partnership authorities to deliver the potential future targets, and the strategy provides a mechanism for moving towards anticipated targets.
- *Resource Management:* A life-cycle impact approach in particular (this is where an option is scrutinised considering environmental impacts at all stages of a product from raw material extraction through manufacturing, retail, use and ultimately final waste disposal) should be considered for major waste management decisions.
- *Resource Management:* Apply good practice systems for the collection of recyclables and organics to promote high quality materials and good levels of participation.
- *Resource Management:* Where processing residual waste, through mechanical processes, seek to extract higher quality and quantity of recyclables, to improve resource efficiency and environmental performance, and optimise to reduce the reliance on landfill.
- *Resource Management:* If any charges are introduced for garden waste collections, seek to maximise the uptake of the collection and provide suitable support and good practice information for alternative approaches (e.g. encourage well implemented home composting practices). Measures should be taken to ensure that garden waste does not enter the residual waste stream (with the consequent disposal impacts).
- *Resource Management & Impacts to Water, Air, Geodiversity and Biodiversity:* Seek to utilise best practice methods in resource consumption (reducing use of raw materials and products where possible) and environmental emissions for any waste process options utilised in order to minimise the emissions impacts on the wider environment.
- *Biodiversity and Landscape:* Apply good practice in design and facility planning, in order to maintain biodiversity where possible and minimise landscape impacts of waste management infrastructure and facilities.
- *Impacts to Air:* Where new collection services are introduced, consideration should be given to optimising collection rounds / methodologies (to reduce overall mileage) and consider low / zero emission vehicles to alleviate transport and local environmental impact.
- *Impacts to Air:* Local markets for recyclate / other waste processing outputs should be considered where viable to reduce traffic and local air pollution impacts.
- *Landscape:* Whilst not a site specific or planning document, it is important that best available techniques should be adopted for waste infrastructure and that procurement, planning and permitting regimes should be rigorously applied to ensure mitigation or prevention of impacts that could affect the natural and built landscape, biodiversity and geodiversity.
- *Climate Change:* If food waste is separately collected, there are strong climate change benefits for processing through Anaerobic Digestion (AD). For future procurement exercises AD options should be considered where viable.

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- *Climate Change:* Where energy is recovered seek to utilise the heat (Combined Heat Power) to improve efficiency.
- *Socio-Economic*: Assess the potential employment benefits or changes associated with new initiatives, partnerships or services prior to planning and implementation.
- *General:* Communication based campaigns should be developed using best practice approaches that consider linkages with other initiatives to provide common 'green' messages and continuity. This can provide efficiencies in terms of costs and help simplify messages.
- *General:* Increase the awareness of the benefits of waste prevention, reuse and recycling.
- *General:* Campaigns or services targeting behaviour change should be carefully planned and implemented to avoid:
  - Negative impacts in terms of accessibility and inclusively; and
  - Unintended consequences such as fly-tipping or poorly managed home composting / digestion.
- *General:* The projected increase in the number of households within the strategy area will require appropriate planning in terms of waste management services and infrastructure.
- *General:* Improving 'in-house' waste management practice, within Councils (and their depots / offices) is an important method of 'leading by example'.
- *General:* Where new infrastructure is being developed, apply best available techniques to minimise environmental impacts and enhance positive impacts.

Consultation

This draft report is available for consultation, the details of which are included in section 9.

Abbreviations / Acronyms

AD	Anaerobic Digestion
AQMA	Air Quality Management Area
BAP	Biodiversity Action Plan
CH_4	Methane
CHP	Combined Heat and Power
CO_2	Carbon dioxide
DCLG	Department of Communities and Local Government
DECC	Department of Energy and Climate Change
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EU ETS	EU Emission Trading System
TVJWMS	Tees Valley Joint Municipal Waste Management Strategy
GHG	Greenhouse Gases
GWP	Global Warming Potential
HPA	Health Protection Agency
HWRC	Household Waste Recycling Centre
JWMS	Joint Municipal Waste Management Strategy
LACW	Local Authority Collected Waste
LATS	Landfill Allowance Trading Scheme
MRF	Materials Recovery Facility
N_2O	Nitrous Oxide
PO_4	Phosphates
RDF	Refuse Derived Fuel
SEA	Strategic Environmental Assessment
SO_2	Sulphur Dioxide
SPA's	Special Protection Area's
SPZ's	Source Protection Zones
SSSI	Site of Special Scientific Interest
WEEE	Waste Electrical and Electronic Equipment
WRAP	Waste and Resources Action Programme
WRATE	Waste and Resources Assessment Tool for the Environment

1 Introduction

The Tees Valley Waste Partnership; consisting of Darlington Borough Council, Hartlepool Borough Council, Middlesbrough Council, Redcar and Cleveland Borough Council, and Stockton-on-Tees Borough Council is reviewing the Tees Valley Joint Waste Management Strategy (JWMS) originally published in 2008. The strategy review will provide objectives, policies and actions relating to waste management from 2020 to 2035. It should be noted that this Strategy sets policies for waste management for the Tees Valley authorities but does not identify sites and is distinct from the planning process documents (e.g. Local Waste Plans).

All central and local government plans and strategies that can have a significant effect on the environment are required to be assessed regarding how they contribute to Sustainable Development.

The UK Government's Sustainable Development Strategy[5] states that:

'The goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life of future generations.'

An assessment of how a strategy meets the aims of Sustainable Development can be delivered through an approach known as Strategic Environmental Assessment (SEA). This is a statutory requirement as defined in the 'Environmental Assessment of Plans and Programmes (SEA) Regulations 2004'[6]. In this case the SEA will provide an analysis of the revised Tees Valley JWMS and the options for delivery of the strategy, considered against agreed sustainability objectives and criteria.

The first stage of the SEA process is to scope out the key 'sustainability' issues relevant to a plan or strategy and the particular area in which that plan, or strategy is due to be implemented. This is contained in the scoping report of the SEA. These aspects are subject to consultation from statutory consultees and other parties where appropriate.

Key aspects of this Draft Environmental Plan are informed by initial internal consultation steps, which sought views on the draft aim and objectives for the JWMS, the draft sustainability objectives and criteria and the waste management options to be considered through the JWMS development process.

This Draft Environmental Plan is for wider consultation to statutory bodies and interested parties, and includes the following material:

- Baseline Report (Chapter 2)
- Sustainability Issues and Interrelationships (Chapter 3)
- Draft Sustainability Objectives and Criteria (Chapter 4)
- Strategy Aims and Objectives (Chapter 5)
- Strategic Waste Management Options (Chapter 6)
- SEA Conclusions and Mitigation (Chapter 7)
- Monitoring (Chapter 8)

[5] 'Securing the Future: The UK Government Sustainable Development Strategy', HM Government, March 2005

[6] SI 2004 No. 1633

- Consultation and next steps (Chapter 9)
- List of relevant Plans and Programmes (local, regional, national) considered (Appendix 1)

The Consultees are invited to comment on any or all of these aspects.

2 Baseline Position

To ensure that the SEA addresses the potential environmental effects of the JWMS on key SEA topics it is important to consider the local environmental baseline.

An assessment of the baseline position for Tees Valley has been carried out as part of the scoping phase of the SEA. This report summarises this baseline position and identifies a number of key sustainability issues in the context of the waste management service in Tees Valley.

The baseline position has been assessed in terms of the key topic areas set out in the SEA guidance[7] and provides the relevant environmental, social and economic context for the Draft Environmental Plan.

Climate Change

Waste management activities can generate significant quantities of carbon dioxide and methane which are both greenhouse gases. Materials within the household waste stream such as kitchen waste, garden waste and paper contain carbon based organic matter. The treatment and disposal of these wastes has an impact on the emission of greenhouse gases. When biodegradable materials are broken down in the presence of air, carbon dioxide is released. Methane is produced when the biodegradable material is broken down in the absence of air. Methane is at least 25 times more potent than carbon dioxide as a greenhouse gas measured by global warming potential over a 100 year timeframe. Releasing 1 kg of Methane (CH_4) is equivalent to releasing 25kgs of Carbon Dioxide (CO_2)[8]. CH_4 concentrations were stable for approximately one decade from the late 1990's, however since 2007 concentrations have progressively increased.[9] The absence of air in landfill sites causes methane to be generated as waste breaks down within a site.

In 2016/17, 16% of local authority collected waste in the England was sent to landfill. Since 1990 total emissions in the waste sector have decreased by 74%[10] primarily due to reductions in emissions from landfilled waste. The reduction in emissions from the waste sector is responsible for 58% of the total decrease in methane emissions in the UK since 1990. In 2015, methane emissions from waste management accounted for 31.9% of all UK methane emissions.

In 1990 Waste Management accounted for 8.3% of UK greenhouse gas emissions. In 2015 this figure had reduced to 3.7%[11]. In 2015, 1.8% of waste management greenhouse gas emissions are attributable to incineration; 22.7% to wastewater handling; 9.2% to organic waste treatment; and, 67% to landfill.

Transport accounted for 24% of total UK greenhouse gas emissions in 2015. Although there are climate change impacts associated with transport of waste these are relatively small in

[7] 'A Practical Guide to the Strategic Environmental Assessment Directive (Practical guidance on applying European Directive 2001/42/EC "on the assessment of the effects of certain plans and progress on the environment")', Office of the Deputy Prime Minister, September 2005

[8] Climate Change Connection https://climatechangeconnection.org/emissions/co2-equivalents/ (accessed 27/02/2018)

[9] IPPC, 2014, Climate Change 2014 Synthesis Report (on-line). Contribution of Working Groups I,II,III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

[10] National Atmospheric Emissions Inventory (NAEI) (2018) (on-line), Overview of greenhouse gases, http://naei.beis.gov.uk/overview/ghg-overview (accessed by public user, February 2018)

[11] National Atmospheric Emissions Inventory (NAEI) (2017), Sector, Gas, and Uncertainty Summary Factsheets, Department for Business, Energy & Industrial Strategy (BEIS), September 2017

comparison to the impacts from the landfilling of waste described above. Reducing the amount of biodegradable waste landfilled and increasing recycling and composting activity are the two prime methods of reducing GHG emissions.

Department for Business, Energy & Industrial Strategy (BEIS) publish local authority estimates of carbon dioxide emissions. The data are sources from the UK National Atmospheric Emissions Inventory and BEIS's National Statistics of energy consumption for local authority areas. The emissions data do not include aviation, shipping and military transport emission as there is no obvious basis for allocating these emissions to local areas.

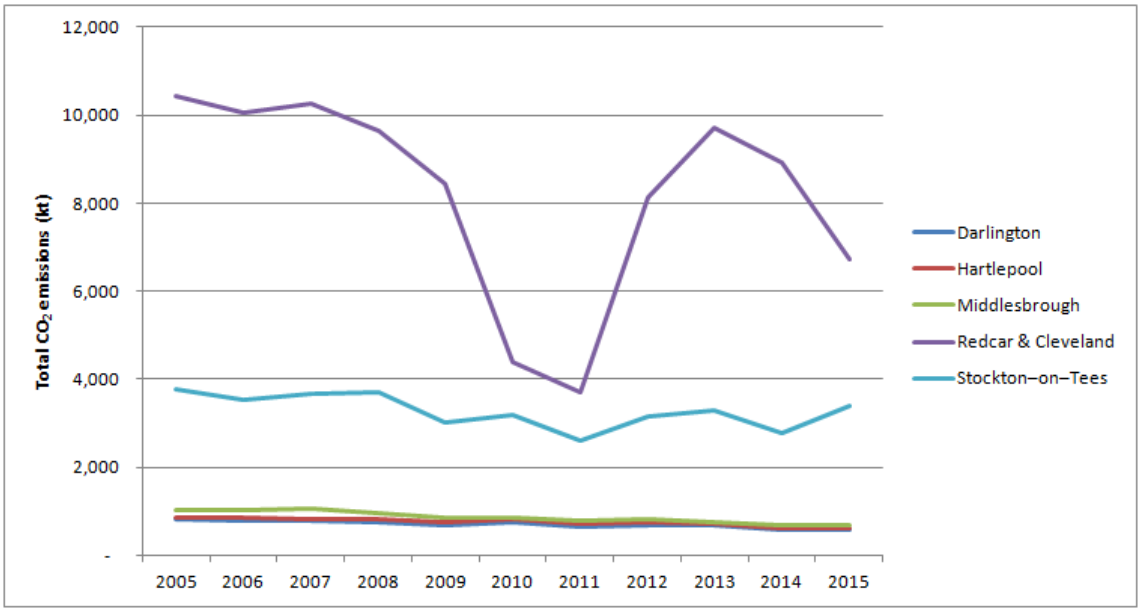
Total carbon dioxide emissions data[12] for the Tees Valley councils for the period 2005 to 2015 are provided in Table 1, along with carbon dioxide per capita emissions. Figure 1 presents the Total CO_2 emissions data for the region.

Table 1 Tees Valley Local Authority CO_2 emissions estimates 2005-2015

Authority	Total CO_2 emissions (ktonnes)										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Darlington	822	806	782	775	699	742	664	698	685	589	597
Hartlepool	866	862	816	821	760	841	730	765	722	622	628
Middleborough	1,038	1,045	1,051	975	845	854	800	840	769	704	704
Redcar & Cleveland	10,432	10,055	10,269	9,645	8,459	4,408	3,694	8,151	9,723	8,925	6,728
Stockton–on–Tees	3,765	3,524	3,659	3,692	3,010	3,207	2,627	3,167	3,312	2,783	3,391
Tees Valley	18,929	18,298	18,584	17,916	15,782	12,062	10,526	15,632	17,224	15,636	14,063
Authority	**CO_2 per capita emissions (tonnes)**										
Darlington	8.2	7.9	7.6	7.5	6.7	7.1	6.3	6.6	6.5	5.6	5.7
Hartlepool	9.6	9.5	9.0	9.0	8.3	9.2	7.9	8.3	7.8	6.7	6.8
Middleborough	7.5	7.6	7.6	7.1	6.2	6.2	5.8	6.1	5.5	5.1	5.0
Redcar & Cleveland	75.5	73.1	75.0	70.7	62.3	32.6	27.3	60.4	72.1	66.1	49.7
Stockton–on–Tees	20.2	18.8	19.5	19.5	15.8	16.8	13.7	16.5	17.1	14.3	17.4
Tees Valley	121.0	116.9	118.7	113.7	99.3	71.8	61.0	97.8	109.0	97.8	84.6
Source: Local Authority CO_2 emissions estimates 2005-2015 (kt CO2) - Full dataset, Gov.uk											

[12] Local Authority CO_2 emissions estimates 2005-2015 (kt CO2) - Full dataset, Gov.uk (https://www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics accessed 23/02/2018)

Figure 1 Tees Valley Local Authority Total CO_2 emissions estimates 2005-2015



Estimates highlights that Redcar & Cleveland emit the greatest amount of CO_2, followed by Stockton-On-Tees, compared to neighbouring authorities in the Tees Valley, as would be expected due to the high level of industrial activity across the boroughs.

Alongside the full dataset, BEIS also published a subset which represents carbon dioxide emissions within the scope of influence of Local Authorities. The full dataset includes all the emissions that occur within the boundaries of each Local Authority; however, the dataset of emissions within the scope of Local Authorities excludes emissions that Local Authorities do not have direct influence over. The emissions that are removed from the full dataset are:

- Motorways – all emissions from the "Transport (motorways)" sector;
- EU Emissions Trading System (EU ETS) sites – these emissions have been removed from the "Large industrial installations" sector, with the exception of energy suppliers (e.g. power stations), whose emissions are indirectly included via the end-user estimates for electricity use. Note that not all the emissions from the "Large industrial installations" sector are produced by EU ETS installations, hence there are emissions remaining from sector in the subset.
- Diesel railways – all emissions from the "Diesel Railways" sector;
- Land Use, Land Use Change, and Forestry – all emissions belonging to the "LULUCF Net emissions" sector.

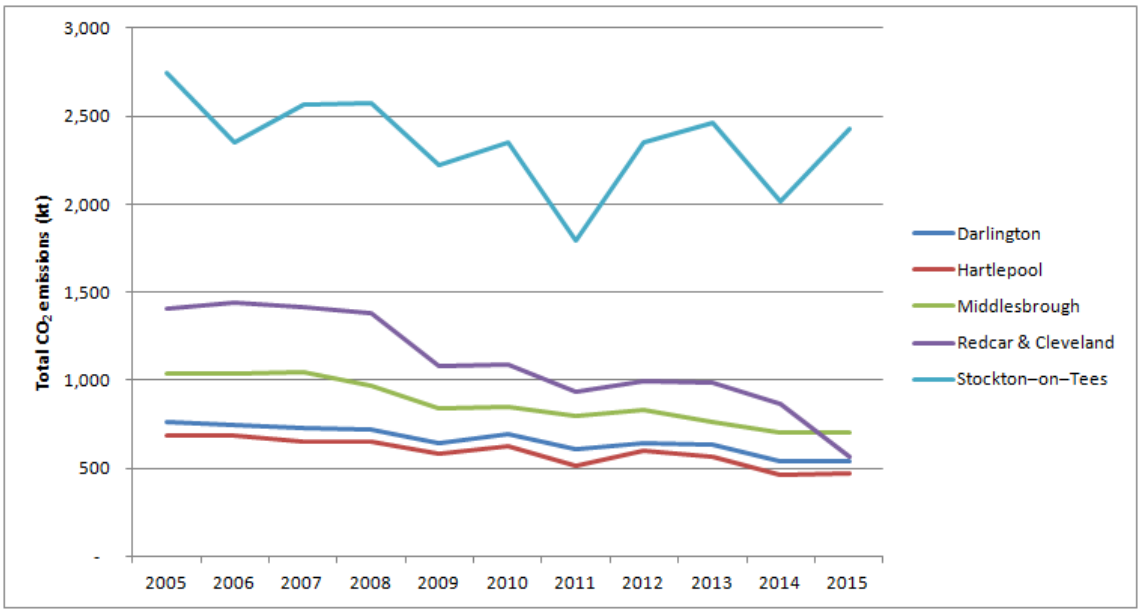
Local Authority CO_2 emissions estimates within the scope of influence of Local Authorities from 2005-2015 are presented in Table 2 and graphically in Figure 2 .

Table 2 Tees Valley Local Authority CO_2 emissions estimates within the scope of influence of Local Authorities 2005-2015

Authority	Total CO_2 emissions (ktonnes)										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Darlington	765	749	727	725	648	692	613	646	634	538	545
Hartlepool	689	690	656	649	588	625	517	598	565	463	475
Middleborough	1,035	1,042	1,047	972	842	851	797	837	766	701	701
Redcar & Cleveland	1,410	1,439	1,416	1,381	1,083	1,087	936	998	990	864	564
Stockton–on–Tees	2,748	2,350	2,562	2,573	2,223	2,350	1,792	2,354	2,462	2,017	2,429
Tees Valley	8,651	8,276	8,415	8,307	7,392	7,614	6,666	7,444	7,430	6,597	6,729
Authority	**CO_2 per capita emissions (tonnes)**										
Darlington	7.6	7.4	7.1	7.0	6.2	6.6	5.8	6.1	6.0	5.1	5.2
Hartlepool	7.6	7.6	7.2	7.1	6.4	6.8	5.6	6.5	6.1	5.0	5.1
Middleborough	7.5	7.5	7.6	7.1	6.1	6.2	5.8	6.0	5.5	5.0	5.0
Redcar & Cleveland	10.2	10.5	10.3	10.1	8.0	8.0	6.9	7.4	7.3	6.4	4.2
Stockton–on–Tees	14.7	12.5	13.6	13.6	11.7	12.3	9.3	12.2	12.7	10.4	12.5
Tees Valley	47.7	45.5	45.8	44.9	38.4	39.9	33.4	38.3	37.7	31.9	32.0
Source: Local Authority CO_2 emissions estimates 2005-2015 (kt CO2) - Subset dataset, Gov.uk											

The data show that when, CO_2 emissions estimates within the scope of influence of local authorities, are considered Stockton–on–Tees has the highest emissions. It should be noted that this will include emissions from the existing EfW facility at Billingham in Stockton-on-Tees, which treats waste from across Tees Valley.

Figure 2 Tees Valley Local Authority Total CO_2 emissions estimates within the scope of influence of Local Authorities 2005-2015



Waste Management

Understanding the current waste arisings, trends, sources and flows in the Tees Valley is important to the SEA process. The following sub-chapter summarises the key services provided by each of the five local authorities in the Tees Valley.

Overview Waste Arising and Management

A summary of the total Local Authority Collected Waste (LACW) arisings in the Tees Valley is shown in Figure 3 , this covers the last 7 years of available data and is colour coded by each Council's contribution to total arisings. The actual tonnage data are provided in Table 3 below.

Figure 3 Total LACW arisings in the Tees Valley 2010-11 to 2016-17

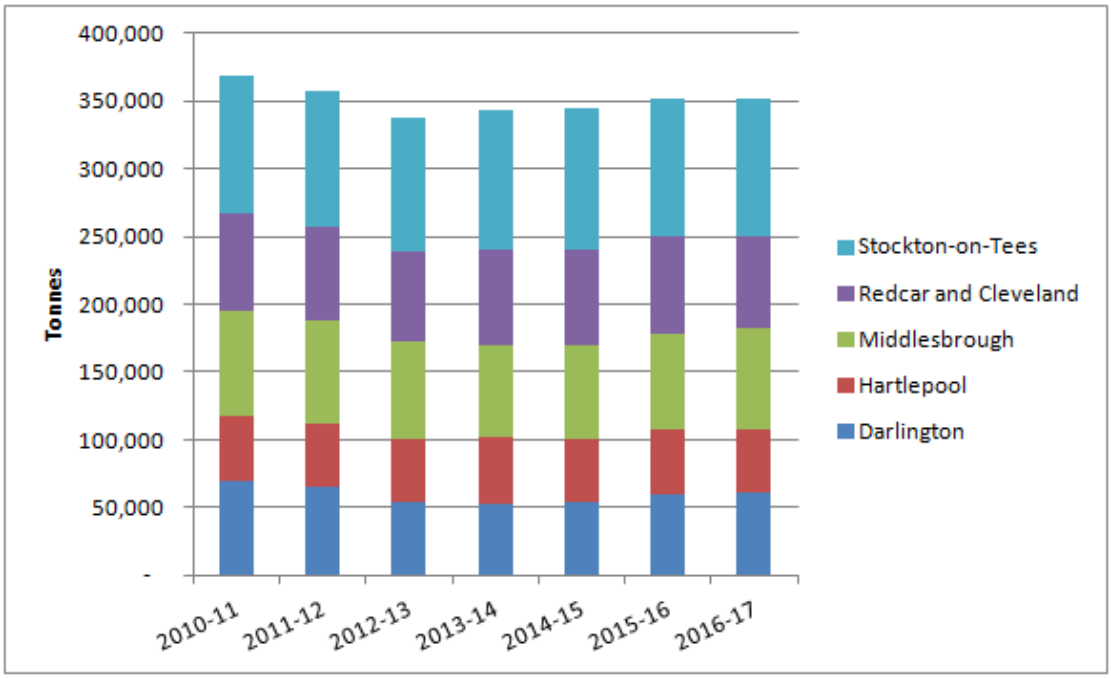


Table 3 Total LACW arisings in the Tees Valley 2010-11 to 2016-17

Authority	Tonnes of LACW						
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Darlington	68,880	65,009	53,809	53,215	54,255	60,221	61,115
Hartlepool	48,995	46,951	46,456	48,394	46,985	46,914	46,524
Middlesbrough	76,858	75,417	71,817	68,235	67,888	71,364	74,399
Redcar and Cleveland	71,715	69,537	66,462	70,384	71,804	70,995	67,612
Stockton-on-Tees	101,997	99,983	99,121	103,582	104,218	102,613	102,466
Tees Valley	368,444	356,897	337,664	343,809	345,150	352,107	352,116
Source: Department for Environment, Food & Rural Affairs							

The management of the LACW in the Tees Valley is summarised in Table 4, and in Figure 4 , which shows the tonnages, and Figure 5 , which provides the percentage breakdown by management method. The figures illustrate the significant achievements in landfill diversion and energy recovery, and moderate progress in recycling, as described in *Recycling and Composting Arisings and Performance* below.

Table 4 Management of LACW in the Tees Valley 2010-11 to 2016-17

	Management of LACW (tonnes and %)[3]						
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Recycled/ Composted	138,616 38%	139,754 39%	121,598 36%	130,009 38%	137,252 40%	127,986 36%	126,369 36%
Incineration with EfW	149,359 41%	171,063 48%	175,456 52%	181,777 53%	164,675 48%	166,280 47%	188,870 54%
Incineration without EfW	7 0%	8 0%	5 0%	5 0%	6 0%	24 0%	5 0%
Landfilled	67,056 18%	46,078 13%	31,560 9%	21,116 6%	32,514 9%	48,331 14%	26,956 8%
Other[1]	9,699 3%	- 0%	9,037 3%	10,904 3%	10,706 3%	9,482 3%	9,909 3%
Total[2]	364,737	356,902	337,656	343,811	345,151	352,103	352,108

Notes:

1. Other includes waste treated/disposed through other unspecified treatment processes as well as process and moisture loss.
2. Total Local Authority collected waste managed may not match total Local Authority collected waste collected as reported in Table 1 due to stockpiling of waste between reporting periods.
3. Inputs to intermediate plants e.g. MBT, Residual MRFs, RDF and other plants prior to treatment and disposal and included in the final treatment and disposal figures.

Source: Department for Environment, Food & Rural Affairs

Figure 4 Management of LACW (tonnes) in the Tees Valley 2010-11 to 2016-17

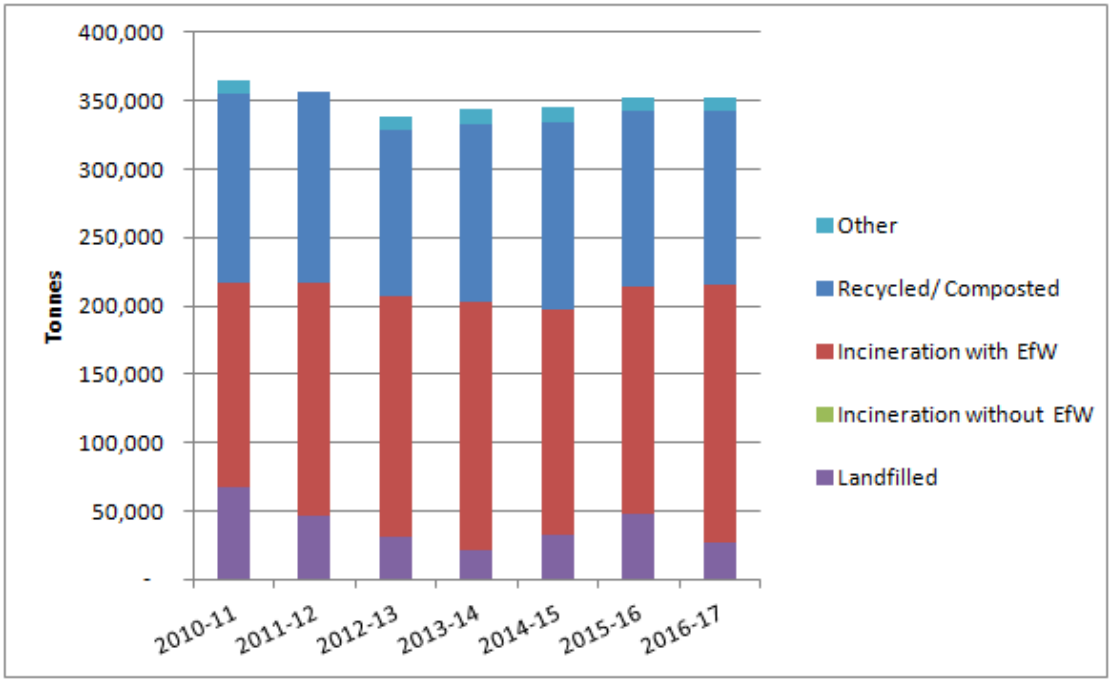
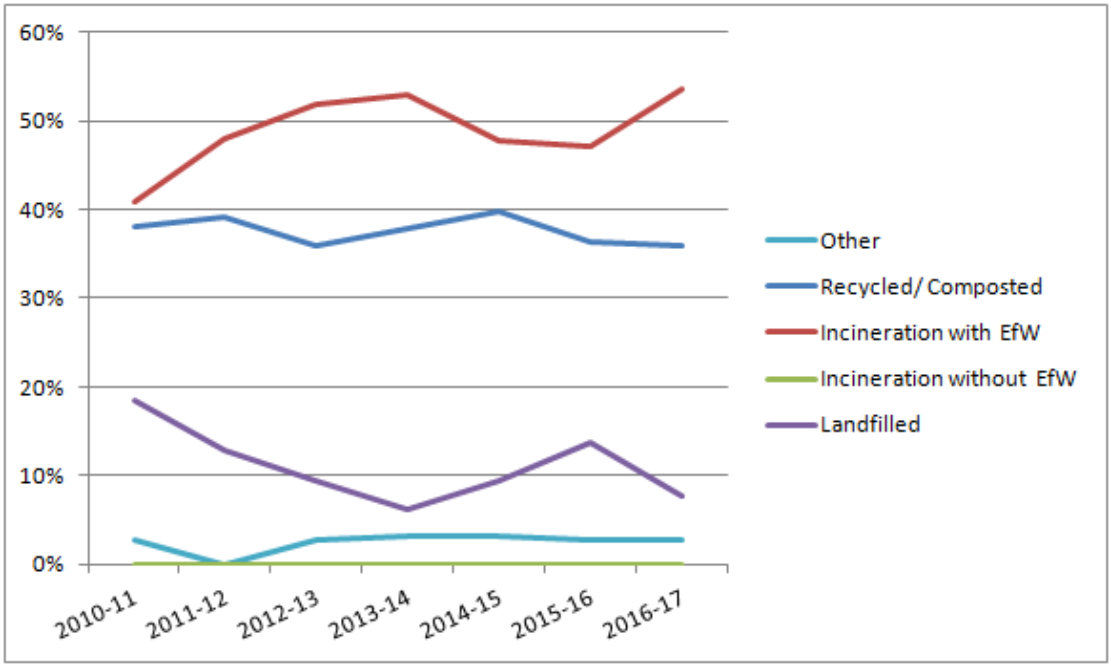


Figure 5 Management of LACW (percentage) in the Tees Valley 2010-11 to 2016-17



Recycling and Composting Arisings and Performance

There has been little change in the overall recycling rate across the Tees Valley over the last 5 years, however there have been large fluctuations on an annual basis. Table 5 demonstrates that the regional recycling rate has remained static, at approximately 34%, over the period, albeit with an improvement in performance in 2014/15 largely due to an improvement in capture in the Middlesbrough Council area. Conversely, there has been a significant performance decline in Hartlepool over the period, and fluctuations in Redcar and Cleveland.

In terms of performance, Redcar and Cleveland is the best performing authority with a recycling rate of 42.6%, and despite its relative size, compared to Stockton-on-Tees, it is also the largest collector of recyclables by tonnage. The recycling rate in Stockton-on-Tees is the lowest of the five local councils. Darlington has a relatively high recycling rate of 37.4%, the second highest, despite not offering a kerbside garden waste collection service.

Table 5 Household waste recycling performance – combined dry and organic household recycling, Tees Valley 2012-13 to 2016-17

Authority	Household waste recycling and composting (tonnes and %)				
	2012/13	2013/14	2014/15	2015/16	2016/17
Darlington	17,240 37.8%	15,235 33.2%	16,006 36.5%	16,327 37.0%	16,481 37.4%
Hartlepool	17,475 42.3%	17,152 39.8%	15,795 38.0%	14,973 35.9%	13,757 33.1%
Middlesbrough	12,451 21.7%	15,442 27.7%	20,239 36.3%	19,088 33.7%	20,129 33.7%
Redcar and Cleveland	21,243 38.8%	25,996 46.7%	27,275 47.4%	22,586 39.2%	24,504 42.6%
Stockton-on-Tees	23,443 28.9%	22,846 28.0%	21,901 26.6%	20,713 25.7%	21,223 25.8%
Tees Valley	91,852 33.9%	96,672 35.1%	101,217 36.9%	93,697 34.3%	96,094 34.5%
Source: Department for Environment, Food & Rural Affairs					

Residual Waste and Recycling Collections

Residual Waste

Waste collections are provided by in-house services. The current residual waste collection services are detailed in Table 6.

Table 6 Current residual waste collection services

Authority	Households served	Container	Collection Frequency	Operator	Operational days
Darlington	49,780	240l wheeled bin	Fortnightly	In-house	4-day week
Hartlepool	43,290	240l wheeled bin	Fortnightly	In-house	4-day week
Middlesbrough	62,510	140l wheeled bin	Weekly	In-house	4-day week
Redcar and Cleveland	64,115	240l wheeled bin	Fortnightly	In-house	4-day week
Stockton-on-Tees	84,990	240l wheeled bin	Weekly	In-house	4-day week

All the collection authorities operate a ‘no side waste’ collection policy.

Landfill

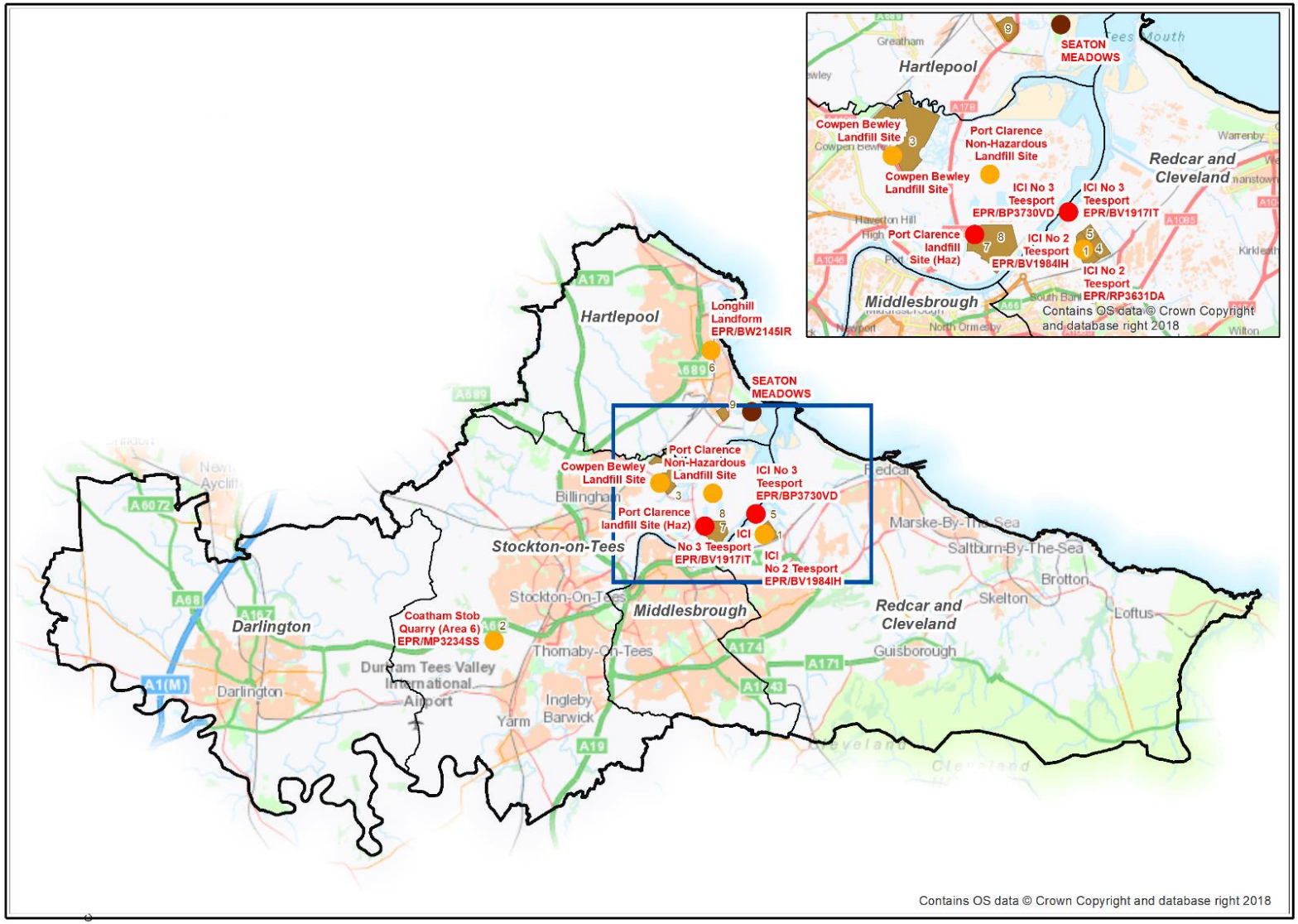
There are currently nine non-hazardous waste landfill sites in operation across the Tees Valley as outlined in Table 7 below. The forecast capacity of all nine sites is approx. 4.5 million tonnes. Table 7 details the estimated remaining capacity at the end of 2016 however data for some of the sites is not currently available.

Table 7 Operational landfill sites across the Tees Valley[13]

Facility name	Operator name[1]	Local authority	Annual Capacity	2016 Input (tonnes)	Remaining Capacity end 2016 (cubic metres)[2]
CLE 3/8 Landfill Site	Sahaviriya Steel Industries UK Limited	Redcar and Cleveland	No data report	No data report	83,961
Coatham Stob Quarry (Area 6)	Elementis Uk Ltd	Stockton on Tees	120,000	28	164,172
Cowpen Bewley Landfill	Green North East Trading Bidco Limited	Stockton on Tees	150,000	36,597	1,488,028
	Highfield Environmental Limited		1,330,000	31,734	No data
	Green North East Trading Bidco Limited			92,576	No data
ICI No 2 Teesport	Green North East Trading Bidco Limited	Redcar and Cleveland	420,000	84,718	1,512,326
	North Tees Waste Management Limited			100,781	No data
	Highfield Environmental Limited			45,571	No data
ICI No 3 Teesport	Green North East Trading Bidco Limited	Redcar and Cleveland	500,000	6,759	2,048,720
	North Tees Waste Management Limited			9,777	No data
	Highfield Environmental Limited			16,741	No data
Longhill Landform	S.W.S. Limited	Hartlepool	121,600	1,590	0
Port Clarence Hazardous Landfill Site	Augean North Limited	Stockton on Tees	300,000	74,166	4,936,746
Port Clarence Non-Hazardous Landfill Site			1,195,000	184,894	313,153
Seaton Meadows	Alab Environmental Services Limited	Hartlepool	350,000	6,419	1,000,402

[13] https://data.gov.uk/dataset/fa667727-256d-4237-8399-904bf62a0451/remaining-landfill-capacity

Figure 6 **Map of operational landfill sites in the Tees Valley (See Table 7 for details)[14]**



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14 https://data.gov.uk/dataset/fa667727-256d-4237-8399-904bf62a0451/remaining-landfill-capacity

Garden Waste

Garden waste is collected fortnightly by all authorities, with the exception of Darlington where no service is provided. In each case this service is not charged for. The garden waste collection consists of a 240l wheeled bin collection in Hartlepool, Middlesbrough, and Redcar and Cleveland, with a sack collection in Stockton-on-Tees. The service is operated for:

- 26 weeks a year in Stockton-on-Tees;
- 30 weeks a year in Middlesbrough;
- 34 weeks a year in Hartlepool; and
- 38 weeks a year in Redcar and Cleveland.

None of the authorities currently collects food waste either commingled with the garden waste collection or separately. A summary of the current garden waste collections is provided in Table 8. Garden waste from Hartlepool, Middlesbrough, Redcar and Cleveland and Stockton-on-Tees is treated by windrow composting by A & E Thompson at Murton Hall Farm (TS28 5NU)[15]. The organic waste arisings from Darlington, collected through HWRC, is treated through in-vessel composting at Aycliffe Quarry (DL5 6NB)[16].

Table 8 Current garden waste collection services

Authority	Coverage (households & %)	Container	Collection Frequency	Operator	Service weeks	Operational days
Darlington	0 (0%)	n/a	n/a	n/a	n/a	n/a
Hartlepool	37,700 (87%)	240l wheeled bin	Fortnightly	In-house	34 weeks	4-day week
Middlesbrough	47,094 (75%)	240l wheeled bin	Fortnightly	In-house	30 weeks	4-day week
Redcar and Cleveland	49,115 (77%)	240l wheeled bin	Fortnightly	In-house	38 weeks	4-day week
Stockton-on-Tees	70,738 (83%)	Reusable sacks	Fortnightly	In-house	26 weeks	4-day week

Recycling

All authorities offer a fortnightly dry recycling collection, as detailed in Table 9. The collected material is:

- sorted at the kerbside in Darlington and Stockton-on-Tees;
- part sorted at the kerbside with further sorting at a Materials Recycling Facility (MRF) in Redcar and Cleveland; and
- fully sorted at a MRF in Hartlepool and Middlesbrough.

The material is currently sorted at numerous facilities (see Table 10). All authorities offer collection of paper and card, glass, plastics and metals, with composite cartons collected by Middlesbrough and Stockton-on-Tees. Mixed plastics are collected (bottles, tubs, pots and trays) in every authority with the exception of Hartlepool where only plastic bottles are collected. Relatively high contamination rates are experienced by several Councils,

[15] Q4 2016/17, WasteDataFlow, www.wastedataflow.org (accessed by public user 08/02/2018)
[16] Q4 2016/17, WasteDataFlow, www.wastedataflow.org (accessed by public user 08/02/2018)

exceeding 20%, in Hartlepool and Redcar and Cleveland, although some progress has been reported reducing contamination through communication campaigns. Other Councils, by virtue of their collection system type (kerbside sort), have low levels of contamination (e.g. Stockton-on-Tees and Darlington). Contamination rates may also be a factor of socio-demographics, communications, and familiarity / ease of use of the system.

Table 9 Current recycling collection services

Authority	Coverage (households & %)	Container	Collection Frequency	Collection Method	Materials Collected	Contamination	Operator
Darlington	49,780 (100%)	240l wheeled bin with insert and separate box	Fortnightly	Kerbside sorted	Plastic bottles, tubs, pots and trays. Metals. Paper, card and cardboard, Glass.	15%	In-house
Hartlepool	43,290 (100%)	240l wheeled bin	Fortnightly	Commingled	Plastic bottles. Metals. Paper, card and cardboard. Glass.	22%	In-house
Middlesbrough	62,510 (100%)	240l wheeled bin	Fortnightly	Commingled	Plastic bottles, tubs, pots and trays. Metals. Paper, card and cardboard. Glass. Cartons.	8%	In-house
Redcar and Cleveland	64,115 (100%)	240l wheeled bin with insert	Fortnightly	Two stream	Plastic bottles, tubs, pots and trays. Metals. Paper, card and cardboard. Glass.	25%	In-house
Stockton-on-Tees	84,990 (100%)	2 reusable sacks and box	Fortnightly	Kerbside sorted	Plastic bottles, tubs, pots and trays. Metals. Paper, card and cardboard. Glass.	2.8%	In-house

Recyclate Destinations

The current recycling material destinations are summarised in Table 10 . It should be noted that these destinations are dictated by the market and are liable to change at short notice. The destinations are correct as of Q4 2016-17 as provided to WasteDataFlow (accessed February 2018).

Table 10 Current recycling material destinations

Authority	Waste Stream	Intermediate Facility	Final Destination
Darlington	Paper & Card	Aycliffe Quarry MRF	Brecks Farm, Leeds for export outside EU
	Commingled dry recycling	Aycliffe Quarry MRF	Steel – TJ Thomas, Stockton-on-Tees Aluminium – APM Metals, Sittingbourne Mixed plastics – J&A Young, Loughborough Mixed glass – URM (UK) Ltd, South Kirkby
Hartlepool	Commingled dry recycling	Wards Recycling, Middlesbrough	Steel – Wards Recycling, Middlesbrough Aluminium – Novelis UK, Warrington Mixed plastics – Lovell Recycling, Telford or Roydon Group, Swinton Mixed glass – Wards Recycling, Middlesbrough Mixed paper & card – Mark Lyndon & Man Power Ltd, China
Middlesbrough	Commingled dry recycling	O'Brien Sons MRF, Hartlepool	Steel – O'Brien Sons, Sunderland Recycling Centre Aluminium – O'Brien Sons, Sunderland Recycling Centre Mixed plastics – O'Brien Sons, Sunderland Recycling Centre Mixed glass – Viridor, Sheffield (for aggregate) Paper – Palm Paper, Kings Lynn Card – O'Brien Sons, Sunderland Recycling Centre Mixed paper & card - O'Brien Sons, Sunderland Recycling Centre
Redcar and Cleveland	Paper	Warrenby Transfer Station	UPM, Shotton
	Commingled dry recycling	Yorwaste MRF, Scarborough	Multiple (non specified), as market dictates
Stockton-on-Tees	Mixed metals	J & B Recycling Ltd	Ward Brothers, Darlington
	Mixed plastics		Evolve Polymers, Lincolnshire
	Mixed glass		Viridor, Sheffield
	Mixed paper, card and cartons		Sonoco Cores and Paper, Halifax

Trade Waste Collection

Four of the five Tees Valley local authorities provide a trade waste service. In Middlesbrough businesses are directed to use suitable contracted services. The services provided are summarised in Table 11.

Table 11 Summary of trade waste services

Authority	Refuse Collection	Operator	Recycling service provided
Darlington	Yes	In-house	Yes
Hartlepool	Yes	In-house	Yes
Middlesbrough	No	n/a	No
Redcar and Cleveland	Yes	In-house	Yes
Stockton-on-Tees	Yes	In-house	No

Bring Sites

Two of the Tees Valley authorities currently provide bring sites for residents to recycle household waste. Darlington operates 3 sites as of 2017, a reduction from 8 operated in 2016. Hartlepool also currently operates 3 sites as of 2017, a reduction from 6 operated in 2016. Middlesbrough reduced provision of bring sites in 2016 and operate 1 bring site and Stockton-on-Tees Council operates 19 bring sites as of 2017. There is a national trend of reduction in the provision of bring site services largely as result of enhanced kerbside collection systems which offer greater capacity and an increasingly large range of items suitable for collection.

Household Waste Recycling Centres (HWRC)

There are four HWRCs across the Tees Valley, where residents can take household waste to be re-used, recycled or disposed. Residents from each council have access to the HWRC in their home council area, with the exception of Middlesbrough who has access to the Haverton Hill HWRC (Stockton-on-Tees). The Haverton Hill HWRC is jointly contracted by Middlesbrough and Stockton-on-Tees councils. Table 12 provides key details about the four HWRCs covered by the proposed JWMS.

Table 12 Summary of HWRCs

Authority	Site	Opening Times	Restrictions	Commercial access
Darlington	Mewburn Road Recycling Centre	8am – 6pm	Residents of Darlington only. Permit for vans and trailers. Charges for tyres, paving slabs, roof tiles, rubble, ceramics, household fittings, construction waste, plasterboard and soil.	No
Hartlepool	Burn Road Recycling Centre	9am- 6pm (summer) / 4pm (winter)	Residents of Hartlepool only. Permit for vans and trailers. Charges for soil, rubble, hardcore, ceramics, plate glass, plasterboard, cement bonded asbestos sheets and tyres.	No
Middlesbrough / Stockton-on-Tees	Haverton Hill Recycling Centre	8am – 7pm (summer) / 6pm (winter)	Residents of Middlesbrough / Stockton-on-Tees only. Permits for vans and trailers. Charges for Bricks / rubble, kitchen units, plasterboard, bathroom clearances etc.(SBC vans and trailers only)	No
Redcar and Cleveland	Dunsdale Recycling Centre	10am – 5pm (Mon-Fri) 8am – 7pm (summer) / 5pm (winter) (Sat-Sun)	Residents of Redcar and Cleveland only. Permits for vans and trailers. Charges for Hardcore, rubble, ceramics, plasterboard and asbestos.	No

Other Services

All Councils offer a bulky household waste collection for larger household items at a charge, with all authorities setting a limit on the number of items that can be collected during one visit. Table 13 summarises the bulky waste charges in the Tees Valley as of February 2018.

Table 13 Summary of bulky waste services

Authority	Collection details
Darlington	6 items for £16.83
Hartlepool	3 items for £20
Middlesbrough	£10 per item
Redcar and Cleveland	6 items for £19 12 items for £29 18 items for £39
Stockton-on-Tees	6 items for £15

Voluntary Group Activity

The voluntary/community sector within the boroughs of Redcar and Cleveland and Hartlepool have supported and facilitated the recycling and reuse of textiles and footwear. From January 2016 – March 2017[17]:

- 67.3 tonnes of textiles and footwear were collected by the voluntary/community sector in Redcar and Cleveland; and
- 0.42 tonnes of footwear were collected between October and December of 2016 across the borough of Hartlepool.

There is no evidence of community/voluntary groups collecting/ facilitating the collection of materials for reuse/recycling across the other 3 authorities, Stockton-on-Tees, Middlesbrough and Darlington.

Residual Treatment

Residual household waste arisings appear to be increasing over the last few years after a period of decline, as illustrated in Table 14. This is not uniform across the region, most notably in Darlington and Redcar and Cleveland which have experienced steady growth in arisings throughout the last five years, and Stockton-on-Tees where arisings are stable.

Table 14 Residual household waste arisings

Authority	2012/13	2013/14	2014/15	2015/16	2016/17
Darlington	28,386	30,597	27,866	27,754	27,577
Hartlepool	23,822	25,899	25,790	26,739	27,775
Middlesbrough	45,016	40,265	35,491	37,522	39,569
Redcar and Cleveland	33,555	29,702	30,323	35,042	32,982
Stockton-on-Tees	57,689	58,750	60,451	59,793	61,162
Tees Valley	**188,468**	**185,213**	**179,920**	**186,851**	**189,065**

Household residual waste collected from four of the five council areas, with the exception of Darlington, is treated through EfW combustion at the facility at Billingham in Stockton-on-Tees. The residual waste collected from Darlington is currently treated through a residual waste MRF at Aycliffe Quarry, from where the Refuse Derived Fuel (RDF) produced is exported to an EU based EfW facility.

[17] Q4 2016/17, WasteDataFlow, www.wastedataflow.org (accessed by public user 08/02/2018)

Health and Communities

Human Health

Much work has been undertaken to consider the impacts of waste management facilities and practices on human health and to date no specific links have been proven. Reports by Defra and WRAP have concluded that present day practices for managing municipal waste in the UK have at most a minor effect on human health and the environment when compared to everyday activities[18]. The Health Protection Agency (HPA) has also reviewed research on the linkages between emissions from municipal waste incinerators and effects on health and provides advice to government, stakeholders and the public[19]. These reports considered alternate weekly collections and various waste disposal and treatment operations.

The North East of England has a poor health record relative to many others in the UK, and the Tees Valley contains some of the most deprived areas of the UK in terms of health and disability. All 5 authorities are in the top 20 percent of most deprived areas in the UK. Middlesbrough is the 5th most deprived local authority area in the UK when measured by health and disability. In 2015, the life expectancy in all parts of the Tees Valley was less than the average for England, with Middlesbrough having the lowest expectancy for both males (76.1 years) and females (79.8 years). Approximately a fifth of residents in each authority describe themselves as having a limiting long-term illness.

Table 15 Population describing themselves as having limiting long term illness[20]

Authority	Percentage of people with limiting long-term illness	Percentage of people of working age population with limiting long-term illness
Darlington	19.6%	14.4%
Hartlepool	23.2%	18.2%
Middlesbrough	20.9%	16.8%
Redcar and Cleveland	22.8%	16.7%
Stockton-on-Tees	19.0%	14.3%

There is no evidence linking this situation to waste management operations. The health and safety of the public and waste operators is an important consideration in all waste management operations and is a standard consideration in all day to day operations. The potential health effects of waste management facilities are considered at a site-specific level through the planning and permitting processes.

Some health impacts could be derived from air emissions associated with the transport of waste as part of the collection and disposal system.

[18] 'Review of Environmental and Health Effects of Waste Management: Municipal Solid Waste and Similar Wastes', DEFRA, May 2004;
'Health Impact Assessment of Alternate Week Waste Collections of Biodegradable Waste', DEFRA, March 2007;
'Scoping Study of Potential Health Effects of Fortnightly Residual Waste Collection and Related Changes to Domestic Waste Systems', WRAP, July 2009

[19] 'The Impact on Health of Emissions to Air from Municipal Waste Incinerators', Health Protection Agency (HPA), 2009

[20] ONS Census 2011 https://www.ons.gov.uk/census/2011census

Population and Households

The number of people living in the Tees Valley, combined with the number of persons in each household, will have an impact on the amount of waste produced in Tees Valley and therefore requiring management.

Tees Valley is highly urbanised. As stated within the 2011 Rural-Urban Classification for Local Authority Districts in England, Darlington, Hartlepool, Middlesbrough and Stockton-on-Tees are classified as 'Urban with city and town' and Redcar and Cleveland is described as 'Urban with significant rural' as shown in Table 16. Middlesbrough is predominantly urban with only 1% of the authority being described as rural.

Table 16 Rural-Urban Classifications for Tees Valley Authorities

Authority	Rural – Urban classification[21]	% Urban: Rural[22]
Darlington	Urban with city and town	87:13
Hartlepool	Urban with city and town	96:4
Middlesbrough	Urban with city and town	99:1
Redcar & Cleveland	Urban with significant rural	68:32
Stockton-on-Tees	Urban with city and town	96:4

The Tees Valley region represents 1.2% of the population in England.[23] Table 17 provides population estimates derived from 2014 ONS Subnational Population Projections for Local Authorities in England. Looking ahead, Stockton-on-Tees is estimated to have the greatest population increase with an increase of 6% between 2020 and 2035. Population across Redcar and Cleveland, Hartlepool and Darlington are expected to plateau over the next 15 years. This is due to Tees Valley experiencing an ageing population. The number of people aged 65 and over is predicted to increase by 41% by 2032. This change means that 1 in 4 of the population will be aged 65 and over rather than the current 1 in 5.5[24]. This could have implications for waste management services in a variety of respects. This might include increased demands for assisted collections[25]. It may change the composition of the waste, for example potentially with greater amounts of adult absorbent hygiene products, but reduced nappies.

[21] The 2011 Rural-Urban Classification for Local Authority Districts in England https://www.gov.uk/government/statistics/2011-rural-urban-classification-of-local-authority-and-other-higher-level-geographies-for-statistical-purposes (accessed 07/02/2018)
[22] Tees Valley Economic Assessment 2016
[23] Tees Valley Economic Assessment 2016
[24] Tees Valley Economic Assessment, Tees Valley Unlimited, 2015/16
[25] Where the collection crew collect bins from the property and return them to the property (rather than a kerbside collection) due to the inability of the householder to move the container/s.

Table 17 ONS Population estimates

Authority	Population (Midyear 2016)[26]	Population estimates[27]				Change 2020 - 2035	Change 2020 - 2035 (%)
		2020	2025	2030	2035		
Darlington	105,600	106,000	107,000	107,000	108,000	2,000	1.9
Hartlepool	92,800	94,000	95,000	95,000	96,000	2,000	2.1
Middlesbrough	140,400	142,000	145,000	147,000	149,000	5,000	3.5
Redcar and Cleveland	135,400	135,000	135,000	135,000	135,000	0	0
Stockton-on-Tees	195,700	200,000	204,000	208,000	212,000	12,000	6
Tees Valley	**669,900**	**677,000**	**685,000**	**693,000**	**699,000**	**21,000**	**3.1**

Table 18 shows that household numbers are predicted to rise in line with population up to 2035. Table 19 shows the 2016 dwelling sock and the 2011 average household size, which reduced by 0.08 between 2001 and 2011. This increase in household numbers will need to be factored into the JWMS and the collection schemes operated by the local authorities.

Table 18 MHCLG household projection data

Authority	Household projections[28]			
	2020	2025	2030	2035
Darlington	47,984	48,783	49,541	50,195
Hartlepool	42,785	43,674	44,483	45,166
Middlesbrough	59,387	60,517	61,783	62,970
Redcar and Cleveland	61,009	61,588	61,843	61,937
Stockton-on-Tees	84,240	86,546	88,679	90,528
Tees Valley	**295,405**	**301,108**	**306,329**	**310,796**

Table 19 Dwellings stock numbers (mid 2016)

Authority	Total dwellings (mid 2016)[29]	Population/household (2011 census)
Darlington	50,500	2.23
Hartlepool	44,500	2.26
Middlesbrough	65,000	2.38
Redcar and Cleveland	65,200	2.25
Stockton-on-Tees	86,100	2.38
Tees Valley	**311,300**	**2.31**
England and Wales	-	2.36

[26]ONS Estimates – Total Population (Mid 2016) https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/latest (accessed 07/02/2018)

[27] ONS Subnational Population Projections for Local Authorities in England (2014) https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/localauthoritiesinenglandtable2 (accessed 08/02/2018)

[28] Ministry of Housing, Communities and Local Government's: Live tables on household projections, Table 406 https://www.gov.uk/government/statistical-data-sets/live-tables-on-household-projections (accessed 05/03/2018).

[29] TVCA Estimates – total dwellings (Mid 2016), Census 2011 https://teesvalley-ca.gov.uk/InstantAtlas/DISTRICTS/report_District_I313_Mid%202016.html(accessed 08/02/2018). Note that this is available dwellings and not occupied household numbers.

Local Environmental Quality

Fly Tipping

Dealing with fly tipping is a joint responsibility between local authorities and the Environment Agency (EA). Both local authority incidents and EA handled incidents are recorded through the fly-capture database held by DEFRA.

Approximately 1 million (1,002,000) fly tipping incidents were dealt with by local authorities in England in 2016/17, a 7% increase from 2015/16. Of these incidents two thirds involved household waste. It is estimated that the clearance of fly tipping waste cost local authorities in England £57.7 million in 2016/17.

Table 20 Number of reported fly tipping incidents and actions[30]

Authority	2013/14		2014/15		2015/16		2016/17	
	Incidents	Actions	Incidents	Actions	Incidents	Actions	Incidents	Actions
Stockton-on-Tees	2,030	752	2,431	1,184	2,858	2,398	2,698	998
Redcar and Cleveland	2,724	164	2,676	99	2,094	126	2,825	4
Middlesbrough	2,765	2,229	3,024	1,821	2,088	990	2,687	514
Hartlepool	893	1,701	1,296	2,081	1,423	1,665	1,730	2,022
Darlington	2,914	956	3,282	918	2,982	786	2,886	508
Tees Valley	**11,326**	**5,802**	**12,709**	**6,103**	**11,445**	**5,965**	**12,826**	**3,538**

Table 20 shows the number of reported fly tipping incidents and actions across Tees Valley. The number of incidents has generally increased or remained fairly consistent over the last 4 years. However, the number of investigation actions varies from year to year, in 2014/15 55% of the incidents in Redcar & Cleveland were actioned where as in 2016/17 only 4 actions were made. Hartlepool has the least number of incidents and is most pro-active in terms of actions. However, there is a consistent trend in this authority around increasing incidents year on year.

As stated within Tees Valley Vital Issues Environment paper 2017, the Tees Valley has a far lower rate of fly-tipping than the North East average, with only one in six of the North East's fly-tipping incidents being within the Tees Valley. [31]

All 5 councils are actively trying to reduce the number of fly tipping incidents. Stockton-on-Tees has recently (January 2018) invoked new powers to penalise residents caught fly tipping with an instant £400 fine.

Water

River Quality

Tees Valley is predominantly within the Northumbria river basin district. The basin district extends from the Scottish border in the north through Northumbria to Stockton-upon-Tees in the south. The main river within the Tees Valley district is the River Tees. The River Tees rises on the eastern slope of Cross Fell in the North Pennines, and flows eastwards for approximately 85 miles reaching the North Sea between Hartlepool and Redcar near Middlesbrough. There are two main tributaries of the Tees, the River Skeme that joins the

[30] Fly tipping in England, Local authorities incidents and actions 2012 to 2017, https://data.gov.uk/dataset/fly-tipping_in_England_/resource/f2b7d1db-30dc-457d-8795-05a956138694 (accessed 09/02/2018)

[31] Tees Valley Vital Issues Environment paper, 2017

Tees near Croft-on-Tees and the River Leven that joins the Tees north of Crathorne. Table 21 highlights the summary statistics for the rivers, canals and surface water transfers within the Northumbria river basin district including ecological and chemical elements.

Table 21 Summary statistics for the Rivers, canals and surface water transfer within the Northumbria river basin district[32]

Parameter	2015	2021 (predicted)
% of ecological elements at good or better status now (biological, physico-chemical and specific pollutants)	86%	87%
% of chemical elements at good status now	95%	95%
% of elements at good or better status now	88%	88%

To achieve the 2021 aims and objectives set out in the Northumbria river basin management plan measures have been enforced within the River Tees catchment area. These include reducing rural diffuse pollution in the River Leven and the wider River Tees catchment and training and equipping local action groups to remove invasive species, working strategically with local and national bodies to strengthen bio-security.

Most of the upper Tees catchment is blanket bog peatland. Due to dissolved organic content leaching from the peat the water draining the uplands is discoloured and requires further treatment[33]. However in 2012 all water bodies in the Upper Tees catchment had been classified as good or moderate. However, within the Lower Tees Estuary, 7 water bodies were classified as poor and 1 was classified as bad[34].

At a national level river water quality has generally improved over the past couple of decades in terms of chemistry and biology and there has also been a fall in the amount of nutrients in our rivers over this time. However, in 2015 statistics were released from the Environment Agency stating that just 17% of England's rivers were considered to be in good health down from 29% with a good ecological status in 2014[35].

Flood risk

The main source of flood risk in the Tees Valley are fluvial, associated with rain and snow fall. The majority of the flood risk within the River Tees Catchment is located in the east of the catchment including the sensitive locations of Redcar and Cleveland, Hartlepool, Middlesbrough, Darlington, and Stockton-on-Tees. This is illustrated in Figure 7 , and summarised below.

Darlington is in an area of 'moderate to high' flood risk where further action could be taken to reduce flood risk.[36] It is estimated that in a 'one per cent annual probability' river flood, that between 500-1000 properties are at risk in Darlington. Darlington is highlighted as an area where surface water flooding can be a particular problem. Historic flood hot spots include Neasham and Hurworth Place. The River Skerne which runs through the borough poses the most risk.

[32] Northumbria river basin management plan, 2015

[33] Northumbrian Water, Catchment Management River Tees https://www.nwl.co.uk/your-home/environment/river-tees.aspx (accessed 27/02/2018)

[34] Tees Catchment: water quality failures https://www.gov.uk/government/publications/tees-catchment-water-quality-failures (accessed 27/02/2018)

[35] http://www.bbc.co.uk/news/uk-32074953 (accessed 09/02/2018)

[36] Tees Valley Water Cycle Study, Scoping Report 2012

Hartlepool is defined as an area of moderate to high flood risk where generally further action can be taken to reduce flood risk. The major source of flooding is the North Sea.

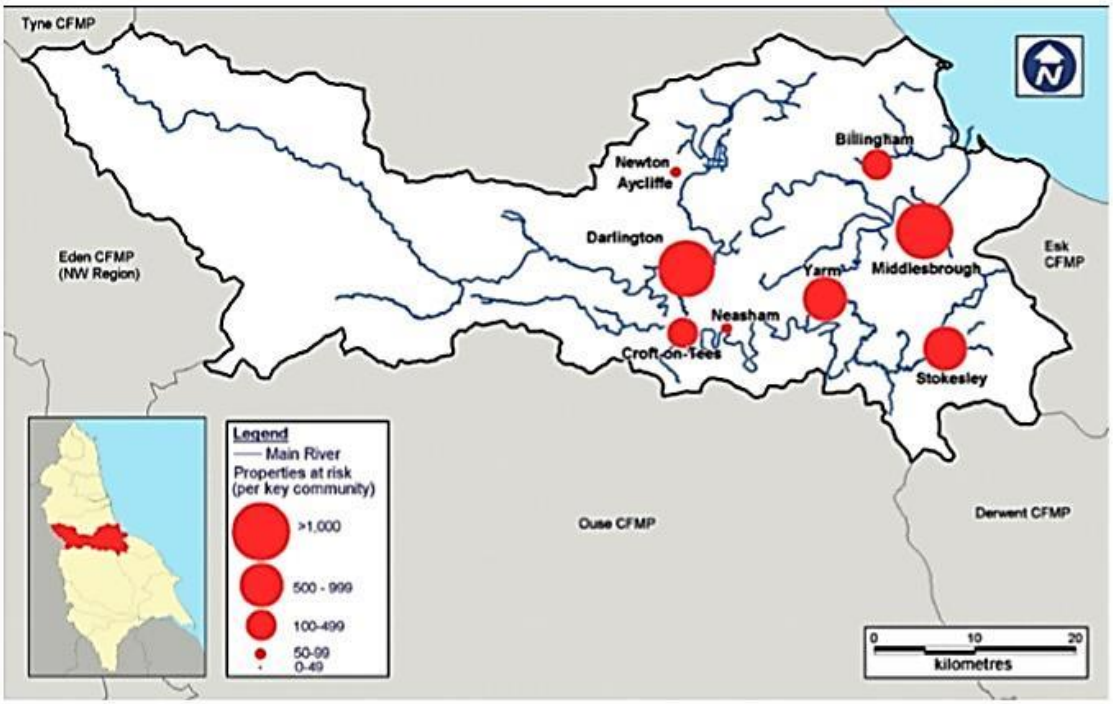
Middlesbrough is also defined as being an area of moderate to high flood risk. Flooding within Middlesbrough is predominately tidal as the River Tees forms the northern boundary of the Council area.

Redcar and Cleveland has a moderate to high flood risk, with the risk of fluvial flooding being lower than other neighbouring boroughs due to higher ground.

Stockton-on-Tees is susceptible to both tidal and fluvial flooding. A flood risk mapping study has been carried out which has identified a significant number of properties at risk in the event of defence failure in a 1 in 100 year flood[37].

A duty within the Floods and Water Management Act 2010 is for Local Authorities to develop a local strategy for managing local flood risk. All 5 authorities within the Tees Valley have developed and implemented a Strategic Flood Risk Assessment, which measures the local flood risk and puts actions and procedures in place.

Figure 7 Properties at risk of flooding in the Tees catchment[38]



Groundwater

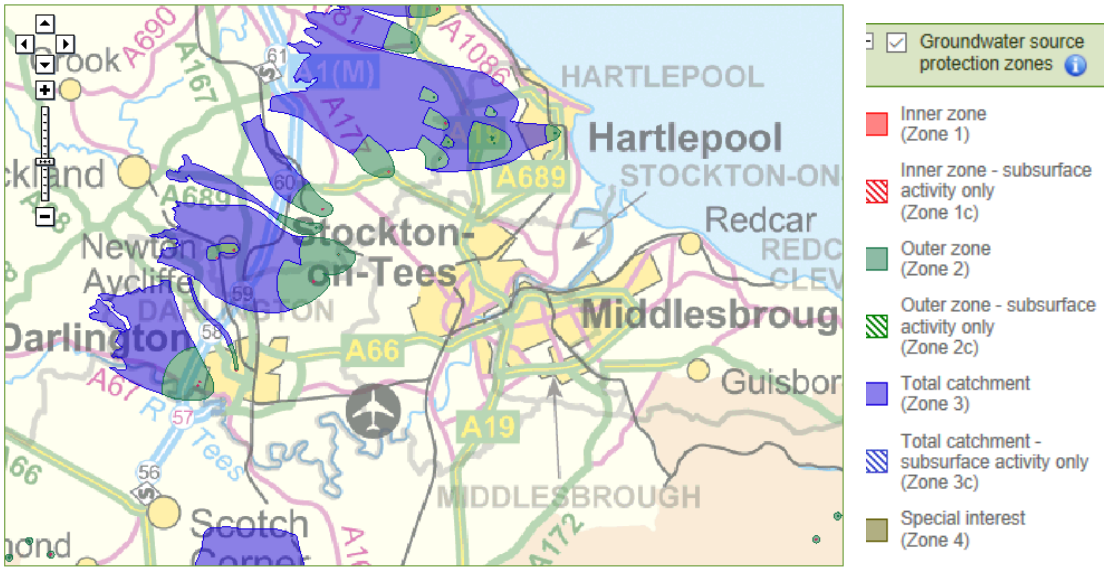
There are numerous Groundwater Source Protection Zones (SPZs) across the Tees Valley, designated to protect the groundwater supplies. SPZs are monitored by the EA under the Groundwater Protection Policy. In the upper and middle parts of the Tees Valley, where the Carboniferous Limestone and Millstone Grit outcrops, there are a large number of private water supplies via springs, wells and boreholes. All of these will have a default Zone 1 of the

[37] Tees Valley Water Cycle Study, Scoping Report 2012
[38] River Tees Flood Management Plan 2009

minimum 50 m radius around the source[39]. Default zone 1 areas are defined as having a 50-day travel time from any point below the water table to the source[40].

In England, the EA report that groundwater provides over a third of drinking water. Groundwater is susceptible to contamination from agriculture, mining, transport, housing etc. and cannot be cleaned easily. The SPZs in the Tees Valley are shown in Figure 8 .

Figure 8 Groundwater Source Protection Zones across the Tees Valley[41]



The potential impact of the JWMS on water quality will be primarily a site-specific issue. Different facility types may have the potential for impacts on water courses or SPZ, e.g. windrow composting sites have the potential for run-off into surface water and contribution to eutrophication or landfill leachate could percolate into the groundwater causing contamination of groundwater. Waste management activities are controlled by strict regulation designed to minimise potential environmental impacts, with locations controlled through the planning process and facility design and operation through the Environmental Permitting system.

Land and Soil

The geology of the Tees Valley is varied with a combination of limestone, mudstone, and ironstone which formed between the Permian and lower Jurassic[42]. The oldest rocks are the Carboniferous Coal Measures, Millstone Grit series and Permian Magnesian Limestone , which outcrop to the north and west of Darlington. Superficial deposits in the region are relatively uniform, consisting mostly of Glacial Till and, at the Tees Estuary, Fluvial Sands and Gravels[43] as highlighted in Figure 9 .

The predominant soil type is slowly permeable, seasonally wet basic loams and clays. There are also smaller areas of freely draining loamy soils[44].

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[39] Tees Valley Water Cycle Study, Scoping Report 2012
[40] Environment Agency http://apps.environment-agency.gov.uk/wiyby/37833.aspx (accessed 13/02/2018)
[41] Environment Agency, Groundwater Source Protection Zones
[42] BGS, Mineral Resources Information for Development Plans, Durham and the Tees Valley: Resources and Constraints
[43] Tees Valley Joint Local Aggregates Assessment, 2016
[44] Tees Valley Authorities Local Standards for Sustainable Drainage, 2015

Local authorities have a statutory duty to address land contamination and are responsible for identifying and keeping a register of any contaminated sites within their local authority boundary. Developers of land are responsible for investigating and if required to undertake remediation on land they want to build on, this is managed through planning conditions issued at the time of planning permission being granted.

The impact of the JWMS on land and soil (if any) will be a site-specific issue and as above different facility types have the potential to impact the soil quality either positively or negatively. Waste management activities are controlled by strict regulation and sites handling waste need to be permitted to ensure that they do not harm the environment and if any land clean-up is required then this will also be dealt with through the planning system.

Figure 9 Simplified geology map (based on 1:625 000 Geological Survey)[45]

		Mineral resources	*Uses and Products*
Quaternary omitted for clarity		river and glacial gravels, clays	sand and gravel, brick making
Jurassic *Upper*	Oxford Clay	mudstone	
	Cornbrash	mudstone, limestone	
Middle	Ravenscar Group	mudstone, sandstone	
Lower	Upper Lias	mudstone	
	Middle Lias	mudstone, ironstone	iron ore
	Lower Lias	mudstone, limestone	
Triassic	Mercia Mudstone Group	mudstone	brick and tile making
	Sherwood Sandstone Group	sandstone, conglomerate	
Permian	Permian Mudstones	mudstones, evaporites	anhydrite, salt potash
	Magnesian Limestone and Basal Sands	dolomite limestone, sands	aggregates, industrial dolomite, construction sand
Carboniferous	Coal Measures	coal, fireclay, mudstone, sandstone, ironstone	coal, brick and tile making, iron ore, building stone
	Millstone Grit (Stainmore Group)	Sandstone, mudstones	aggregates, building stone, silica sand
	Carboniferous Limestone (Alston Group)	limestone, mudstone, sandstone	aggregates, cement, silica rock

[45] BGS, Mineral Resources Information for Development Plans, Durham and the Tees Valley: Resources and Constraints

Air Quality

Road transport emissions accounted for 34% of UK nitrogen oxides (NOx) emissions across the UK in 2015[46]. The impact on local air quality is most likely to arise through transport impacts, for example, through household waste collections and the transport of waste and recyclables to transfer/recycling/treatment/disposal facilities.

Local authorities are responsible for reviewing local air quality in accordance with the Environment Act 1995. This involves measuring air pollution and trying to predict how it will change in the future and aims to ensure that local air quality objectives are achieved and where these are not met then Local Air Quality Management Areas (AQMA) can be declared. In such circumstances local authorities are required to put together a plan to improve Local Air Quality. Road transport is the main source of air pollution in the majority of AQMA areas.

There are no designated AQMA's in Tees Valley.

The impact of waste management activities on air quality is considered on a local rather than national level. Even though the SEA is not site-specific the impact of traffic movements should be considered in the assessment as traffic movements are a major contributor to local air quality emissions.

Economics

The Tees Valley has a rich industrial heritage with an economy made up of businesses and industry. Key sectors include advanced manufacturing and Engineering, Aerospace, Automotive, Chemicals and Processing and Offshore oil and gas[47]. The total number of enterprises per 10,000 adult population is highlighted within Table 23.

The last couple of years have seen significant growth across a number of economic indicators. In 2014 the total economic output from Tees Valley totalled £12.3bn up £1.4bn since 2009. Production industries (e.g. process or advanced engineering businesses) contribute the most to Tees Valley's economy [48].Although, the relative performance of the Tees Valley economy remains well below national levels even with the strengths of the manufacturing sector. One of the main causes includes a slow growing and ageing population resulting in reduced productivity as measured by GVA per hour worked.[49] Figure 10 highlights the strengths, weaknesses, opportunities and threats of the Tees Valley economy.

Within the Tees Valley there are a total of 17,500 enterprises, of which the majority (88.2%) are classified as Micro enterprises. Only 0.5% of the enterprises have 250+ employees. Full details outlined in Table 22

Table 22 Enterprise numbers in the Tees Valley (2017)[50]

Enterprises	Tees Valley	Tees Valley (%)
Micro (0-9)	15,435	88.2
Small (10-49)	1,650	9.4
Medium (50-249)	335	1.9
Large (250+)	80	0.5

[46] National Statistics Release: Emissions of air pollutants in the UK, 1970 to 2015', Defra, December 2016
[47] Tees Valley Combined Authority, Business and Economy https://teesvalley-ca.gov.uk/about-the-area/business-and-economy/ (accessed 27/02/2018)
[48] Tees Valley Economic Assessment, 2016
[49] Tees Valley Economic Assessment, 2016
[50] Nomis, official labour market statistics https://www-.nomisweb.co.uk/reports/lmp/lep/1925185563/printable.aspx (accessed 13/02/2018)

Stockton-on-Tees and Darlington have the greatest number of enterprises, however Darlington has the greatest number as a proportion of the population, as shown in Table 23.

Table 23 Total enterprises per 10,000 population within each authority[51]

Authority	Total Enterprises per 10,000 adult population - 2016
Stockton-on-Tees	348
Redcar and Cleveland	279
Middlesbrough	282
Hartlepool	311
Darlington	362

There are opportunities for waste management to contribute to the economic sector through job creation, the purchasing of services and by providing secondary resources for local industries (recyclables). Although there is significant waste management infrastructure in the Tees Valley, the predominant employment arises during their construction phase; during the operation phase lower levels of employment occur. In general waste management is unlikely to be a major employer.

[51] Total Enterprises per 10,000 adult population - 2016 (https://teesvalley-ca.gov.uk/InstantAtlas/DISTRICTS/report_District_I660_2016.html) (accessed 27/02/2018)

Figure 10 SWOT analysis of the economy of Tees Valley[52]

Strengths	Weaknesses
• Tees Valley has stable communities in which there is the capacity to absorb population growth; • Business and enterprise lie at the core of any successful economy and the Tees Valley is well represented in high productivity sectors such as Advanced Manufacturing, Low Carbon, Process and IT; • Comparatively high business start-up rate, particularly amongst lifestyle entrepreneurs; • A number of centres of excellence and innovation centres in key locations; • Staff costs are highly competitive; • Major port with strong links to northern Europe, with considerable potential for expansion; • East coast rail hub at Darlington providing north-south connections, including Scotland; and • Attractive and affordable towns, countryside and coast, but unknown to many people.	• Tees Valley is characterised as being largely urban but polycentric with negative implications for transport and place promotion; • Challenges remain with economic output per head of population significantly below the national average – just 75.3 of UK GVA per head in 2014; • Low business density; • Low levels of collaboration between SMEs in relation to innovation; • Too few people in Tees Valley are in employment; • The jobs density figure is considerably below the national average; • Variable external links, particularly by rail, and east to west; • Market failure in commercial and residential property markets; and • Poor external perceptions of the area.
Opportunities	**Threats**
• Tees Valley has extensive supply of affordable and easily accessible enterprise zones; • Strong tradition of exporting intermediate goods; • Opportunity to convert lifestyle entrepreneurs into scalable companies; • Increasing demand for innovation in products and services, particularly in emerging sectors such as health; • Economic benefits of a circular economy approach to industrial production; • Build on increase in private sector employment; • Extending the economic benefits of transport investment – new station at Darlington and Middlesbrough and new Tees Crossing; • Increasing leisure and visitor market, including outdoor and cultural tourism ; and • Promote the affordability of Tees Valley as a place to live, work and invest in.	• There is an ageing workforce exacerbated by the high percentage in the 18-25 age cohort who chose to move away from the Tees Valley; • Long term commitment to and costs of decarbonising the major energy use sectors such as steel and chemicals; • Lack of scalable companies and high potential starts; • Branch plant economy in chemicals and processing industries which consequently does little R&Di in the Tees Valley; • Jobs base dependent on small number of large employers; • Other sub-regional towns and cities becoming better connected and networked; and • Competition for skilled and experienced labour from other city regions in the North and South East.

Employment/Unemployment

73.3% of residents across the Tees Valley were in employment between October 2016 and September 2017. The unemployment rate in the Tees Valley is slightly higher than the average for Great Britain at 6.9% as shown in Table 24 below. 9.6% of those who were in employment were self-employed which was 1% less than the average for Great Britain. The highest proportion of those employed worked in professional occupations and the smallest proportion were those employed as process plant and machinery operatives as highlighted in Table 25 below.

[52]Tees Valley Economic Assessment, 2016

Table 24 Employment and Unemployment in the Tees Valley (Oct 2016 – Sep 2017)[53]

Parameter	Tees Valley	Tees Valley (%)	North East (%)	Great Britain (%)
Economically active	308,700	73.3	75.4	78.1
In Employment	287,400	68.1	70.4	74.5
Employees	255,600	60.9	62.6	63.6
Self Employed	29,800	9.6	7.5	10.6
Unemployed	21,300	6.9	6.5	4.5

Table 25 Percentage of people in employment by type, 2015[54]

Employment type	Darlington	Hartlepool	Middlesbrough	Redcar and Cleveland	Stockton-on-Tees
Managers, Directors, Senior Officials	11.6%	8.5%	8.0%	8.6%	6.5%
Professional occupations	16.1%	14.3%	14.1%	17.4%	23.3%
Associate professional & technical	12.9%	11.9%	12.2%	10.2%	12.3%
Administrative and Secretarial	12.3%	9.%	10.2%	9.9%	11.8%
Skilled trades	9.9%	14.6%	10.3%	11.9%	12.3%
Caring, leisure and other service	8.9%	9.7%	11.1%	12.1%	9.7%
Sales and customer service	9.0%	9.6%	8.4%	10.7%	6.7%
Process, plant and machinery operatives	7.0%	7.6%	8.6%	9.7%	4.8%
Elementary	11.8%	13.8%	16.6%	9.1%	12.2%

Table 26 identifies the employment by industry type across the Tees Valley. The wholesale and retail trade employ the highest percentage of people in Tees Valley at approximately 15% which is similar to the average percentage for Great Britain. The mining and quarrying industry along with the electricity/gas/steam and air conditioning supply industry employ the smallest percentage of those employed in the Tees Valley.

[53] Nomis, Official labour market statistics https://www.nomisweb.co.uk/reports/lmp/lep/1925185563/printable.aspx (accessed 13/02/2018)
[54] Census 2011

Table 26 Employment by industry in the Tees Valley (2016) [55]

Industry	Tees Valley	Tees Valley (%)	Great Britain (%)
Mining and Quarrying	1,000	0.4	0.2
Manufacturing	25,000	9.7	8.1
Electricity, Gas, Steam and Air Conditioning Supply	1,000	0.4	0.4
Water Supply: Sewerage, Waste Management and Remediation Activities	1,250	0.5	0.7
Construction	12,000	4.7	4.6
Wholesale and Retail Trade: Repair of Motor Vehicles And Motorcycles	39,000	15.2	15.3
Transportation and Storage	12,000	4.7	4.9
Accommodation and Food Service Activities	17,000	6.6	7.5
Information and Communication	6,000	2.3	4.2
Financial and Insurance Activities	6,000	2.3	3.6
Real Estate Activities	4,000	1.6	1.6
Professional, Scientific and Technical Activities	18,000	7.0	8.6
Administrative and Support Service Activities	17,000	6.6	9.0
Public Administration and Defence; Compulsory Social Security	14,000	5.4	4.3
Education	27,000	10.5	8.9
Human Health and Social Work Activities	47,000	18.3	13.3
Arts, Entertainment and Recreation	7,000	2.7	2.5
Other Service Activities	4,000	1.6	2.1

Deprivation

Indices of deprivation are produced by the Department for Communities and Local Government (DCLG) as a means of comparing different areas of England by a variety of deprivation measurements. Data is ranked such that the lower the score, the greater the deprivation. The most deprived local authority ranks 1 and the least deprived 326. The indices are made up of seven deprivation elements, relating to income, employment, health and disability, education, barriers to housing and services, living environment and crime.

As outlined in Table 27, Middlesbrough is the most deprived borough in the Tees Valley particularly with regards to employment and education. Darlington is the least deprived of the five council areas. A more 'deprived' area can have a variety of implications for waste generation, generally producing lower quantities per person. It can also influence the effectiveness of recycling schemes as housing may be less suited to storing recycling receptacles. In areas where there are also transient populations or a variety of different first languages spoken there can be issues with communicating clear messages on recycling or

[55] Nomis, official labour market statistics https://www-.nomisweb.co.uk/reports/lmp/lep/1925185563/printable.aspx (accessed 13/02/2018)

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other waste management issues. Car usage is likely to be lower in more deprived areas and therefore residents are more reliant on kerbside services. Charged services may also become inaccessible or less accessible to residents.

Table 27 Indices of deprivation (rank) [56]

Rank of average score	Darlington	Hartlepool	Middlesbrough	Redcar and Cleveland	Stockton-on-Tees
Income	73	11	2	33	61
Employment	54	4	3	12	47
Education	129	47	3	71	110
Health	62	18	6	29	55
Crime	77	107	20	129	189
Barriers to housing and services	313	306	243	309	254
Living environment	285	306	255	311	316
Index of Multiple Deprivation	97	18	6	49	88

Transport

Tees Valley is located in the North East of England bordering North Yorkshire and County Durham. Tees Valley is linked to the wider UK road and rail networks. The Strategic Economic Plan (2016) includes some transport initiatives, highlighting priority areas such as linking the Tees Valley to the Northern Powerhouse, the rest of the UK and developing superfast broadband. The strategic transport plan for Tees Valley is currently under development and is due out for publication the early part of this year (2018). The plan will outline the aims and objectives and main priorities to improve the Tees Valley local transport system.

Road

The A1 (M) runs through the West of the Tees Valley, which is the main link road between Leeds and Durham. The A19, which is referred to as the 'expressway' by Highways England, cuts through Tees Valley providing a network route between Sunderland and York and the North York Moors National Park. Delays regularly occur on the A19 due to there being limited alternative routes to cross the Tees. Where the A19 crosses the Tees, it carries 96,000 vehicles per day, in contrast, the parallel A1(M) only carries 43,000 vehicles, emphasising how important the route is to the Tees Valley in connecting it to the rest of the UK.[57] The A66 runs East – West across the Tees Valley providing a link to Teesport.

Rail

Tees Valley have a number of railway way stations however due to little investment station facilities are limited for such important gateways to an area the size of the Tees Valley. Changes generally need to be made at Darlington station to access high speed rail services.

[56] Gov.uk, English indices of deprivation 2015, https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015 (accessed 13/02/2018)
[57] Connecting the Tess Valley- How we want to improve your local transport system - November 2016

Air

Durham Tees Valley international airport is located between Darlington and Stockton-on-Tees. It is one of the UK's smallest airports. The airport is located just off the A67 and is within easy reach of the A1 (M), additionally the airport has its own railway station which is a 15-minute walk from the terminal.

Port

Teesport is located South of Hartlepool and North of Redcar and Cleveland. The port is the 5th largest port in the UK. In 2015 the port handled 36 million tonnes of cargo. The port is a major container port for northern regions of the UK.

Transport Priorities

The Tees Valley Strategic Economic Plan highlighted 4 key areas of improvement for the transport network across the region:

- Darlington High Speed 2 Growth Hub – includes new platforms to accommodate HS2 and Northern Powerhouse Rail
- Another strategic road crossing of the River Tees – to ensure the A19 expressway will meet the 'mile per minute' objective set for the expressways
- Improved east-west road connectivity – corridor to run alongside the A66
- Major upgrade of the rail line from Northallerton to Middlesbrough/Teesport- to reduce journey times and accommodate future electrification[58]

Transport impacts on the environment through the waste management options will be assessed as part of this SEA assessment process.

Biodiversity

The Tees Valley has one main Biodiversity Action Plan (BAP), however in December 2017 the Tees Valley Nature Partnership questioned whether there was any value in having a Tees Valley Biodiversity Action Plan, we are currently awaiting the outcome of this decision[59] . The current plan covers the local authority areas of Hartlepool, Stockton-on-Tees, Middlesbrough and Redcar and Cleveland. The plan includes 20 local habitat priorities and 51 local species priorities[60].

There are 28 local nature reserves[61] and one national nature reserve (Teesmouth in the Boroughs of Stockton-on-Tees and Hartlepool) in Tees Valley. Full maps of locations are under development at an individual authority level[62]. There are no Areas of Outstanding Natural Beauty (AONBs) in Tees Valley, however the North York Moors National Park does cover a large area in the South of Redcar and Cleveland it is a separate planning authority

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[58] Tees Valley Strategic Economic Plan – The Industrial Strategy for Tees Valley 2016-2026

[59] Tees Valley Nature Partnership, Review of the Tees Valley BAP – where to now, December 2017

[60] Priority habitats and species in the Tees Valley, 2012

[61] National Parks, Areas of Outstanding Natural Beauty, National and Local Nature Reserves are land declared under the National Parks and Access to the Countryside Act 1949 or the Wildlife and Countryside Act 1981 as amended. All designations provide access to land for the public and afford environmental protection. National Parks and AONBs are afforded the highest level of protection, although differ in administration, followed by NNRs, and then LNRs. LNRs are designated by the local authority.

[62] http://teesvalleynaturepartnership.org.uk/resources/natural-networks-opportunity-maps/

and develops its own waste management policies. This particular area of the Redcar and Cleveland has also the status of a Special Area of Conservation (SAC[63]) and Special Protection Area (SPA[64]). There is one further SPA covering the Teesmouth and Cleveland Coast situated in Stockton-on-Tees, Redcar and Cleveland, and Hartlepool. This area is also designated as a RAMSAR[65] site. These are sites protected by law to preserve the UK's Natural Heritage.

There are 21 sites of Special Scientific Interest (SSSI[66]) in Tees Valley. The majority of these are concentrated in the South of Redcar and Cleveland (North York Moors National Park area) and the Teesmouth.

There are also local sites which are managed by the Natural Assets Working Group as part of the Tees Valley Nature Partnership, incorporating four of the five constituent authorities. The latest annual condition surveys for each local authority area are outlined in Table 28.

Table 28 Outcome of annual condition surveys for local sites in Tees Valley[67]

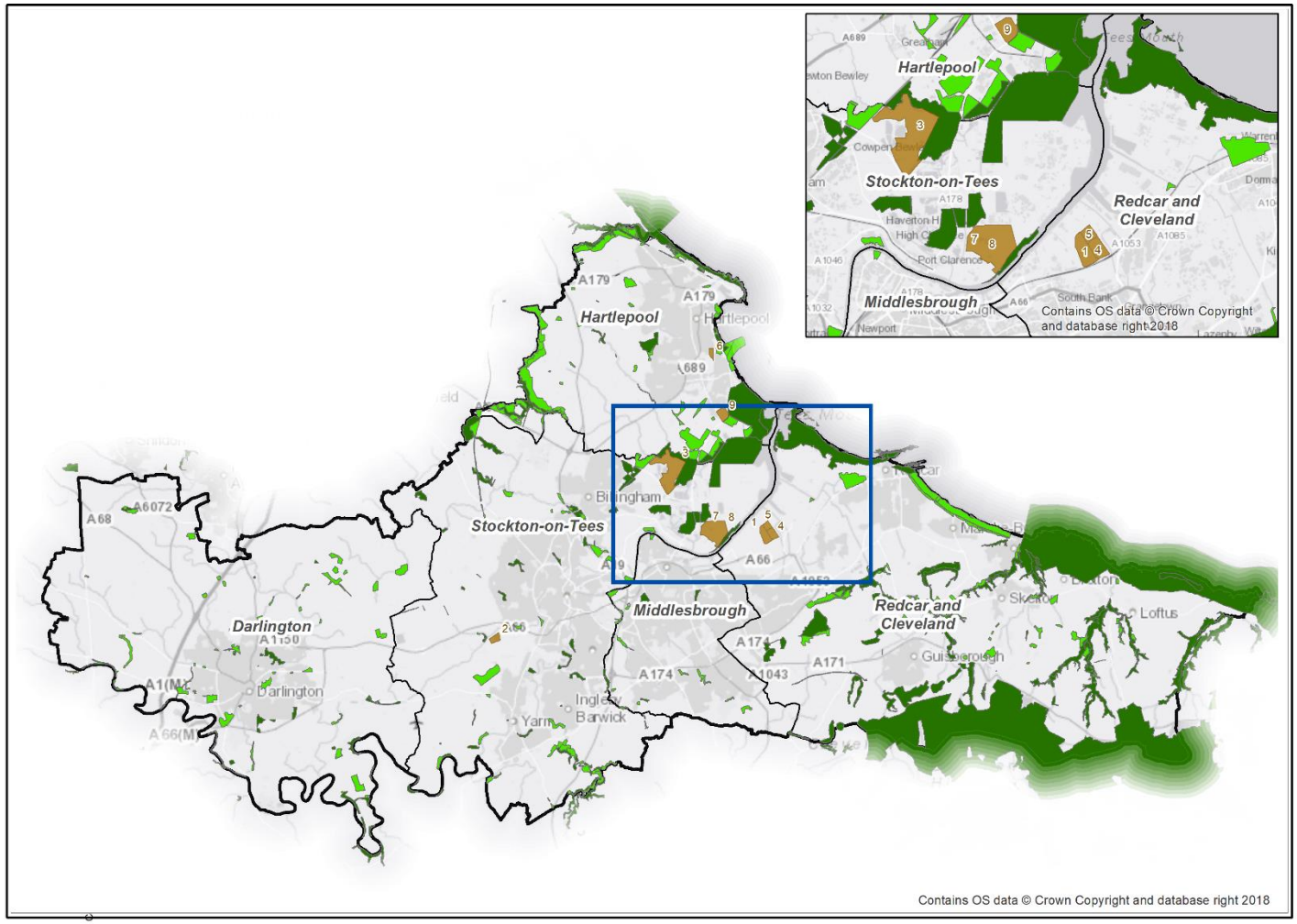
Authority	Percentage of local sites deemed to be in positive management
Hartlepool	45%
Middlesbrough	65%
Redcar and Cleveland	37%
Stockton-on-Tees	60%

In addition to these land-based designations, due consideration should be given to marine conservation requirements in recognition of the Tees Valley coastal location and the significant discharge of the River Tees at Teesmouth. The Teesmouth and Cleveland Special Protection Area has a marine SPA designation.

The Natural Environment and Rural Communities Act (NERC ACT 2006) states that 'Every public body must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity'. The JWMS is not a site-specific plan and therefore local biodiversity impacts are considered as outside the control of this plan. In a wider sense, and at a national level, waste management will impact on biodiversity as the amount of material recycled displaces primary materials extracted for use. Local biodiversity issues should be considered at individual sites through the planning and permitting processes.

[63] SACs are land designated under Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora.
[64] SPAs are land designated under Directive 79/409 on the Conservation of Wild Birds.
[65] A Ramsar site is the land listed as a Wetland of International Importance under the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (the Ramsar Convention) 1973.
[66] A Site of Special Scientific Interest (SSSI) is the land notified as an SSSI under the Wildlife and Countryside Act (1981), as amended. SSSI are the finest sites for wildlife and natural features in England, supporting many characteristic, rare and endangered species, habitats and natural features.
[67] Tees Valley Nature Partnership, Protected Sites in the Tees Valley http://teesvalleynaturepartnership.org.uk/natural-assets/local-wildlife-and-geological-sites-in-the-tees-valley/ (accessed 13/02/2018)

Figure 11 Map of conservation sites across Tees Valley in relation to current operational landfill sites



Natural Resources

Natural resource use is primarily a national rather than local issue as natural resources such as water, minerals and sources of energy are consumed locally but often derived from non-local sources. Natural resource use is also linked to consumption of goods and services by the population of a particular area. This may be measured via an ecological footprint which highlights the impact of consumption within the context of ecological limits. It is a calculation of the notional and direct land area needed to support a population with the resources that they consume and to absorb the wastes that they generate. It is measured in global hectares and differentiates between crop and pasture land, forest and sea area, built land (land directly built for human development) and energy land (forest area needed to absorb CO_2). A standard methodology for ecological footprints has been developed by the global footprint network.

The Ecological Footprint is a monitor of human demand on ecosystems. It shows that humanity is already using nearly 50% more natural resources than the Earth can replenish and by 2050 it is estimated that humans will be using twice as many natural resources than the Earth can replenish. In the UK the average ecological footprint of a person is 5.6 hectares, yet the sustainable level is 1.8 global hectares per person[68].

Each local authority in the Tees Valley has been independently assessed as outlined in Table 29

Table 29 Ecological footprints of the Tees Valley authorities (2010) [69]

Authority	Ecological footprint
Darlington	5.3ha
Hartlepool	5.12ha
Middlesbrough	5.21ha
Redcar and Cleveland	5.25ha
Stockton-on-Tees	5.27ha
UK average	5.4ha
World average	2.2ha
Sustainable equilibrium	1.8ha

Stockton-on-Tees has the greatest ecological footprint out of the five authorities across Tees Valley and Darlington has the lowest. However, all the authorities are below the UK average of 5.4ha.

[68] WWF Global http://wwf.panda.org/what_we_do/footprint/ (accessed 13/02/2018)

[69] Sustainability Appraisal of the Tees Valley Joint Minerals and Waste Development Plan Documents, May 2010

Buildings, Heritage and Landscape

Cultural Heritage

Tees Valley is leading on a bid for the region to become a City of Culture in 2025 with heritage being a core component. Tees Valley is renowned for its naval and industrial heritage, with Darlington considered a pioneer of the development of railways.

There are a total of 1,896 listed buildings in Tees Valley region, according to Historic England records, with a total of 2,082 heritage assets. Redcar and Cleveland has the highest percentage, with approximately one third of the regions total and Middlesbrough has the fewest. These are detailed in Table 30.

Table 30 Number of listed buildings, monuments and heritage assets[70]

Authority	Listed buildings			Scheduled Monuments	Registered Parks and Gardens			Conservation Areas	World Heritage Sites	Battlefields	Protected Wrecks
	Grade I	Grade II*	Grade II		Grade I	Grade II*	Grade II				
Darlington	7	32	496	20	0	0	2	16	0	0	0
Hartlepool	3	6	145	8	0	0	1	8	0	0	1
Middlesbrough	1	11	112	3	0	0	1	8	0	0	0
Redcar and Cleveland	14	27	568	79	0	0	1	17	0	0	0
Stockton-on-Tees	7	37	430	8	0	2	0	11	0	0	0
Tees Valley	**32**	**113**	**1751**	**118**	**0**	**2**	**5**	**60**	**0**	**0**	**1**

There are 115 scheduled monuments in the Tees Valley, the majority of which (79) are in Redcar and Cleveland Council.

The potential impact on the built environment from air borne pollutants will be considered. This will be considered at a Tees Valley wide level rather than specific locations as this is not a site-specific strategy.

Landscape

Tees Valley has a mix of geographies ranging from densely populated urban areas (Middlesbrough and Stockton-on-Tees), to large towns (e.g. Darlington and Hartlepool) to sparsely populated rural areas (e.g. the South of Redcar and Cleveland). The Tees Valley is in close proximity to National Parks, including the Yorkshire Dales to the South West, the North York Moors to the South East, including some within the Tees Valley, and the North Pennines AONB to the North West. Part of the coast within Redcar and Cleveland is designated as a Heritage Coast.

Facility design consideration will depend on specifications during facility procurement and will not specifically relate to the JWMS. Any development carried out must respect the existing landscape and character and comply with land use planning and environmental permitting requirements.

The waste strategy is not a site-specific document; these aspects are addressed in the Local Development Plan documents.

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[70] Historic England (2017) (on-line), Local Authority Profiles, https://historicengland.org.uk/research/heritage-counts/2017-conservation-areas/indicator-data/#Section7Text (accessed February 2018)

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3 Key Sustainability Issues and Interrelationships

As part of developing the SEA for the review of the Tees Valley JWMS it is important to consider the local environmental baseline. An assessment of the baseline position for the Tees Valley has been carried out as part of the scoping phase of the SEA. From this review, the key sustainability issues identified for the Tees Valley and the JWMS review include climate change, local environmental quality, air quality, economics and natural resources. All will be assessed as part of the sustainability assessment.

It will also be important to take account of interrelationships between issues of climate change and natural resources, as the products that we consume and then discard end up as waste that needs to be managed and disposed of whilst also using up scarce natural resources in their production. The waste services that are provided locally, depending on waste systems and sites for the facilities, could have impacts in terms of environmental quality, air quality and economics that need to be tested through the sustainability assessment.

The key sustainability issues identified from the baseline assessment are:

- Climate change is an issue for all areas. Carbon emissions resulting from local authority activities in the Tees Valley are reducing, through efforts to divert waste from landfill. Large industrial emissions in the Redcar and Cleveland and Stockton-on-Tees Council areas mean that the Tees Valley per capita emissions of CO_2, which accounts for 81%[71] of greenhouse gas emissions, are above the national (England) average. The high amount of municipal waste imported into the Tees Valley for EfW will have a climate change impact; although this is secondary to wider industrial emissions, and partly offsets the carbon impacts of fossil fuel based energy generation.

- Recycling/composting performance has plateaued in the Tees Valley. Recycling is an effective method of reducing carbon emissions from a municipal waste management service.

- Varying household waste collection systems are in operation across the Tees Valley in terms of:
    - Dry recyclates – including the method of collection (commingled, partially sorted or extensively sorted), and the materials collected (i.e. cartons and PTT (pots, tubs and trays));
    - Organics - four out of the five authorities collect garden waste, and none currently collect food waste.

- In order to deliver the recycling/composting targets within the EC Revised Waste Framework Directive[72] and European Circular Economy Package, significant increases in recycling/composting performance would be required from all Tees Valley authorities. This may require development of organics waste collection systems where not already maximised and / or general measures to improve participation in existing dry recycling schemes across all authorities.

- In 2016/17 approximately 352,000 tonnes of LACW was produced, of which 285,000 tonnes was from household sources. LACW did not change from the previous year (an increase of 9 tonnes). Household waste generation increased by approximately

[71] Department for Business, Energy and Industrial Strategy (2017), UK local authority and regional carbon dioxide emissions national statistics: 2005-2015
[72] 2008/98/EC requires 50% recycling by 2020

4,500 tonnes (1.65% increase) from 2015/16. LACW arisings have decreased by approximately 16,000 tonnes since 2010/2011. However, the quantity of waste recycled/composted has also reduced. In 2016/17 36% of LACW was recycled compared to 38% in 2010/11, the highest recycling performance was achieved in 2014/15 at 40%. The % of LACW sent to landfill has decreased by exactly 10% since 2010/11.

- The proportion of residual waste collected that is disposed of through landfill (8% of total waste arisings) has not changed over the last five years. The majority of residual waste, and total waste, collected in the Tees Valley is treated by the Billingham EfW facility (54% of total waste arisings). The amount of waste disposed of through landfill is lower than is typical for England (15.7% in 2016/17), conversely the combustion of waste through EfW facilities is higher than the national average (37.8% in 2016/17).

- There is evidence of limited voluntary sector operations in the Tees Valley which help divert materials from disposal and other forms of treatment.

- There are 4 HWRCs in the Tees Valley, and whilst demonstrating a high level of centralisation of facilities, the level of provision is relatively low for the population.

- The population of the Tees Valley increased by a modest 10,700 (1.6%) between the 2001 and 2011 censuses. This can be set against an England and Wales increase of 7.3%. Projected population growth is forecast to increase by 3.1% in the period 2020-2035, representing a modest annual increase from 0.16% to 0.21%. The principle areas of growth are Stockton-on-Tees (6% 2020-35) and Middlesbrough (3.5% 2020-35).

- Increasing populations and their consequent impacts on waste arisings and management systems will be a moderate factor in waste management planning and the policies and targets within the JWMS.

- The higher proportion of rural properties in Redcar and Cleveland will be a factor in collection systems and scheme planning in such areas.

- Tees Valley residents, on average, have a shorter life expectancy than the average for England, and also identify a higher than average (for England) level of limiting long-term illness. There is no link established between normal waste management activities and public health in terms of either the Tees Valley or operations elsewhere in England.

- The Tees Valley councils are actively working to tackle fly-tipping. The number of incidents of fly-tipping in the Tees Valley is increasing annually, however the number of incidents are lower than the regional average. Access to adequate waste management facilities, enforcement and charging mechanisms and communications / education initiatives can all influence the number and likelihood of fly-tipping incidents.

- The water quality within the watercourses and rivers in the Tees catchment area is improving and currently has a generally good water quality rating.

- There are some areas in the east of the River Tees catchment which are vulnerable to flooding. There are sensitive locations in all five council areas. Darlington is highlighted as an area where surface water flooding can be a particular problem with historic flood hotspots. Hartlepool, Middlesbrough and Redcar and Cleveland are areas with ‘moderate to high’ risk where generally further action can be taken to reduce flood risk. Stockton-on-Tees is susceptible to both tidal and fluvial flooding with a significant number of properties at risk in the event of defence failure in a 1 in

100 year flood[73].There is a link between climate change and extreme weather / flooding incidents and the carbon emissions from the waste management service have been noted above as a sustainability issue for Tees Valley.

- There are a number of Source Groundwater Protection Zones in the Tees Valley. Waste management activities may have site specific impacts related to groundwater, however these will be considered through the planning and permitting processes rather than at a waste strategy level. The location of future waste management activities will avoid SPZ1 zones.

- The predominant soil type is slowly permeable, seasonally wet basic loams and clays. There are also smaller areas of freely draining loamy soils in the Tees Valley. Waste management activities may have site specific impacts related to soils, however these, including land contamination risks, will be considered through the planning and permitting processes rather than at a waste strategy level. There are no Air Quality Management Areas (AQMAs) in the Tees Valley. Waste management activities may have site specific impacts related to air quality, however these will be considered through the planning and permitting processes rather than at a waste strategy level.

- The economy of the Tees Valley is diverse and based on a historic industrial heritage. However, the productivity and performance of the region is below national averages. The number of people in employment and the economically active population is below the national average. Conversely the unemployment rate in the Tees Valley is above the national average. The indices of deprivation show that all council areas in the Tees Valley are in the most deprived third of local authorities in England, with Middlesbrough the 6th most deprived council area, and Hartlepool the 18th most deprived. Particular deprivation in employment, income and health are prevalent. Waste management activity is unlikely to have a major impact on the economy, however may have some economic impacts locally (for example in terms of providing jobs connected with infrastructure delivery and operation) or associated with particular operational activities (for example, charging for particular services).

- The transport infrastructure is dominated by two North-South routes (the A19 and A1(M) providing links to Leeds and York in the South and Newcastle-upon-Tyne, Sunderland and Durham to the North. The A66 provides East-West links within the Tees Valley. There are planning policies and documents protecting transport developments in the North York Moors NP.

- The North York Moors National Park is valued nationally and internationally for it's habitat and ecosystem attributes. Additionally, the Teesmouth and Cleveland SPA is underpinned by a number of SSSIs. Potential impacts from strategy objectives on these sites should be considered at strategic level, which may include the need for a strategic Habitats Regulations Assessment to consider impacts on the SPA and Ramsar site. Waste management activities may have site specific impacts related to biodiversity, however these will be considered through the planning and permitting processes rather than at a waste strategy level.

- The North York Moors National Park Authority has a duty to '*conserve and enhance the natural beauty, wildlife and cultural heritage of the area*' and is responsible for all planning applications related to waste disposal or processing within the national park. Waste management activities may have site specific impacts related to buildings, heritage and landscape; however these will be considered through the planning and permitting processes rather than at a waste strategy level.

- Consuming resources at an unsustainable rate is a national (and international) issue with the UK consuming 50% more natural resources than the planet can sustain. This is also an issue for the Tees Valley as a whole and the JWMS provides an

[73] Tees Valley Water Cycle Study, Scoping Report 2012

opportunity for using resources more sustainably and reducing overall resource consumption.

4 Draft Sustainability Objectives and Criteria

Sustainability Objectives

The original Objectives from the JWMS SEA (2008) and the Sustainability Appraisal (SA) of the Tees Valley Joint Minerals and Waste Development Plan documents (2010) have been reviewed, along with the information within this Draft Environmental Plan to determine a list of draft Sustainability Objectives and associated criteria. These are contained in Table 31 with a brief explanation of the rationale for inclusion, a measurement indicator / criterion and a key identifying the nature of each measurement approach. The objectives and indicators / criteria for measurement were presented at a workshop (with officers and Members from all Councils present) and have been subject to consultation with the Councils and the Statutory Consultees prior to inclusion in this consultation phase.

Key:

 Quantitative assessment

 Quantitative assessment using the Environment Agency's WRATE model[74]

 Qualitative assessment

Relationship with the SA objectives of the Tees Valley Joint Minerals and Waste Development Plan documents (2010)

Table 31 highlights objectives that are consistent with the SA Objectives from the Tees Valley Joint Minerals and Waste Development Plan documents, with the exception of the following points:

- SA Objective 2 'To Move up the waste hierarchy' – this is addressed by Objectives 1 – 3, which are designed to disaggregate the elements of the waste hierarchy and provide greater granularity.
- SA Objective 8 'To protect and enhance the sub-regions cultural heritage' – the JWMS is not site specific therefore this Objective cannot be evaluated. The implications for cultural heritage will be considered through the planning process for any proposed facilities.
- SA Objective 11 'To improve and safeguard health and wellbeing while reducing inequalities' – the appraisal criteria in the SA for this Objective relates to the management of waste and minerals sites, as the JWMS is not site specific it has been excluded from the evaluation. Such implications will be considered through the planning process for any proposed facilities.

[74] Life cycle analysis software developed by the Environment Agency

Table 31 Draft Sustainability Objectives

	Original	Suggested	Rationale	Indicator / Criteria	Type
Resource Management	To reduce waste generation;	To reduce waste generation;	Waste reduction is a key sustainability issue. Lower levels of waste will help conserve resources and lower environmental impact. Retain existing Objective.	Household waste per person (kg / person / year)	
	To support the beneficial re-use and recycling of waste;	To support the beneficial re-use and recycling of waste;	Re-use and recycling will deliver environmental benefits, and potentially provide social and economic benefits. Important reference to 'beneficial' recycling as benefit provides flexibility for considering different metrics and is consistent with WRAP's emphasis on effective recycling. Retain existing Objective.	Household waste recycling rate (%) Local Authority Collected Waste recycling rate (%)	
	To divert waste away from landfill;	To divert waste away from landfill;	Diversion from landfill is a key preference in application of the waste hierarchy and supported by UK and EU policy and guidance[75]. Retain existing Objective.	Percentage of waste to landfill (%)	
	To reduce the movement of waste and increase choice of transport mode;	To manage waste in a manner that limits transport impacts	Objective adapted to reflect the net environmental impact of some waste management options (e.g. food waste separately collected for Anaerobic Digestion) which may incur greater transport implications, but with an overall environmental benefit. This objective still retains the importance of use of cleaner fuels,	Total Collection Mileage (km) Net carbon impact of waste collection and management (GWP100 kg CO_2 eq)	 

[75] Guidance on applying the Waste Hierarchy, Defra 2011

	Original	Suggested	Rationale	Indicator / Criteria	Type
			reducing unnecessary journeys and effective logistics. Amendment broadly consistent with SA Objective 14, but reflects transport, logistics and wider environmental considerations of wastes management.		
	To improve access to waste facilities;	To improve access to waste services and facilities;	Objective adapted to reflect the role of the Councils in providing accessible collection services (e.g. kerbside recycling, bulky waste, HWRCs, etc.) and so not limiting the Objective to Infrastructure only. Amendment broadly consistent with SA Objective 15.	Qualitative accessibility / coverage assessment	
	To make better use of all resources;	To make better use of all resources;	Links clearly to the circular economy concept[7677] and the Clean Growth strategy[78]. Retain existing Objective, also consistent with SA objective 3[79].	Resource Depletion measure (Euro person equivalent) Qualitative assessment of circular economy benefits	 

[76] Industrial Strategy White Paper[76], BEIS 2017
[77] European Circular Economy Package, Tees Valley Strategic Economic Plan 2016 - 2026
[78] Clean Growth Strategy, BEIS 2017
[79] Sustainability Appraisal for the Tees Valley Joint Minerals and Waste Development Plan documents (2010)

	Original	Suggested	Rationale	Indicator / Criteria	Type
Air	To maintain good air and environmental quality for all;	To maintain and enhance good air and environmental quality for all;	Minor amendment for consistency and ambition to improve. Amendment broadly consistent with SA Objective 4.	Acidification (kg SO_2) Human Toxicity (kg 1, 4 – DCB eq.)	 
Water	To protect and enhance the quality of the sub regions controlled waters;	To protect and enhance the quality of the sub regions water resources	Objective simplified for clarity. Water resources include rivers, surface water and groundwater Amendment broadly consistent with SA Objective 5.	Freshwater Aquatic Toxicity (kg 1, 4 – DCB eq.) Eutrophication (PO_4 kg eq.)	 
Biodiversity/ Geodiversity	To protect and enhance the sub-regions biodiversity and geodiversity;	To protect and enhance the sub-regions biodiversity and geodiversity[80] (minerals & soils);	Objective still relevant. Retain existing Objective also consistent with SA objective 6.	Qualitative assessment of impact on biodiversity, geodiversity / soils	 
Landscape	To protect and enhance the quality and diversity of the rural land and landscapes;	To protect and enhance the quality and diversity of the rural land and landscapes;	Objective still relevant and links to green infrastructure policies and areas of natural beauty including the North York Moors National Park. Retain existing Objective also consistent with SA objective 7.	Qualitative assessment of impact on landscape, supported by land-take (Ha)	

[80] Geodiversity is the variety of earth materials, forms and processes that constitute and shape the Earth, either the whole or a specific part of it. Relevant materials include minerals, rocks, sediments, fossils, soils and water.

	Original	Suggested	Rationale	Indicator / Criteria	Type
Climate Change	To reduce the causes and impacts of climate change;	To reduce the causes and impacts of climate change from waste management activities;	Minor amendment related to the elements within the scope of the JWMS. Amendment broadly consistent with SA Objective 9, but reflects the scope of the JWMS.	Net carbon impact of waste collection and management (GWP100 kg CO_2 eq) Low carbon / renewable Energy generated (MWh)	 
Socio Economic	To reduce crime;	To reduce waste related crime	Minor amendment related to the elements within the scope of the JWMS and is consistent with waste sector terminology and the Environment Agency 'Right Waste, Right Place' campaign. Amendment broadly consistent with SA Objective 10 but reflects the scope of the JWMS.	Qualitative assessment of fly-tipping	
	To ensure high and stable levels of employment and economic growth;	To contribute to high and stable levels of employment and economic growth;	Minor amendment to reflect that waste management cannot 'ensure' high and stable levels of employment and economic growth Amendment broadly consistent with SA Objective 12 but reflects the relative contribution of wastes management to employment and economic growth.	Semi-qualitative assessment of employment using case studies / waste industry report for likely employment & training opportunities	
	To raise awareness of waste management generally and contribute towards a social acceptance of the waste hierarchy.	To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	Amended to emphasise the importance of positive behaviour change.	Qualitative assessment of factors that drive behaviour change	

Scenarios Assessment

It was agreed that the options would be grouped together into scenarios to highlight what could be achieved by:

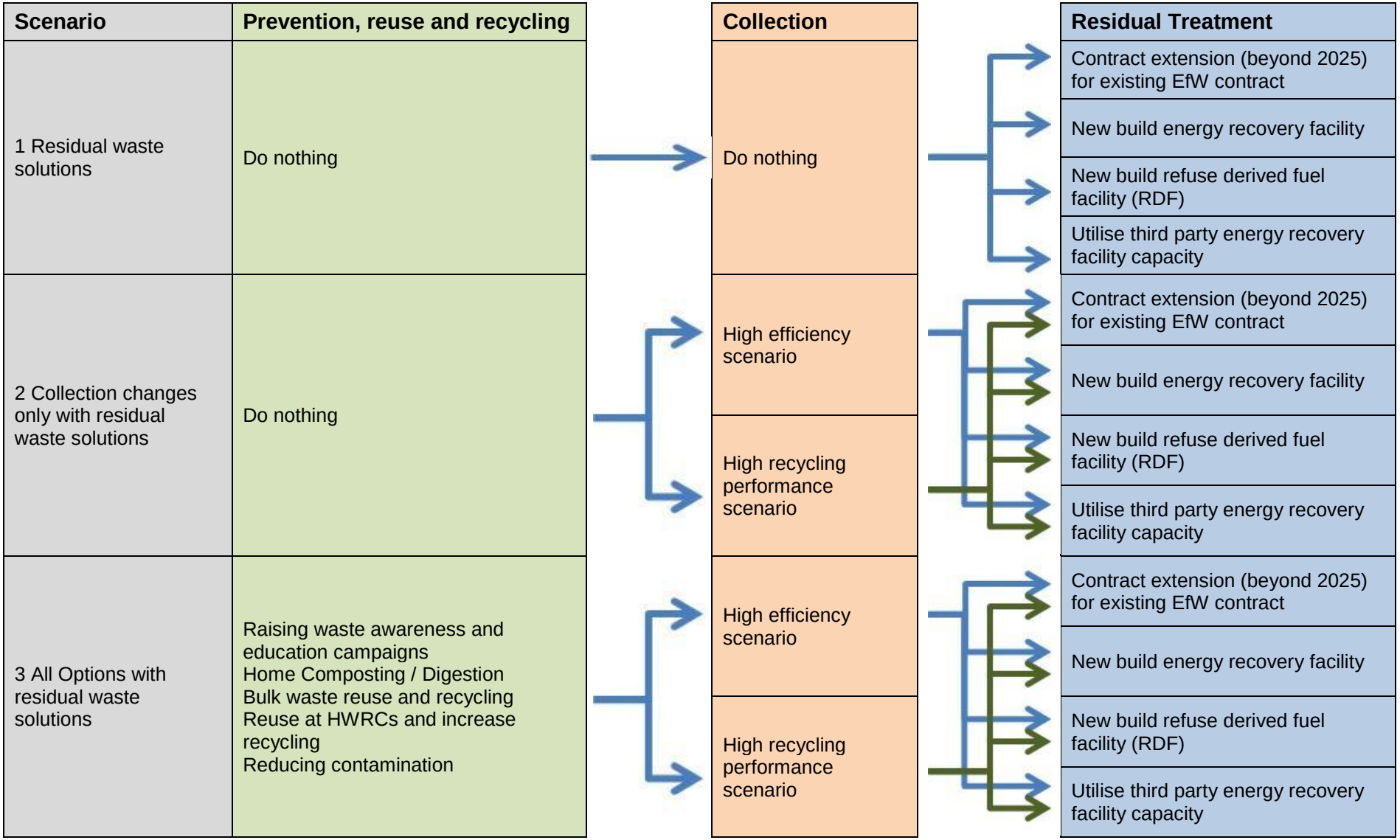
- residual waste treatment options alone;
- implementing the residual waste treatment option alongside collection changes; or
- by implementing a full range of prevention, reuse and recycling options alongside collection changes and residual waste treatment options.

This approach provided an insight into how the different waste management 'building blocks' could be arranged, what might be achieved and how the combination of variables effect the residual waste treatment options. The scenarios are summarised in Figure 12 and Table 32; this approach is broadly consistent with the approach taken in the 2008 options appraisal.

Table 32 Assessment Scenarios

Scenario	Prevention, reuse and recycling	Collection	Residual Treatment
1a	No change	No change	Contract extension (beyond 2025) for existing EfW contract (No change)
1b	No change	No change	New build energy recovery facility
1c	No change	No change	New build refuse derived fuel facility (RDF)
1d	No change	No change	Utilise 3rd party energy recovery facility capacity
2a	No change	High efficiency	Contract extension (beyond 2025) for existing EfW contract
2b	No change	High efficiency	New build energy recovery facility
2c	No change	High efficiency	New build refuse derived fuel facility (RDF)
2d	No change	High efficiency	Utilise 3rd party energy recovery facility capacity
2e	No change	High recycling performance	Contract extension (beyond 2025) for existing EfW contract
2f	No change	High recycling performance	New build energy recovery facility
2g	No change	High recycling performance	New build refuse derived fuel facility (RDF)
2h	No change	High recycling performance	Utilise 3rd party energy recovery facility capacity
3a	All measures	High efficiency	Contract extension (beyond 2025) for existing EfW contract
3b	All measures	High efficiency	New build energy recovery facility
3c	All measures	High efficiency	New build refuse derived fuel facility (RDF)
3d	All measures	High efficiency	Utilise 3rd party energy recovery facility capacity
3e	All measures	High recycling performance	Contract extension (beyond 2025) for existing EfW contract
3f	All measures	High recycling performance	New build energy recovery facility
3g	All measures	High recycling performance	New build refuse derived fuel facility (RDF)
3h	All measures	High recycling performance	Utilise 3rd party energy recovery facility capacity

Figure 12 Assessment Scenarios



5 Strategy Aims & Objectives

Key themes

The strategy aims and objectives of the revised JWMS considered a number of key themes as highlighted in Table 33 below.

Table 33 Consolidated list of themes for consideration in the revised JWMS

Key Themes	Comments
Waste prevention	Whilst these themes could be combined under the theme of the waste hierarchy, within a JWMS it is important that they are considered as individual themes. The elements of waste hierarchy will also contribute to renewable energy generation and the emerging theme of zero avoidable waste.
Reuse, recycling and composting	
Energy recovery from waste	
Landfill diversion	
Reducing the carbon impact of waste management	Covering climate change and including carbon / greenhouse gas emissions, low carbon economy, renewable energy, reducing transport impacts.
Affordability	Including value for money and the potential for delivering cost savings.
Circular economy	Encompassing resource efficiency / productivity, industrial symbiosis, developing markets for recyclable materials and sustainable procurement as a means of completing the circle.
Limiting environmental impacts and harm to human health	Including environmental protection, sustainable communities.
Reducing fly-tipping and litter	Encompassing the quality of the local amenity and contributing to green infrastructure
Managing the impact of food waste	Two very topical themes, which could be considered under different elements of the waste hierarchy but alternatively could be specific themes within the JWMS.
Managing the impact of plastic wastes	
Management of all municipal waste	With the emergence of municipal waste targets cover commercial wastes similar in nature to household waste.
Raising waste awareness and education	On-going behaviour change.

The revised strategy aims, and objectives were discussed in a workshop comprising officers and members from each of the respective Councils using the themes above and some additional elements were included in response to attendees. Economic regeneration and job creation are a priority in Tees Valley; and whilst the circular economy theme incorporates an element of resource efficiency and economic benefit, 'regeneration and job creation' should be included as a standalone theme. The potential to generate income from waste management activities is an important consideration for Tees Valley and needs to be considered in the themes. Whilst the themes cover the key policy areas, the provision of a high-quality service that encourages all residents to participate in recycling activities whilst delivering customer satisfaction is a key priority for the Councils.

The resulting draft Strategy aims and objectives from this initial consultation phase are as follows:

To deliver a high quality, accessible and affordable waste management service that:

- delivers customer satisfaction;
- reduces the amount of waste generated by householders and the Councils;
- increases reuse and recycling;
- then maximises recovery of waste, and;
- works towards zero waste to landfill;

and by doing so contributes to:

- economic regeneration, including employment and a more circular economy;
- the protection of the environment and natural resources and
- reducing the carbon impact of waste management.

6 Strategic Waste Management Options

The initial consultation phase has considered the waste treatment options that will be assessed as part of developing the JWMS. Options across the waste hierarchy are considered here in the SEA and also within the waste strategy options appraisal.

The options have been informed by the policy and legislation review, potential collection systems for the Tees Valley Waste Partnership and the ranking of themes at the workshop.

The options assessed are listed and briefly described below.

Waste Prevention and Reuse Options

Raising waste awareness and education campaigns	Various campaigns designed to raise awareness and increase participation in waste prevention and reuse activities, including: • general education and waste prevention initiatives; • general reuse initiatives • Love Food Hate Waste • Junk Mail • promoting smart shopping practices
Home Composting / Digestion	Promote home composting (or anaerobic / aerobic digestion) to reduce the demand on collection services and treatment capacity
Reuse at Household Waste Recycling Centres (HWRC)	Install facilities at HWRCs that allow members of the public to leave and collect items such as furniture. This can include awareness and promotional campaigns of the service.
Bulky Collection Reuse	Sort bulky waste collections to extract reusable goods with a view to refurbishment, reuse and resale. This can include awareness and promotional campaigns.

Recycling and Composting Options

Two primary collection scenarios will be assessed at a Tees Valley level:

'High Efficiency' scenario	Which will look at increasing dry recycling performance, through a reduction in residual waste capacity and introducing a charge for garden waste services
'High Recycling' performance scenario	Which will look at increasing dry recycling performance through introducing separate food waste collections, reducing residual waste capacity and introducing a charge for garden waste services

Alongside these primary options, the following will be assessed:

Bulky Waste Recycling	Sort bulky waste collections to extract recyclable goods in order to improve recycling performance across the councils in Tees Valley. This can include awareness and promotional campaigns of the services provided.
Reducing contamination in recycling/composting	Stronger engagement with residents to increase public understanding of the issues associated with contamination of recycling/composting collections to deliver behaviour change. Combined with tighter management of contamination across all Tees Valley councils.

Residual Waste Treatment Options

The primary waste treatment scenarios that will be assessed at the Tees Valley level are:

- Further contract extension (beyond 2025) for existing EfW contract (and MBT in the case of Darlington)
- 'New build' energy recovery facility
- 'New build' refuse derived fuel facility (RDF)
- Utilise third party energy recovery facility capacity

Options Appraisal and SEA

A JWMS requires an options appraisal to prioritise between alternative options for the purposes of service delivery, procurement and planning. The methodology for the options appraisal was discussed at officer and member workshops held in Spring 2018. The detailed appraisal considers environmental, social and economic criteria as detailed in the separate Options Appraisal Report.

Article 5.1 of the SEA Directive states:

"an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated"

Each level of the waste hierarchy is considered in sequence as recommended in the Practice Guidance for the Development of Municipal Waste Management Strategies[81].

Assessment Criteria

The twenty alternative options reflect national, regional and local government policy and were developed to reflect the needs of, and issues in, Tees Valley. The options of the draft Tees Valley JWMS have been assessed against the SEA sustainability objectives and analysed according to an impact/effect appraisal scale.

The nature of impacts will vary between the options being considered and not all measures will be relevant in each case. Impacts can be indirect, cumulative or one-off, temporary or permanent and short/medium/long term and these are discussed in Appendix 4.

Impacts against the SEA criteria are scored as to whether they exhibit a positive or a negative impact. The nature of these impacts will vary from those which have a direct impact, e.g. a waste prevention option having a direct positive impact against the waste hierarchy, to those which have a more indirect or secondary impact, such as options which may affect wider behavioural change in other environmental areas. Some elements within the Tees Valley JWMS may have synergies with others, for example introducing a new recyclate stream for collection may encourage greater participation in recycling of other recyclate streams. Other environmental effects may exhibit cumulative impacts, such as the impact of landfilling operations which may give rise to on-going impacts on climate change through release of methane over time. The nature of environmental impacts and this relatively high-level assessment means that in some cases the options considered may exhibit effects that can be described using a number of these descriptions. A combination of scores can be attributed to an objective, for example ++/-, to indicate that there are an array of factors that were considered, some major positives and some negative effects as shown in Table 34 below.

[81] 'A Practice Guide for the Development of Municipal Waste Management Strategies', DEFRA, November 2005

Table 34 Score criteria

Major positive effect	++
Some positive & major positive effects	+/++
Positive / indirect positive effect	+
Neutral effect	0
Negative / indirect negative effect	-
Negative/major negative effect	-/--
Major negative effect	--
Possible positive & negative effects	-/+
Possible neutral & positive effects	0/+
Possible negative & neutral effects	-/0
Possible neutral and major negative effects	0/--
Major positive & negative effects	++/--

Scope of the Assessment

The geographical scope of the assessment is limited to Tees Valley; however, some environmental impacts (e.g. global warming impacts) will clearly exhibit impacts wider than the area covered by the Tees Valley JWMS. The Tees Valley JWMS considers a number of options for dealing with waste in the future, activities and facilities for which will ultimately require a site(s). Sites are not identified as part of this assessment and therefore the issues of land use are assessed on a generic basis, with detailed consideration in the local development documents associated with waste planning.

The assessment combines both quantitative and qualitative approaches. The qualitative assessment is informed by technical judgement and the quantitative input has been informed by modelling work undertaken to understand the impact of technologies on recycling rates and the diversion of biodegradable waste from landfill. WRATE has been used to assess certain environmental issues, where suitable. The results of the WRATE modelling are included in Appendix 3. Generic data sources have been used to assess issues of cost and further information has been derived from the Strategy Options Appraisal document which supports the Tees Valley JWMS.

Strategy Options Assessment Matrix

For further details on the analysis, including causes, mitigations, timescales and whether there are cumulative / synergistic type impacts refer to Appendix 4.

Scenarios 1a – 1d have been assessed against the SEA objectives. Scenarios 1a models the current service with an extension to the current contract, 1b-1d models alternative waste treatment options as detailed in Table 35 below.

Table 35 Assessment for scenarios 1a-1d (Treatment & Disposal Alternatives)

SEA Objective	High efficiency collection and alternative residual waste treatment			
	1a: Contract extension only	1b: New energy recovery only	1c: New RDF only	1d: 3rd Party EfW
To reduce waste generation	0	0	0	0
To support the beneficial re-use and recycling of waste	0	0	0	0
To divert waste away from landfill	0	+	−−	+
To manage waste in a manner that limits transport impacts	0	0	0	0
To improve access to waste services and facilities	0	0	0	0
To make better use of all resources	0	0/+	+/++	0/+
To maintain and enhance good air and environmental quality for all	0	0/+	+/++	−/0
To protect and enhance the quality of the sub regions water resources	0	+	−	+
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils);	0	+	0	+
To protect and enhance the quality and diversity of the rural land and landscapes	0	0/+	−	0/+
To reduce the causes and impacts of climate change from waste management activities	0	+/++	−/ +	+/++
To reduce waste related crime	0	0	0	0
To contribute to high and stable levels of employment and economic growth	0	+	0/+	−
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	−/ +	−/ +	−/+	−/ +

Scenarios 2a – 2d have been assessed against the SEA objectives. Scenarios 2a-2d model a high efficiency collection with alternative residual waste treatment and disposal options as detailed in Table 36 below.

Table 36 Assessment for scenarios 2a-2d (High efficiency Collection + Treatment & Disposal Alternatives)

SEA Objective	High efficiency collection and alternative residual waste treatment			
	2a: High efficiency collection with contract extension	2b: High efficiency collection with new energy recovery	2c: High efficiency collection with new RDF facility	2d: High efficiency collection with 3rd Party EfW
To reduce waste generation	0/+	0/+	0/+	0/+
To support the beneficial re-use and recycling of waste	0	0	0	0
To divert waste away from landfill	0	+	--	+
To manage waste in a manner that limits transport impacts	+	+	+	+
To improve access to waste services and facilities	-/0	-/0	-/0	-/0
To make better use of all resources	0	0/+	+/++	0/+
To maintain and enhance good air and environmental quality for all	0/--	0/--	0/--	0/--
To protect and enhance the quality of the sub regions water resources	0/--	0/--	-/--	0/--
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils);	+	+	0	+
To protect and enhance the quality and diversity of the rural land and landscapes	0	0	-	0
To reduce the causes and impacts of climate change from waste management activities	0/+	+/++	0/+	+/++
To reduce waste related crime	-	-	-	-
To contribute to high and stable levels of employment and economic growth	-	0/+	0	--
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	-/ +	-/ +	-/+	-/ +

Scenarios 2e – 2h have been assessed against the SEA objectives. Scenarios 2e-2h model a high recycling collection with alternative residual waste treatment and disposal options as detailed in Table 37 below.

Table 37 Assessment for scenarios 2e-2h (High Recycling + Treatment & Disposal Alternatives)

SEA Objective	High efficiency collection and alternative residual waste treatment			
	2e: High recycling collection with contract extension	2f: High recycling collection with new energy recovery	2g: High recycling collection with new RDF facility	2h: High recycling collection with 3rd Party EfW
To reduce waste generation	0/+	0/+	0/+	0/+
To support the beneficial re-use and recycling of waste	++	++	++	++
To divert waste away from landfill	+	+	−−	+
To manage waste in a manner that limits transport impacts	-	-	-	-
To improve access to waste services and facilities	0	0	0	0
To make better use of all resources	0/+	+/++	+/++	+/++
To maintain and enhance good air and environmental quality for all	0/−−	0/−−	0/−−	0/−−
To protect and enhance the quality of the sub regions water resources	0/--	0/--	-/--	0/--
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils);	+	+	0	+
To protect and enhance the quality and diversity of the rural land and landscapes	0	0	-	0
To reduce the causes and impacts of climate change from waste management activities	0/+	+/++	+	+/++
To reduce waste related crime	-/0	-/0	-/0	-/0
To contribute to high and stable levels of employment and economic growth	+	+/++	+	0
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0/+	0/+	0/+	0/+

Scenarios 3a-3d have been assessed against the SEA objectives. Scenarios 3a-3d model a high efficiency collection with alternative residual waste treatment and disposal options with particular focus on waste prevention and reuse options as detailed in Table 38 below.

Table 38 Assessment for scenarios 3a-3d (Waste prevention / reuse, high efficiency collection and Treatment & Disposal Alternatives)

SEA Objective	Waste prevention/reuse options, high efficiency and alternative waste treatment			
	3a: Waste prevention with high efficiency collection and contract extension	3b: Waste prevention with high efficiency collection and new energy recovery	3c: Waste prevention with high efficiency collection and new RDF facility	3d: Waste prevention with high efficiency collection and 3rd Party EfW
To reduce waste generation	0/+	0/+	0/+	0/+
To support the beneficial re-use and recycling of waste	+	+	+	+
To divert waste away from landfill	0	+	--	+
To manage waste in a manner that limits transport impacts	+	+	+	+
To improve access to waste services and facilities	0	0	0	0
To make better use of all resources	0/+	+	+/++	+
To maintain and enhance good air and environmental quality for all	0/--	0/--	0/--	0/--
To protect and enhance the quality of the sub regions water resources	0/--	0/--	-/--	0/--
To protect and enhance the sub-regions biodiversity and geodiversity[1] (minerals & soils);	0	0	0	0
To protect and enhance the quality and diversity of the rural land and landscapes	0	0	-	0
To reduce the causes and impacts of climate change from waste management activities	+	+/++	+	+/++
To reduce waste related crime	0/+	0/+	0/+	0/+
To contribute to high and stable levels of employment and economic growth	-	0/+	0	--
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0/+	0/+	0/+	0/+

Scenarios 3e-3h have been assessed against the SEA objectives. Scenarios 3e-3h model a high recycling collection with alternative residual waste treatment and disposal options with particular focus on waste prevention and reuse options as detailed in Table 39 below.

Table 39 Assessment for scenarios 3e-3h (Waste prevention / reuse, high recycling and Treatment & Disposal Alternatives)

SEA Objective	Waste prevention/reuse options, high efficiency and alternative waste treatment			
	3e: Waste prevention with high recycling collection and contract extension	3f: Waste prevention with high recycling collection and new energy recovery	3g: Waste prevention with high recycling collection and new RDF facility	3h: Waste prevention with high recycling collection and 3rd Party EfW
To reduce waste generation	0/+	0/+	0/+	0/+
To support the beneficial re-use and recycling of waste	++	++	++	++
To divert waste away from landfill	+	+	--	+
To manage waste in a manner that limits transport impacts	-	-	-	-
To improve access to waste services and facilities	0/+	0/+	0/+	0/+
To make better use of all resources	+	+/++	+/++	+/++
To maintain and enhance good air and environmental quality for all	0/--	0/--	0/--	0/--
To protect and enhance the quality of the sub regions water resources	0/--	0/--	-/--	0/--
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils);	0	0	0	0
To protect and enhance the quality and diversity of the rural land and landscapes	0	0	-	0
To reduce the causes and impacts of climate change from waste management activities	+	++	+	++
To reduce waste related crime	+	+	+	+
To contribute to high and stable levels of employment and economic growth	+	+/++	+	0
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	+	+	+	+

Table 40 summaries the results of all 20 options.

Table 40 Summary assessment of all scenarios within SEA

SEA Objective	1a	1b	1c	1d	2a	2b	2c	2d	2e	2f	2g	2h	3a	3b	3c	3d	3e	3f	3g	3h
To reduce waste generation	0	0	0	0	0/+	0/+	0/+	0/+	0/+	0/+	0/+	0/+	0/+	0/+	0/+	0/+	0/+	0/+	0/+	0/+
To support the beneficial re-use and recycling of waste	0	0	0	0	0	0	0	0	++	++	++	++	+	+	+	+	++	++	++	++
To divert waste away from landfill	0	+	--	+	0	+	--	+	+	+	--	+	0	+	--	+	+	+	--	+
To manage waste in a manner that limits transport impacts	0	0	0	0	+	+	+	+	-	-	-	-	+	+	+	+	-	-	-	-
To improve access to waste services and facilities	0	0	0	0	-/0	-/0	-/0	-/0	0	0	0	0	0	0	0	0	0/+	0/+	0/+	0/+
To make better use of all resources	0	0/+	+/++	0/+	0	0/+	+/++	0/+	0/+	+/++	+/++	+/++	0/+	+	+/++	+	+	+/++	+/++	+/++
To maintain and enhance good air and environmental quality for all	0	0/+	+/++	-/0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--
To protect and enhance the quality of the sub regions water resources	0	+	-	+	0/--	0/--	-/--	0/--	0/--	0/--	-/--	0/--	0/--	0/--	-/--	0/--	0/--	0/--	-/--	0/--
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils);	0	+	0	+	+	+	0	+	+	+	0	+	0	0	0	0	0	0	0	0
To protect and enhance the quality and diversity of the rural land and landscapes	0	0/+	-	0/+	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-	0
To reduce the causes and impacts of climate change from waste management activities	0	+/++	-/+	+/++	0/+	+/++	0/+	+/++	0/+	+/++	+	+/++	+	+/++	+	+/++	+	++	+	++
To reduce waste related crime	0	0	0	0	-	-	-	-	-/0	-/0	-/0	-/0	0/+	0/+	0/+	0/+	+	+	+	+
To contribute to high and stable levels of employment and economic growth	0	+	0/+	-	-	0/+	0	--	+	+/++	+	0	-	0/+	0	--	+	+/++	+	0
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0	0	0	0	-/ +	-/ +	-/+	-/ +	0/+	0/+	0/+	0/+	0/+	0/+	0/+	0/+	+	+	+	+

7 SEA Conclusions and Mitigation

The following points are the key conclusions and mitigation issues arising from this SEA of the draft Tees Valley JWMS. The strategy seeks to improve on the baseline situation through better resource management and continued movement of waste management practices up the waste hierarchy. This is consistent with good practice in the area of municipal waste management.

Specific points arising from the assessment are:

- *Resource Management*: The draft JWMS considers improving performance on waste management activities at the top end of the waste hierarchy through prevention, re-use and enhanced recycling activity. These have strong environmental benefits against most criteria. It should be noted that significant increases in recycling performance will be required by most of the partnership authorities to deliver the potential future targets, and the strategy provides a mechanism for moving towards anticipated targets.
- *Resource Management:* A life-cycle impact approach in particular (this is where an option is scrutinised considering environmental impacts at all stages of a product from raw material extraction through manufacturing, retail, use and ultimately final waste disposal) should be considered for major waste management decisions.
- *Resource Management:* Apply good practice systems for the collection of recyclables and organics to promote high quality materials and good levels of participation.
- *Resource Management:* Where processing residual waste, through mechanical processes, seek to extract higher quality and quantity of recyclables, to improve resource efficiency and environmental performance, and optimise to reduce the reliance on landfill.
- *Resource Management:* If any charges are introduced for garden waste collections, seek to maximise the uptake of the collection and provide suitable support and good practice information for alternative approaches (e.g. encourage well implemented home composting practices). Measures should be taken to ensure that garden waste does not enter the residual waste stream (with the consequent disposal impacts).
- *Resource Management & Impacts to Water, Air, Geodiversity and Biodiversity:* Seek to utilise best practice methods in resource consumption (reducing use of raw materials and products where possible) and environmental emissions for any waste process options utilised in order to minimise the emissions impacts on the wider environment.
- *Biodiversity and Landscape:* Apply good practice in design and facility planning, in order to maintain biodiversity where possible and minimise landscape impacts of waste management infrastructure and facilities.
- *Impacts to Air:* Where new collection services are introduced, consideration should be given to optimising collection rounds / methodologies (to reduce overall mileage) and consider low / zero emission vehicles to alleviate transport and local environmental impact.
- *Impacts to Air:* Local markets for recyclate / other waste processing outputs should be considered where viable to reduce traffic and local air pollution impacts.
- *Landscape:* Whilst not a site specific or planning document, it is important that best available techniques should be adopted for waste infrastructure and that procurement, planning and permitting regimes should be rigorously applied to ensure

mitigation or prevention of impacts that could affect the natural and built landscape, biodiversity and geodiversity.

- *Climate Change:* If food waste is separately collected, there are strong climate change benefits for processing through Anaerobic Digestion (AD). For future procurement exercises AD options should be considered where viable.
- *Climate Change:* Where energy is recovered seek to utilise the heat (Combined Heat Power) to improve efficiency.
- *Socio-Economic*: Assess the potential employment benefits or changes associated with new initiatives, partnerships or services prior to planning and implementation.
- *General:* Communication based campaigns should be developed using best practice approaches that consider linkages with other initiatives to provide common 'green' messages and continuity. This can provide efficiencies in terms of costs and help simplify messages.
- *General:* Increase the awareness of the benefits of waste prevention, reuse and recycling.
- *General:* Campaigns or services targeting behaviour change should be carefully planned and implemented to avoid:
    - Negative impacts in terms of accessibility and inclusively; and
    - Unintended consequences such as fly-tipping or poorly managed home composting / digestion.
- *General:* The projected increase in the number of households within the strategy area will require appropriate planning in terms of waste management services and infrastructure.
- *General:* Improving 'in-house' waste management practice, within Councils (and their depots / offices) is an important method of 'leading by example'.
- *General:* Where new infrastructure is being developed, apply best available techniques to minimise environmental impacts and enhance positive impacts.

8 Monitoring

The areas particular sensitive to waste management operations and initiatives that should be subject to monitoring as part of the SEA process are proposed in Table 41:

Table 41 SEA Monitoring Criteria

Criteria	Unit of Measurement	Frequency of Measurement	Target / Comment	Trigger Point/s	Responsibility
Waste Arisings	Kg of collected household waste / person / annum Kg of kerbside residual waste/ household / annum	Monitored annually using Defra's Local Authority Collected Waste Statistics Monitored annually using the WRAP's Local Authority Waste and Recycling Portal[82] Analysed biennial (to take account of short term variations)	Benchmark against other Tees Valley councils and comparable local authorities to understand variations that occur.	Where waste arisings are not in line with expectations and increase beyond anticipated levels relative to the previous two-years; and this is not a trend observed in the other benchmark local authorities over the same period, the reasons should be investigated and where necessary remedial action taken.	Tees Valley councils. Responsibility for any remedial action will depend on the reason for the unanticipated changes in waste arisings.

[82] http://laportal.wrap.org.uk/

Criteria	Unit of Measurement	Frequency of Measurement	Target / Comment	Trigger Point/s	Responsibility
Recycling/ Composting	% household waste recycled / composted	Annually using Defra's Local Authority Collected Waste Statistics	Delivery of the JWMS targets on recycling and composting.	Where annual performance, committed actions and forecasts shows the progress is not in line with delivering to the JWMS targets. The causes of this should be investigated and where appropriate remedial action taken.	Tees Valley councils. Responsibility for any remedial action will depend on the reason for the failure to meet recycling / reuse ambitions.
Landfill Diversion	% of LACW landfilled	Annually using Defra's Local Authority Collected Waste Statistics	Delivery of the JWMS targets on landfill diversion	Where annual performance, committed actions and forecasts shows the progress is not in line with delivering to the JWMS targets. The causes of this should be investigated and where appropriate remedial action taken.	Tees Valley councils Responsibility for any remedial action will depend on the reason for the failure to meet landfill diversion ambitions.
Behaviour Change	Yield of 'widely recycled' materials /: kg / household	Annually using the WRAP's Local Authority Waste and Recycling Portal	Benchmark against other Tees Valley councils and comparable local authorities to understand variations that occur.	Where yield per household, committed actions and forecasts shows the progress is not in line with delivering to the JWMS targets. The causes of this should be investigated and where appropriate remedial action taken.	Tees Valley councils Responsibility for any remedial action will depend on the reason for the failure to meet anticipated yields.
Fly-tipping	FlyCapture incidents	On-going, annual reporting	Each Local Authority has a responsibility for fly-tipping. Incidents are recorded on an on-going basis.	Where incidents increase in number or severity from the preceding year, the causes should be investigated and where appropriate, remedial action undertaken.	Tees Valley councils Responsibility for any remedial action will depend on the reason for the change in the level of fly tipping

Criteria	Unit of Measurement	Frequency of Measurement	Target / Comment	Trigger Point/s	Responsibility
Local Air Quality	Annual waste collection mileage Number of low / zero emission vehicles	Biennial	Review changes in waste collection mileage taking account of changes to collection services. Uptake of low / zero emission vehicles should may a positive contribute to local air quality.	Where collection transport mileage is not in line with anticipated changes based on any changes to collection services, the strategy may not be progressing as intended and remedial action may be required	Tees Valley councils Responsibility for any remedial action will depend on the reason for the failure to achieve anticipated collection transport mileage.
Carbon Impact	Kg of CO_2 equiv.	Full WRATE analysis at strategy review (5 yearly)	Full WRATE analysis will determine position relative to baseline. The five yearly review should show substantial improvement in carbon performance.	Where the 5 yearly review does not show anticipated reduction in carbon emissions from the baseline, the strategy may not be progressing as intended and remedial action may be required.	Tees Valley councils Responsibility for any remedial action will depend on the reason for the failure to achieve anticipated carbon performance.
Impacts to Water, Air, Geodiversity and Biodiversity	Resource use (kg Sb eq.) Acidification (kg SO_2) Human Toxicity (kg 1, 4 – DCB eq.) Freshwater Aquatic Toxicity (kg 1, 4 – DCB eq.) Eutrophication (PO4 kg eq.)	Full WRATE analysis at strategy review (5 yearly)	Full WRATE analysis will determine position relative to baseline. The five yearly review should show no deterioration in the performance against the selected parameters.	Where the 5 yearly review shows changes in the selected parameters which are not consistence with the anticipated changes from the baseline and/or the anticipated performance, the strategy may not be progressing as intended and remedial action may be required.	Tees Valley councils Responsibility for any remedial action will depend on the reason for the failure to achieve anticipated performance against the selected parameters.

9 Consultation Process and Next Steps

The consultation process is designed to provide the statutory consultees (Environment Agency, Natural England, the North York Moors National Park Authority and Historic England) and the public with an opportunity to comment on the draft Strategic Environmental Assessment for the Tees Valley JWMS.

This document forms the Draft Environmental Plan, designed for external consultation, in order to: consider the content and analysis of the process as identified in this report. This follows the statutory consultation process on the scope of the SEA which took place earlier in 2018 (the responses and actions are included in Appendix 5 & 6). Any further comments on any aspect of the SEA are welcomed.

Please provide any responses or queries to:

[to be completed]

The deadline for responses is 26th November 2018

Appendices

Appendix 1 – Review of relevant Plans and Programmes

Tees Valley
Review of Waste Management Strategy, Policy and Legislation since 2008 JWMS

1 Introduction

1.1 Report Background

The purpose of this report is to

- Review relevant regulation, legislation and policy on waste management since the 2008 Joint Waste Management Strategy (JWMS);
- Review other related relevant documentation, such as the 2011 Core Strategy, Strategic Environmental Assessment (SEA);
- Review of the Councils' policies on energy, sustainability, social and economic ambitions to assess the impact of Councils' policies on the future waste manage strategy including the circular economy
- In light of any policy changes, review the principles and policies criteria established by the 2008 JWMS and test their validity as the basis for revising the JWMS and identify key themes to be considered by the Councils during the development of the revised JWMS.

1.2 Context for future policy and legislation

The UK's decision to leave the European Union does place a degree of uncertainty over the development and implementation of future environmental policy and legislation over the next few years.

However, the 25-Year Environment Plan published by Defra in January 2018 (See Section 3.2.14) makes a number of statements with regards to future environmental policy and legislation

The Forward by the Prime Minister states:

> '*When the United Kingdom leaves the European Union, control of important areas of environmental policy will return to these shores. We will use this opportunity to strengthen and enhance the protections our countryside, rivers, coastline and wildlife habitats enjoy, and develop new methods of agricultural and fisheries support which put the environment first*.'

In Section 2 on 'Putting the Plan into practice', it states:

> '*The Plan coincides with the once-in-a-generation opportunity presented by our leaving the EU. We will make the most of the chance to improve our environmental policy framework, align it with the ambitious goals we have set, and lead from the front in pursuit of higher standards across the world.*
>
> *The European Union (Withdrawal) Bill will ensure that the body of existing EU law, including environmental law, continues to hold sway in the UK. Key underlying principles of existing policy, such as the 'polluter pays' principle and the precautionary principle, are reflected in this legislation and in the historic judgements of the European Court, also covered by the Bill.*
>
> *We will be consulting on the development of a policy statement on environmental principles to underpin policy-making post-EU Exit. This will provide maximum certainty about environmental regulations as we leave the EU*.'

In addition, with regards minimising waste, the 25-Year Plan makes the commitment:

> '*meeting all existing waste targets – including those on landfill, reuse and recycling – and developing ambitious new future targets and milestones*'.

2 Review of the 2008 Joint Waste Management Strategy

2.1 Introduction

In 2008, the Tees Valley Authorities joined together to review recycling and waste issues and to develop a JWMS for the Tees Valley for the period up to 2020.

The 2008 JWMS set out a series of principles, policies and actions to deliver sustainable municipal waste management in Tees Valley.

2.2 2008 JWMS Principles, Evaluation Criteria and Policies

The 2008 JWMS used the following principles to guide the development of the most sustainable option for future waste management and inform the development of policies and actions to deliver the preferred option:

- to reduce waste generation;
- to be achievable and affordable;
- to work towards zero landfill;
- to minimise the impact on climate change;
- to have an accountable and deliverable structure;
- to contribute towards economic regeneration.

A set of Sustainability Criteria was developed to evaluate potential options, the criteria were:

- to reduce waste generation;
- to support the beneficial re-use and recycling of waste;
- to divert waste away from landfill;
- to reduce the movement of waste and increase choice of transport mode;
- to improve access to waste facilities;
- to make better use of all resources;
- to maintain good air and environmental quality for all;
- to protect and enhance the quality of the sub regions controlled waters;
- to protect and enhance the sub-regions biodiversity and geodiversity;
- to protect and enhance the quality and diversity of the rural land and landscapes;
- to reduce the causes and impacts of climate change;
- to reduce crime;
- to ensure high and stable levels of employment and economic growth;
- to raise awareness of waste management generally and contribute towards a social acceptance of the waste hierarchy.

Seven policies supported by a series of actions and individual Council Implementation Plans were developed. The policies were:

Policy 1: We will continue to work together in partnership with other stakeholders in order to ensure sustainable waste management within the Tees Valley to protect the natural environment. We will strive for sub-regional self-sufficiency and be mindful of the proximity principle.

Policy 2: We will ensure that the services delivered by the Tees Valley Authorities implement methods of sustainable waste management in line with the Waste Hierarchy.

Policy 3: We will work with partners to promote waste awareness and minimisation and encourage householders, schools and local businesses to reduce the impact of their behaviour with regards to their waste stream. We will work towards limiting the growth rate as agreed in the Regional Spatial Strategy.

Policy 4: We will increase the proportion of material that is collected for recycling and composting through kerbside schemes, bring sites and Household Waste Recycling Centres.

Policy 5: We will maximise the amount of material that is recycled, composted or recovered from the residual waste stream.

Policy 6: We will minimise the amount of waste that is disposed of in line with our principle of working towards zero waste to landfill.

Policy 7: We will regularly monitor and review this Strategy in consultation with stakeholders and the public to ensure that it links with other plans and strategies.

2.2.1 Key points for the JWMS update and review

The 2008 JWMS covers the period up to 2020, therefore if the JWMS is to support decisions beyond 2020, the JWMS needs to be reviewed/updated and a new JWMS prepared to cover the next 10-20 years.

Whilst the principle and policies within the JWMS are generally still valid, they need to be reviewed and updated to reflect changes in policy and legislation over the last 10 years. The 2008 JWMS does not set out a clear set of objectives and targets; however this may be contained within individual Councils' Implementation Plans. This is an area to consider in the review of principle and policies.

Where a plan or strategy relating to waste management sets a framework for the development of waste treatment and disposal facilities (even if not specific in terms of location) a Strategic Environmental Assessment (SEA) will generally be required. Therefore the development of a new JWMS should be supported by an SEA.

3 Waste Policy and Legislation Review

3.1 Introduction

This section provides a summary of key waste policy and legislation since the adoption of the JWMS in 2008 and the potential implications for the future Tees Valley Waste Strategy. It considers current policy and legislation and goes on to consider potential upcoming policy and legislation to identify the key themes to be considered in the development of a revised JWMS.

3.2 Key policy changes since 2008 related to waste management

3.2.1 Definition of Municipal Waste

Following discussion over a number of years with the European Commission, the UK revised its interpretation of the definition of municipal waste.

The European Commission view was that the definition of municipal waste should be based on the EU List of Wastes. It will include all waste that is coded under Chapter 20 – which is entitled "Municipal Waste (household waste and similar commercial, industrial and institutional wastes)". It will also include some waste coded under Chapter 19 which covers waste that has been through some form of treatment process (for example material that has been through an Mechanical Biological Treatment (MBT) plant that ends up in landfill). In practice this meant that the amount of waste counted as municipal waste will increase significantly and the baseline on which the landfill diversion targets are set will change for 2013/2020.

In February 2011, Defra issued clarification to remove ambiguity, which stated that future references to 'municipal waste' will refer to the European Commission interpretation and that:

- Local Authority Collected Municipal Waste (LACMW) refers to the previous 'municipal' element of the waste collected by local authorities, that is household and business waste where collected by the local authority and which is similar in nature and composition as required by the Landfill Directive.

- Local Authority Collected Waste (LACW) – This is all waste collected by the local authority and is a slightly broader concept than LACMW as it would include both this LACMW and non-municipal fractions such as construction and demolition waste. LACW is the definition that will be used in statistical publications, which was previously referred to as municipal waste.

Themes for Consideration
The scope of the JWMS needs to be considered because future European recycling and landfill diversion targets (see Section 3.4.1 European Circular Economy Package) are to be based on the wider definition of municipal waste i.e. household waste and similar commercial, industrial and institutional wastes.

3.2.2 Commercial and Industrial Waste in England - Statement of aims and actions, Defra 2009

In 2009, the Defra set out a series of aims and objectives for commercial and industrial (C&I) wastes in England. Whilst the focus was on C&I waste, a key part of the vision was to achieve a greater degree of convergence in policy between C&I waste and household waste. With this in mind it set out the following aspirations for Local Authorities with regards to C&I waste:

- Ensure (in their role as planning authorities) that there is a suitable network of facilities for the recovery and, where necessary, disposal of all types of waste;

- Consider the commercial and industrial wastes that arise in their areas and whether there are benefits in dealing with them together with similar household wastes. This applies especially to the seven priority materials identified in the England Waste Strategy (paper, food, glass, aluminium, wood, plastic and textiles);
- Ensure that what they do with business waste fits with what they do with household and other wastes;
- Be aware of the potential value of the waste materials they collect and adapt their waste collection systems so as to extract most value from those materials;
- Ensure that there is sufficient recycling collection/bring facilities for SMEs whether that be through providing a direct service or acting in a facilitating role;
- Work with Business Links and resource efficiency organisations to support and encourage businesses scale the waste hierarchy;
- Lead by example and drive demand through sustainable procurement.

Themes for Consideration
The Councils need to consider to what extent the JWMS will include provisions for C&I waste.

3.2.3 Guidance on applying the Waste Hierarchy, Defra 2011

The Waste Hierarchy guidance was produced under Regulation 15(1) of the Waste (England and Wales) Regulations 2011 and any establishment or undertaking which imports, produces, collects, transports, recovers or disposes of waste must apply the waste hierarchy and must have regard to the guidance.

The guidance summarises the waste hierarchy and what it means for a range of common materials and product, and then goes on to set out the legal obligation for business and public bodies and how to apply the waste hierarchy. The guidance on how to apply the waste hierarchy is based around the following questions:

- How can my business/public body prevent any of this waste?
- What do I currently do with my waste?
- Could it be prepared for re-use? (e.g. by sorting, cleaning)
- Could my waste/more of my waste be recycled?
- Is there anything else that could be extracted from my waste (energy or product)?

Themes for Consideration
The waste hierarchy remains a key theme for the JWMS, however since 2011 the waste hierarchy has been enshrined in English legislation rather than guidance (see Section 3.3.2)

3.2.4 UK Plan for Shipments of Waste 2012

UK Plan for Shipments of Waste sets out Government policy on shipments of waste for disposal to and from the United Kingdom. Under the Waste Shipment Regulations and the UK Plan:

- the shipment of non-hazardous wastes **to or from** the UK for disposal is prohibited (expect in specific circumstances e.g. emergency situations)
- the shipment of hazardous wastes **from** the UK for disposal is prohibited (expect in specific circumstances);
- With regards to shipments of waste for recovery there are two main policy objectives:

- to encourage international trade in waste for recovery where this is of environmental benefit in driving up levels of recovery at national, EU and global levels;

- to prevent damage to human health or the environment occurring as a result of this international trade.

Themes for Consideration
From the start of 2018, China is prohibiting the import of mixed paper ('unsorted') and also a number of plastic grades, which will affect some plastics from the municipal waste stream which have traditionally been sent to China for reprocessing.

3.2.5 Waste Management Plan for England 2013

In December 2013, Defra published a National Waste Management Plan for England to replace the Waste Strategy for England 2007, which is compliant with Article 28 of the Waste Framework Directive. The Plan is a high level document and provides an overview of waste management in England. It explains the measures that the government has already in hand and the policies currently in place, however it is not an exhaustive strategy with no new policy developments or new targets.

Themes for Consideration
Whilst the Waste Management Plan sets out policy measure, it will be replaced by a new Resources and Waste Strategy, which is expected to be published by Defra in spring/summer 2018.

3.2.6 National Policy Statement for Hazardous Waste, Defra 2013

This National Policy Statement (NPS) sets out Government policy for the hazardous waste infrastructure. It sets out the basis for granting development consent for hazardous waste infrastructure which is defined as Nationally Significant Infrastructure Project. Nationally significant infrastructure for hazardous waste covers the following types of activities and facilities:

- The construction of a landfill or a deep storage facility with a capacity of 100,000 tonnes per year or the alteration of such facilities which increase the capacity by more than 100,000 tonnes per year; or

- The construction of any other type of hazardous waste facility with a capacity of 30,000 tonnes per year or the alteration of such facilities which increase the capacity by more than 30,000 tonnes per year.

Themes for Consideration
So whilst not specifically related to the management of LACW, the NSP provides guidance to waste planning authorities when preparing Local Plans and can be a material consideration when considering applications for hazardous waste facilities under the Town and Country Planning Act 1990.

3.2.7 Prevention is better than cure - Waste Prevention Programme for England, Defra 2013

The Programme, required by the WFD, sets out the Government's view on how to reduce the amount of waste produced and presents the key roles and actions which should be taken in moving towards a more resource efficient economy. This Programme's objectives were to:

- encourage businesses to contribute to a more sustainable economy by building waste reduction into design, offering alternative business models and delivering new and improved products and services;

- encourage a culture of valuing resources by making it easier for people and businesses to find out how to reduce their waste, to use products for longer, repair broken items, and enable reuse of items by others;

- help businesses recognise and act upon potential savings through better resource efficiency and preventing waste, to realise opportunities for growth;

- support action by central and local government, businesses and civil society to capitalise on these opportunities.

The Programme sets a series of actions for central government, the wider public sector and businesses.

Central government actions include setting a clear direction, leading by doing, driving innovation and culture change, influencing other e.g. the European Commission, information and advice and developing the evidence base. One of the most notable commitments from central government with the Programme was to place mandating a five pence charge on single use plastic carrier bags in England by autumn 2015.

For local authorities, the key actions linked to the development of the JWMS are:

- **Develop a Waste Prevention Plan** - All local authorities are encouraged to have a current waste prevention plan, setting out a strategy for local action on preventing waste, which should be reviewed every six years;

- **Measure progress** - Locally-based aims and relevant indicators could be included in a Waste Prevention Plan;

- **Educate and raise awareness** - Raising the awareness of the opportunities for householders and businesses is identified as a key role for local authorities

- **Procurement practices** – designing procurement process to support low waste solutions, e.g. through the supply of refurbished or upgradeable products, and the correct amount of materials and reducing the use of disposable and single use products.

Themes for Consideration
So whilst waste prevention as part of the waste hierarchy will be an on-going priority for the Councils, the revision of the JWMS provides the opportunity for the Councils to revisit the some of the waste awareness and minimisation initiatives in the 2008 JWMS and consider embedding a waste prevention plan within the JWMS.

3.2.8 Energy from waste - A guide to the debate, Defra/DECC 2014 (revised edition)

It is government policy that efficiently recovering energy from residual waste has a valuable role to play in both diverting waste from landfill and energy generation. In 2014, the government published 'Energy from waste - A guide to the debate[83]' which aims to inform discussions and decisions relating to energy from waste for everyone who is interested in topic.

The guide highlights key environmental, technical and economic issues associated with energy from waste and identifies options that could be considered and some of the main points where decisions can be influenced.

Some key points relevant to the development of a revised JWMS are highlighted in the guide:

[83] https://www.gov.uk/government/publications/energy-from-waste-a-guide-to-the-debate

- For local authorities, the decision making process on whether energy from waste is right for their circumstances would be part of the development of their waste strategies and local plans.

- Coordination between different tiers of councils and neighbouring authorities is very important in determining if energy from waste is the best solution;

- The development and revision of local waste strategies and plans represents perhaps the most important opportunity for the local community to be engaged in the process.

- In developing waste strategies, the decision to use energy from waste should not be taken in isolation but as part of a wider appraisal of options for the full waste management process.

- Significant importance should be placed on local authorities having engagement with their communities about the need and locations for waste management infrastructure (including energy from waste) before, during and after options are selected and plans developed.

- The proximity principle and the associated issues such as the scale of a facility and catchment area of the feedstocks can have implications for any solution. Therefore '*considering them in the early stages of planning and waste policy development has the potential to deliver better overall outcomes*'

Themes for Consideration
As highlighted above government policy is that efficiently recovering energy from residual waste has a valuable role to play in both diverting waste from landfill and energy generation; and the guide goes on to identify four key principles that underpin government thinking and which should be considered as a key part of the decision making process about new energy from waste options. The four principles are:

- Energy from waste must support the management of waste in line with the waste hierarchy.

- Energy from waste should seek to reduce or mitigate the environmental impacts of waste management and then seek to maximise the benefits of energy generation.

- Government support for energy from waste should provide value for money and make a cost effective contribution to UK environmental objectives in the context of overall waste management and energy goals.

- Government will remain technology neutral except where there is a clear market failure preventing a technology competing on a level footing.

Therefore these principles should be considered as part of the JWMS development and options appraisal.

3.2.9 National Planning Policy for Waste, DCLG 2014

The Government believes that positive planning plays a pivotal role in delivering this country's waste ambitions. The National Planning Policy for Waste sets out detailed waste planning policies which aim to:

- delivery of sustainable development and resource efficiency by driving waste management up the waste hierarchy;

- ensure that waste management is considered alongside other spatial planning concerns recognising the positive contribution that waste management can make to the development of sustainable communities;

- provide a framework in which communities and businesses are engaged with and take more responsibility for their own waste, in line with the proximity principle

- help to secure the re-use, recovery or disposal of waste without endangering human health and without harming the environment; and

- ensuring the design and layout of new development and infrastructure complements sustainable waste management, including the provision of appropriate storage and segregation facilities to facilitate high quality collections of waste.

Its sets out policies, which all local planning authorities should have regard to when discharging their responsibilities:

- using a proportionate evidence base;

- identify need for waste management facilities;

- identifying suitable sites and areas; and

- determining planning applications for both waste and non-waste development

The Tees Valley Councils prepared Minerals and Waste Development Plan Documents (DPDs) in 2011, to bring together planning issues on minerals and waste the Tees Valley area. Two DPDs were produced:

- Core Strategy DPD, which contains the long-term spatial vision and the strategic policies, including specific policies on waste management ; and

- Policies and Sites DPD, which identifies specific sites for minerals and waste development and sets out policies which will be used to assess minerals and waste planning applications.

Themes for Consideration
The options appraisal for the JWMS needs to consider the policies and site allocations within the Minerals and Waste DPDs.

3.2.10 Fly-tipping Partnership Framework, National Fly-Tipping Prevention Group (chaired by Defra), 2014

Fly-Tipping Partnership Framework provides practical advice on how to prevent and tackle the problem of fly-tipping. It sets out a combination of voluntary and non-binding principles and options around best practice that may be used directly or adapted by local groups and partnerships to tackle fly-tipping in a way that suits local circumstances.

The Framework recognises that tackling fly-tipping needs a range of central Government, local government and stakeholder interventions if it is to be successful.

Themes for Consideration
It may be appropriate to consider some objectives around fly-tipping in the revised JWMS.

3.2.11 Litter Strategy for England, Defra 2017

The strategy sets out how the government will work with communities and businesses to reduce litter between now and 2020. The strategy intends to achieve this through '*good infrastructure and clear social expectations, supported by proportionate enforcement, will help reinforce social pressure on everyone to do the right thing*'. Key measures include:

- new Regulations giving local councils the power to fine the keeper of vehicles from which litter is thrown;

- government to publish improved guidance for local councils on their enforcement functions;

- producing new guidance on “binfrastructure” (the design, number and location of public litter bins and other items of street furniture) for local areas to help them reduce levels of litter.

Themes for Consideration
As with fly-tipping, it may be appropriate to consider some objectives around litter in the revised JWMS.

3.2.12 Clean Growth Strategy, BEIS 2017

The aim of the Clean Growth Strategy[84] (CGS) is to grow national income while cutting greenhouse gas emissions. The strategy sets out policies and proposals that aim to accelerate the pace of ‘clean growth’, i.e. deliver increased economic growth and decreased emissions, and achieve the commitments in the Climate Change Act of reducing greenhouse gas emissions by at least 80% by 2050 when compared to 1990 levels.

The CGS highlights that the UK has achieved significant results in the power and waste sectors in hitting the UK’s carbon budgets, with the large reduction in waste being sent to landfill contributing to significant falls in emissions. In addition, the waste sector helped to generate 14% of UK renewable electricity in 2015, enough to power 2.3 million homes.

Key policies and proposals in the strategy related to waste management include:

- Work towards our ambition for zero avoidable waste85 by 2050, maximising the value extracted from resources, and minimising the negative environmental and carbon impacts associated with their extraction, use and disposal;
- Publish a new Resources and Waste Strategy to make the UK a world leader in terms of competitiveness, resource productivity and resource efficiency;
- Explore new and innovative ways to manage emissions from landfill
- Innovation: Invest £99 million in innovative technology and research for agri-tech, land use, greenhouse gas removal technologies, waste and resource efficiency

There is also an ambition to reduce waste, with actions to divert more food waste than ever before from landfill, to support resource productivity and avoid further emissions by preventing food waste in the first place. There is an ambition to work towards no food waste entering landfill by 2030.

With regards to waste to energy, the government plans to work with the waste sector to ensure that different waste materials going into energy recovery processes are treated in the best possible way, to minimise environmental impact and maximise their potential as a resource.

The CGS also highlights the importance of local leadership in driving emissions reduction through policy on land, buildings, water, waste and transport.

Themes for Consideration
The CGS raises a number of themes that the Councils may wish to consider in the development of the revised JWMS, including:

- zero avoidable waste by 2050
- no food waste to landfill by 2030

[84] https://www.gov.uk/government/publications/clean-growth-strategy

[85] Zero avoidable waste equates to eliminating all waste where it is technologically, environmentally and economically practicable to do so

- the use of low emission vehicles for refuse and recycling collection fleets

In addition, it highlights the recurring themes of resource productivity and resource efficiency.

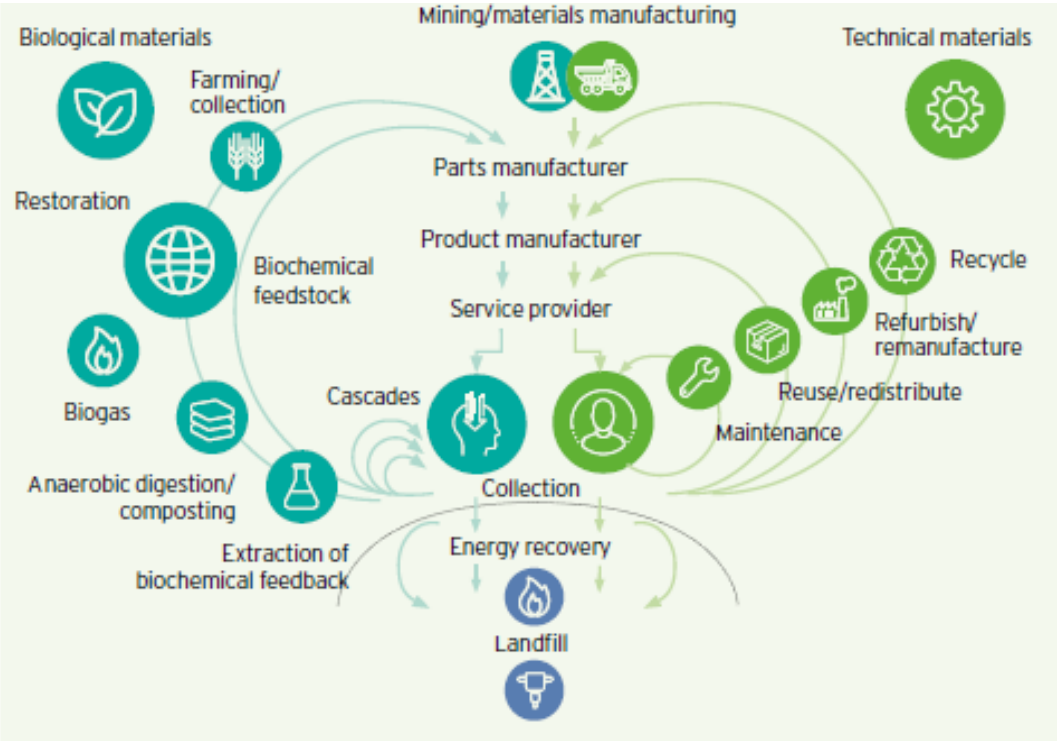
3.2.13 Industrial Strategy White Paper[86], BEIS 2017

The Industrial Strategy sets out how the UK can build '*a Britain fit for the future'*, which is focused on helping businesses create better, higher-paying jobs with investment in the skills, industries and infrastructure of the future. It aims to boost productivity and earning power across the country by focusing on 5 foundations:

- ideas;
- people;
- infrastructure;
- business environment; and
- places;

Whilst waste management is not a major theme within the Industrial Strategy, the concept of the circular economy is highlighted, with a commitment '*to moving towards a more circular economy*[87] *– to raising productivity by using resources more efficiently, to increasing resilience by contributing to a healthier environment, and to supporting long-term growth by regenerating our natural capital'*. (see Figure 3.1)

Figure 3.1: Diagrammatic representation of the Circular Economy from the Industrial Strategy White Paper 2017



[86] White papers are policy documents produced by the Government that set out their proposals for future legislation.

[87] The circular economy replaces extraction and waste with restoration and regeneration. Products, components and materials are reused in ways that maintain their utility and value as they move through biological and technical cycles, Industrial Strategy White Paper

Themes for Consideration
It goes on to highlight a number of specific measure related to waste management in the circular economy, which again highlight a number of themes that the Councils may wish to consider in the development of the revised JWMS:

- raising the resource productivity of businesses, including through the promotion of recycling and strong secondary materials markets where products are designed with efficiency and recyclability in mind;
- working in partnership with food businesses '*from farm to fork*', through the Courtauld Commitment to deliver a 20 per cent per capita reduction in food waste by 2025;
- continually strengthening our policies in line with our national ambitions of zero avoidable waste and a doubling of resource productivity by 2050,

3.2.14 A Green Future: Our 25 Year Plan to Improve the Environment, Defra 2018

The 25-Year Environment Plan[88] sets out '*goals for improving the environment, within a generation, and leaving it in a better state than we found it'*. It sits alongside the Industrial Strategy and the Clean Growth Strategy, which means there are a number of common themes across the three documents.

- The Plan sets out ten 25-year goals, two of which are specifically related to waste management:
- Using resources from nature more sustainably and efficiently; and
- Minimising waste

The 25-Year Plan identifies six areas around which actions will be focused and whilst effective waste management has a role to play across all areas, it is area 4 on resource efficiency and waste, which has the greatest implications for the revised JWMS:

- Using and managing land sustainably;
- Recovering nature and enhancing the beauty of landscapes;
- Connecting people with the environment to improve health and wellbeing;
- Increasing resource efficiency, and reducing pollution and waste;
- Securing clean, productive and biologically diverse seas and oceans;
- Protecting and improving the global environment.

The 25-Year Plan goes on to set specific goals and targets under each area, the goals and targets under '*Increasing resource efficiency, and reducing pollution and waste*' are:

- Working towards our ambition of zero avoidable waste by 2050;
- Working to a target of eliminating avoidable plastic waste by end of 2042;
- Meeting all existing waste targets – including those on landfill, reuse and recycling – and developing ambitious new future targets and milestones;

[88] https://www.gov.uk/government/publications/25-year-environment-plan

- Seeking to eliminate waste crime and illegal waste sites over the lifetime of this Plan, prioritising those of highest risk. Delivering a substantial reduction in litter and littering behaviour;

- Significantly reducing and where possible preventing all kinds of marine plastic pollution – in particular material that came originally from land.

Themes for Consideration
The 25-Year Plan sets a series of commitments and actions to help deliver the goals and targets related to resource efficiency and waste. Table 3.1 summarises the commitments and actions that have potential implications for local authority polices and the management of LACW and are themes that the Councils may wish to consider in the development of the revised JWMS.

Table 3.1: Commitments and actions specifically related to resource efficiency and waste in the 25-Year Environment Plan

Goal / Target	Commitments / Actions	Potential Implications
Maximising resource efficiency and minimising environmental impacts at end of life	Commitment to working towards a goal of zero avoidable waste by 2050 and doubling resource productivity.	Change to collection systems and residual waste composition
	Commitment to supporting comprehensive and frequent waste and recycling collections which protect local amenity and ensure that products are recycled as much as possible, returning high quality materials back to the economy.	Change to collection systems and residual waste composition
Meeting all existing waste targets	Developing ambitious new future targets and milestones	Higher recycling and landfill diversion targets see European Circular Economy Package (Section 3.4.1)
Achieving zero avoidable plastic waste by end of 2042	Reforming our Producer Responsibility systems to create a better market for recycled plastic.	Greater market security for recycled plastic
	Removing all consumer single use plastics from the central government estate offices	Action adopted / extended to local government
	Extending 5p plastic bag charge / refill points to top-up water bottles for free / plastic-free supermarket aisles	Change to collection systems and residual waste composition
	Accelerate the shift to consistent materials collection by local authorities, following the WRAP's Framework for Greater Consistency.	Change to collection systems and residual waste composition
	Working with the waste management industry and re-processors to significantly increase the proportion of plastic packaging that is collected and recycled.	Change to collection systems and residual waste composition
Reducing food supply chain emissions and waste	Continuing to work closely with WRAP, food businesses, local authorities and other organisations to meet Courtauld 2025.	Increased focus on food waste prevention and recycling
	Working towards no food waste entering landfill by 2030	Change to collection systems and residual waste composition
Reducing litter and littering	Continue to implement the Government's Litter Strategy for England	See Litter Strategy for England, Defra 2017 (Section 3.2.11)
	Introducing new regulations to improve local authorities' enforcement powers, supported by new guidance on its proportionate use.	

Goal / Target	Commitments / Actions	Potential Implications
Improving management of residual waste	Exploring different infrastructure options for managing residual waste beyond electricity, including the production of biofuels for transport and emerging innovative technologies.	Selection of future residual waste technologies
	Looking at ways to increase the use of heat produced at waste facilities through better connections to heat networks.	Selection and location of future residual waste technologies
	Investigating ways to cut carbon dioxide emissions from EfW facilities by managing the amount of plastics in the residual waste stream.	Change to residual waste composition
Cracking down on fly-tippers and waste criminals	Taking a partnership approach to deal with the issue with industry, regulators and local authorities.	Increased focus on fly-tipping

3.2.15 A European Strategy for Plastics in a Circular Economy, European Commission 2018

The European Commission has published a Europe-wide strategy on plastics as a part of the transition towards a more circular economy. The key provisions, which mirror initiatives in the Defra 25-Year Environment Plan, are:

- **Make recycling profitable for business:** New rules on packaging will be developed to improve the recyclability of plastics used on the market and increase the demand for recycled plastic content. With more plastic being collected, improved and scaled up recycling facilities should be set up, alongside a better and standardised system for the separate collection and sorting of waste across the EU.
- **Curb plastic waste:** Under the new plans, all plastic packaging on the EU market will be recyclable by 2030 and the consumption of single-use plastics will be reduced.
- **Stop littering at sea**: New rules on port reception facilities to tackle sea-based marine litter, with measures to ensure that waste generated on ships or gathered at sea is not left behind but returned to land to be managed.
- **Drive investment and innovation**: Guidance for national authorities and European businesses on how to minimise plastic waste at source.
- **Spur change across the world:** Work with partners from around the world to develop global solutions and international standards.

Themes for Consideration
The strategy highlights the increasing focus on the use of plastic and the management of plastic waste. It highlights an important theme for the revised JWMS; however measures are likely to be picked up through the Defra 25-Year Environment Plan and forthcoming Resources and Waste Strategy.

3.3 Key legislative changes since 2008 related to waste management

3.3.1 Waste and Emissions Trading (WET) Act 2003

The WET Act was a measure the Government used to meet the demands of the EU Landfill Directive. It introduced progressively tighter restrictions on the amount of BMW local authorities could landfill. The Act put in place a system whereby the Government allocated a specified amount of 'landfill allowances' to each WDAs each year, know as Landfill Allowance

Schemes[89], As waste is a devolved power England, Wales, Scotland and Northern Ireland implemented their own measures through regulation and there were variations in the final approach adopted in the different countries.

In England, Landfill Allowance and Trading Scheme (LATS) allowed WDAs to trade any surplus allowances. However, as part of the Government's review of waste policy in England in June 2011, it announced that LATS in England would end at the end of the 2012/13 scheme year. This was because while LATS had been effective in kick starting significant efforts to divert waste away from landfill, the rising level of Landfill Tax means it is now by far the more significant driver. The Waste and Emissions Trading Act 2003 (Amendment etc.) Regulations 2013 brought the landfill allowances trading scheme to an end in England.

Themes for Consideration
So whilst the diversion of waste from landfill will be an on-going priority through measure such as the waste hierarchy, Defra's 25-Year Environment Plan and potential through the European Circular Economy Package, there is no longer a statutory duty for local authorities to divert prescribed quantities of biodegradable waste from landfill.

3.3.2 The Waste (England and Wales) Regulations 2011

The Waste (England and Wales) Regulations 2011 implemented a number of measures set out in the 2008 EU Waste Framework Directive (WFD) and amended existing waste legislation through the following measures:

- enshrined the waste hierarchy within English legislation rather than guidance;
- required by 2015, the separate collection of waste paper, metal, plastic and glass, where technically, environmentally and economically practicable and appropriate to meet the necessary quality standards for the relevant recycling sectors, and prohibits mixing of those wastes once separately collected.
- set out the scope for national WMPs;
- required businesses to confirm that they have applied the waste management hierarchy when transferring waste, and include a declaration on their waste transfer note or consignment note;
- introduced a two-tier system for waste carrier and broker registration, including a new concept of a waste dealer;
- made amendments to hazardous waste controls;
- excluded some categories of waste from waste controls such as waste waters which are covered by the Urban Waste Water Treatment Directive.

In addition the WFD sets new recycling targets to be achieved by the Member States by 2020, including recycling rates of 50% for household and similar waste, and 70% for construction and demolition waste. However this requirement was not set in legalisation and there was not statutory recycling target set for local authorities.

Themes for Consideration
The application of the waste hierarchy is a statutory duty for all local authorities and businesses and therefore needs to remain a primary focus of the revised JWMS.

[89] Note the provisions of the WET Act and the Landfill Allowance Schemes apply/applied to Local Authority Collected Municipal Waste (LACMW) and not the new wider definition of municipal waste

3.3.3 The Waste (England and Wales) (Amendment) Regulations 2012

The revised WFD wording states '*Member States shall take measures to promote high quality recycling and, to this end, shall set up separate collections of waste where technically, environmentally and economically practicable and appropriate to meet the necessary quality standards for the relevant recycling sectors'*. DEFRA initially clarified with the European Commission that both kerbside sorted collections and co-mingled collection with subsequent separation at material recycling facilities (MRFs) can qualify as "separated collection" under the revised WFD, provided they result in materials of sufficiently high quality to be recycled. Resulting in Regulation 13(2) of the Waste (England and Wales) Regulations 2011 stating:

> *'For the avoidance of doubt, co-mingled collection (being the collection together with each other but separately from other waste of waste streams intended for recycling with a view to subsequent separation by type and nature) is a form of separate collection.'*

However, there were legal challenges to how the Waste (England and Wales) Regulations 2011 transposed the WFD requirements. The regulations were amended in June 2012, 'to ensure proper transposition' of the WFD, following the publication of "Guidance on the interpretation of key provisions of Directive 2008/98/EC on waste" by the European Commission.

The revised Regulation 13 places a duty on all WCAs to ensure that arrangements for the collection of waste paper, metal, plastic or glass, are by way of separate collection, where doing so is:

- "necessary to ensure that waste undergoes recovery operations in accordance with Articles 4 and 13 of the Waste Framework Directive and to facilitate or improve recovery" (the 'Necessity Test'); and
- "technically, environmentally and economically practicable" (the 'Practicability' or 'TEEP Test').

The Judicial Review that consider the transposition of the WFD requirements, subsequently concluded that '*so far as the Article 11(1) obligation is concerned, that has been properly transposed into domestic law by the amended Regulation 13 of the 2011 Regulations*'

No guidance on the application of the amended Regulation 13 was published by Defra, so to support local authorities, guidance known as the Waste Regulations Route Map, Figure 3.2, was developed on behalf of a working group comprising members of local authority waste networks (coordinated through the Waste Network Chairs), the London Waste and Recycling Board (LWARB) and WRAP. The Route Map is intended to help local authorities that collect waste to understand their legal obligations under the Regulations and provides an overview of the suggested process for local authorities to follow to achieve compliance.

Figure 3.2: Waste Regulations Route Map

The Welsh Government published the Collections Blueprint that identifies the Welsh Government's preference for kerbside sort based collection. In addition, in November 2014, it published "Statutory Guidance on Separate Collection of Waste Paper, Metal, Plastic and Glass"

The enforcement authorities are the EA, NRW, SEPA and NIEA and both NRW and SEPA have made clear statements about their views on the co-mingling of glass and paper:

- NRW: "avoid fully co-mingled collection systems which include both paper and glass"
- SEPA: "fully comingled collection systems which include both paper and glass together must be avoided"

In addition, Lord de Mauley, the Parliamentary Under Secretary at Defra, sent a letter to local authority on the separate collection of waste paper, metal, glass and plastic in 2013. In the letter there were the following statements about the separate collection of glass:

'*I am aware that co-mingled metal and plastic are relatively easy to separate at a MRF. However, at present many of our existing MRFs struggle to keep glass shards out of the paper stream. In addition many MRFs produce low quality mixed glass which needs further sorting and can be uneconomic to re-smelt.*'

and

'*Any local authorities considering new collection or disposal plans should take care to ensure that they are placing themselves in a position to fulfil their legal duties from 2015. This is particularly important for local authorities who may be considering moving away from separate collection, or including glass within a co-mingled stream.*'

Themes for Consideration
Therefore in revising the JWMS, the Councils need to carefully consider how they meet the requirements for the separate collection of paper, metal, glass and plastic through collection and processing systems.

3.3.4 Controlled Waste Regulation 2012

The Regulations classify waste as household waste, industrial waste or commercial waste for the purposes of Part 2 of the EPA 1990, which including LA duties and powers under Section 45 and 46 of EPA 1990.

The main provisions of the Regulations are contained in Schedule 1, which needs to be read with Section 75 of the EPA 1990, and set out the classification of waste as household, industrial or commercial. The different paragraphs in the Schedule set out different classifications:

- Paragraph 2 describes waste which is to be classified according to its place of production.
- Paragraph 3 describes waste which is to be classified according to its nature or the activity producing it.
- Paragraph 4 prescribes household waste for which a collection charge may be made and specifies household waste which is to be treated as commercial waste only for the purposes of charging for disposal.

Themes for Consideration
In revising the JWMS, the Councils may wish to consider policies related to charging for certain household waste streams, if this is the case the requirements set out in Paragraph 4 of Schedule 1 need to be considered.

3.3.5 Materials Recovery Facilities (MRF) Codes of Practice and associated regulations, 2014

The MRF Codes of Practice are designed to provide better information on the material flows and quality of material both received at and output from MRFs.

MRFs processing more than 1,000 tonnes of mixed waste per annum have to test the composition of samples of the material they put into the sorting process, and the useable output, and report the results on a quarterly basis. The type/size of samples and sampling frequency are specified and operators need to report the following information each reporting period:

Input Material

- the total weight in tonnes of mixed waste material received;
- the total number of samples taken ;
- the total weight in kilogrammes of all samples taken;
- the average percentage composition of target glass, metal, paper and plastic in the samples;
- the standard deviation of the average percentage composition of target materials in the samples; and
- the average percentage composition levels of target materials, non-target material and non-recyclable materials in the samples.

Output materials

- the total weight in tonnes of the specified output material that leaves the MRF, as a minimum identified by grade of glass, metal, paper or plastic;
- the total weight in tonnes of mixed waste material sent to other MRFs to be separated into specified output materials, and the names of these facilities;
- the total weight in tonnes of residual (all other) waste that leaves the MRF, and details of where it has been sent;
- the total number of samples taken for each specified output material (glass, metal, paper or plastic);
- the total weight in kg of all samples taken for each specified output material, as a minimum identified by grade of glass, plastic, metal or paper;
- the average percentage of target materials, non-target materials and non-recyclable materials by grades of glass, metal, paper or plastic in the samples;
- the average percentage of all samples by reference to grades of glass, metal, paper and plastic; and
- the standard deviation of the average percentage composition levels for the target materials found in all the samples.

There requirements were implemented by the Environmental Permitting (England and Wales) (Amendment) Regulations 2014

Themes for Consideration

Whilst the requirements relate to the operator of MRFs, it highlights the evermore important themes of recyclable material quality.

3.3.6 Landfill Tax

The Landfill Tax came into force in October 1996, introduced by the Finance Act 1996. It imposed a duty on landfill based on the weight of waste to be deposited, with the tax being collected at licensed landfill sites. The rates of tax depend on the type of waste sent for disposal. In April 2008 the annual Landfill Tax escalator for the standard rate (active waste) was increased from £3 per tonne to £8 per tonne, increments resulting in a tax of £48 per tonne by 2010/11. In the 2009 Budget it was announced that the landfill tax for active wastes would to increase by £8 per tonne on 1 April each year from 2011 to 2013.

In the 2014 Budget, it was announced that:

- increases in the standard and lower rates of Landfill Tax would be in line with inflation (based on Retail Prices Index (RPI)) rounded to the nearest 5p on or after 1 April 2015;' and
- there will be a floor under the standard rate, so that the rate will not fall below £80 per tonne from April 2014 to April 2020.

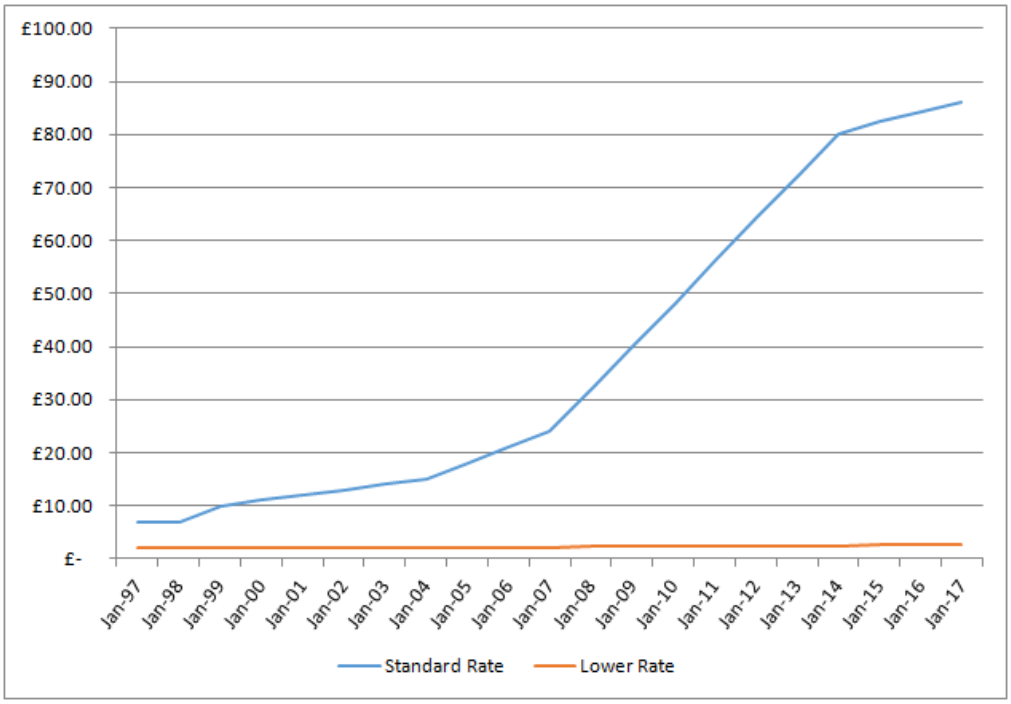
The landfill tax is currently (as of April 2017):

- Standard rate: £86.10 per tonne
- Lower rate: £2.70 per tonne

Figure 3.3 shows the changes in the rate of Landfill Tax from 1997 to 2017.

Themes for Consideration
The Landfill Tax is likely to remain as one of the primary measures to encourage the diversion of waste from landfill; however future levels are likely to be related to the achievement of any targets adopted on the diversion of food from landfill and zero avoidable waste.

Figure 3.3: Changes in the rate of Landfill Tax, 1997-2016



3.4 Upcoming Policy / Legislation

3.4.1 European Circular Economy Package

The circular economy is an alternative concept to the traditional linear economy (make, use, dispose) in which:

- resources are kept in use for as long as possible;
- the maximum value extracted from them whilst in use; and
- products and materials are recovered and regenerated at the end of each service life.

The European Commission has adopted a Circular Economy Strategy, Closing the loop, which is designed to stimulate Europe's transition towards a circular economy which in turn will boost global competitiveness, foster sustainable economic growth and generate new jobs.

The Commission's Circular Economy package proposes amendments to six EU Directives with the aim of improving resource efficiency and creating a more circular economy resulting in major economic, environmental and social benefits. The key elements of the revised waste proposal include:

- A common EU target for recycling 65% of municipal waste by 2030;
- A common EU target for recycling 75% of packaging waste by 2030;
- A binding landfill target to reduce landfill to maximum of 10% of all waste by 2030;
- A ban on landfilling of separately collected waste;
- Promotion of economic instruments to discourage landfilling;
- Simplified and improved definitions and harmonised calculation methods for recycling rates throughout the EU;
- Concrete measures to promote re-use and stimulate industrial symbiosis - turning one industry's by-product into another industry's raw material;
- Economic incentives for producers to put greener products on the market and support recovery and recycling schemes (e.g. for packaging, batteries, electric and electronic equipment and vehicles).

The proposed changes that are likely to have the greatest impact on local authority waste and recycling services are those related to the Waste Framework Directive (WFD) and the Landfill Directive.

Proposed WDF Amendments
There are three key proposed amendments to the WFD:

- **Alignment of definitions**: The amendments seek to ensure there are common definitions used across Europe and to that end have added a definition of municipal waste in Article 3, which will be used for the new recycling targets set out in Article 11. To add clarity to what is reported as recycled, Member States will need to report the amount of materials that is "effectively recycled", which will be based on the input to the "final recycling process".

  A definition of "final recycling process" is added to the Directive, which defines it as "recycling process which begins when no further mechanical sorting operation is needed and waste materials enter a production process and are effectively reprocessed into products, materials or substances". While this could reduce the quantity that contributes to the recycling rate, it is likely that recycling rates will be reported basis on the output from the final facilities prior to the "final recycling process" and process losses from the "final recycling process" will not be deducted from recycling tonnages.

In addition, the preamble to the Directive indicates that materials handled by deposit-refund schemes and metals recycled from incineration processes will count towards the recycling targets. However, it is unclear if the recycling of incinerator bottom ash (IBA) will count towards the targets.

- **Increasing recycling targets**: Two new recycling targets are added to Article 11, namely:
    - by 2025, the preparing for re-use and the recycling of municipal waste shall be increased to a minimum of 60% by weight;
    - by 2030, the preparing for re-use and the recycling of municipal waste shall be increased to a minimum of 65% by weight.
    - In additional, the new rules for calculating the recycling performance are inserted with the aim of harmonising the calculation of recycling rates. The key points in the new rules are:
    - the re-use and recycling targets are for municipal waste, so Member States will no longer be able report using household waste recycling performance;
    - it is the weight of waste entering the final recycling process, however outputs from any sorting operation can be used if they are sent to a final recycling process and the rejects from the final recycling process are less than 10%;
    - waste exported outside the EU for recycling can only count towards recycling if there is '*an effective system of quality control and traceability of the municipal waste'*, exporters can prove waste movements are in accordance with the Waste Shipment Regulations and the treatment of waste takes place "in conditions that are equivalent to the requirements of the relevant Union environmental legislation".

- **Requirement to separately collect bio-waste**: There is a new Article 22 related to bio-waste, which requires the separate collection of bio-waste for recycling "where technically, environmentally and economically practicable and appropriate to ensure the relevant quality standards for compost". Although there is no specified date by which such collections need to be implemented. One of the stated aims of the separate collection of bio-waste is to prevent the contamination of dry recyclable materials. The recycling of bio-waste includes composting and digestion.

  The Directive does not differentiate between food waste and other bio-waste in terms of separate collection, which means the current requirements in the Food Waste Regulations (Northern Ireland) 2015 go beyond the future WFD requirements.

Proposed Landfill Directive Amendments

The European Commission aims to limit landfill and move waste management practices away from the bottom of the waste hierarchy. This is reflected in the following statement in the preamble to the amended Directive, "a progressive reduction of landfilling is necessary to prevent detrimental impacts on human health and the environment and to ensure that economically valuable waste materials are gradually and effectively recovered through proper waste management and in line with the waste hierarchy".

There are two key amendments to the Landfill Directive:

- Additional landfill bans: Article 5(3) of the Directive bans certain wastes from landfill, the proposed amendments extend this list to include separately collected recyclable materials and separately collected bio-waste.

- Limiting quantities landfilled: The amended Directive seek to limit further the amount of municipal waste that can be landfilled. The current measures relate to limiting the amount of biodegradable waste landfilled, the proposed amendment aims to limit the total amount of municipal waste landfilled by setting the following target:

- by 2030 the amount of municipal waste landfilled is reduced to 10% of the total amount of municipal waste generated.

In December 2017, following much debate between Member States, the European Commission and representatives of the European Parliament, provisional agreement was reached on the revisions WDF Directive and the new recycling targets. So whilst the 65% recycling rate for municipal waste has been retained, the timescale for its achievement has been extended with:

- a 55% recycling target for municipal waste by 2025
- a 60% recycling target for municipal waste by 2030; and
- a 65% recycling target for municipal waste by 2035.

In addition, the 10% limit on the landfilling of municipal waste has been retained but it is also to be achieved by 2035 rather than 2030.

Themes for Consideration
The adoption of these municipal waste recycling targets provides a clear direction of travel for the level of LACW recycling that might be required in the future. However as highlighted in the introduction, how and if these specific measures are to be adopted in England is unclear at present as a result of the decision to leave the European Union. Therefore, the Councils will need to consider the level of ambition and commitment to recycling they may wish to adopt in the revision of the JWMS.

3.4.2 Resources and Waste Strategy, Defra

A new Resources and Waste Strategy is expected to be published by Defra in spring/summer 2018. Defra's stated ambition is for the UK to '*become a world leader in resource efficiency, resource productivity and increasing competitiveness*'. Recently published government strategy documents provide an indication of focus of the Resources and Waste Strategy.

The CGS states that the new Resources and Waste Strategy will seeks to maximise resource productivity, reduce waste in our energy and resource systems, promote well functioning markets for secondary materials and incentivise producers to design better products. The strategy will focus on three key areas:

- Maximising resource productivity - through more efficient manufacturing processes
- Maximising the value we get from resources throughout their lifetimes - by designing products more smartly to increase longevity and enable recyclability
- Managing materials at end of life – by targeting environmental impacts

The 25-Year Environmental Plan has a stated action of:

- Publishing a new Resources and Waste strategy in 2018 aimed at making the UK a world leader in resource efficiency. It will set out our approach to reducing waste, promoting markets for secondary materials, incentivising producers to design better products and how we can better manage materials at the end of life by targeting environmental impacts.

Themes for Consideration
The content of new Resources and Waste Strategy should provide some clear policy direction for the revised JWMS, so when it is published its content needs to be carefully considered. A number of the key themes have already been identified and can be incorporated in the JMWS development at this time, however the progress of the Resources and Waste Strategy and reflected in the JMWS when published.

3.4.3 National Infrastructure Commission (NIC) - Waste Infrastructure Analysis

The NIC is required to outline a strategic vision over the next 30 years for the UK's long-term economic infrastructure needs and to set out recommendations for how identified needs should be met. A central responsibility of the NIC is to carry out a National Infrastructure Assessment every five years.

In October 2017, the NIC published a consultation on the priorities for national infrastructure and highlighted them as Congestion, Capacity and Carbon. It identified a key priority as '*Low-cost, low-carbon: ending emissions from power, heat and waste*'.

The NIC has stated that there is a gap between existing Government policies and achieving the UK's emission targets. In addition, it highlights that energy from waste infrastructure has provided a more sustainable alternative to high-carbon forms of generation such as coal-fired power stations but that efficiency improvements will be needed to maintain this advantage. It goes on to highlight some potential efficiencies which include:

- siting energy from waste plants where the heat, as well as the electricity, produced could be used, or
- separating plastics from the input to energy from waste facilities and sequestrating it; and
- other technologies, such as anaerobic digestion, could also play a role, particularly if the biogas produced can be used as an alternative to fossil fuels for transport.

It also highlights a central element will be to ensure that producers are incentivised to reduce packaging but notes that the current producer responsibility system needs '*supporting policies such as recycling targets and the landfill tax*'.

Therefore the NIC needs to identify the best value infrastructure investment strategy that helps the UK deliver its carbon reduction and waste management commitments whilst balancing the economic, environmental and social benefits against the costs of different separation and treatment/disposal pathways.

As part of the National Infrastructure Assessment, the NIC has commissioned a Waste Infrastructure Analysis that will map material (and waste) flows in the household and commercial and industrial sectors through the UK waste system, highlighting capacity and potential capacity gaps. The analysis is considering '*a series of feasible separation options over the defined horizon*', which include:

- the separation of food waste from the residual stream in England;
- the separation of all biodegradable waste from the residual stream; and
- the separation of plastics/fossil content from the residual waste stream.

Themes for Consideration
National Infrastructure Assessment and Waste Infrastructure Analysis are due to be published in 2018 and will inform government thinking, so the areas highlighted in the NIC consultation potential provide an indication of the direction of travel with respects to government thinking on energy from waste and material separation.

4 Policies on energy, sustainability, social and economic ambitions

4.1 Introduction

This section provides a summary of key Council policies related to energy, sustainability, social and economic ambitions and any potential implications for the future Tees Valley Waste Strategy[90]. It considers a range of policy documents provided by the Councils to identify potential themes to be considered in the development of a revised JWMS.

4.2 Tees Valley

4.2.1 Tees Valley Climate Change Strategy 2010 2020

The Climate Change Strategy is based on the vision of '*creating prosperous and resilient communities in a low carbon economy*'.

The main aim of the Strategy is to support the reduction of greenhouse gas emissions by 20% by 2020 through actions such as reducing energy consumption, minimising road transport, reducing domestic energy consumption, and lowering industrial and commercial emissions. It also has a focus on adaptation, advising the participating organisations on how to cope with, and adapt to the future effects of climate change.

The Strategy highlights the role of industrial symbiosis which is based on the principle that waste from one organisation becomes feedstock for another, so saving operational costs while diverting material from landfill and reducing carbon emissions. Industrial symbiosis is a principal component of the 'circular economy' concept. It goes on to highlight that one key area for economic growth in the Tees Valley is better resources management and the extraction of value from 'waste' and that there is a large opportunity to develop low carbon industries that recover value from 'waste' and improve symbiosis between existing Tees Valley industries and technologies.

The Strategy highlights the contribution of recycling and landfill diversion as key areas that contribute to greenhouse gas emissions reductions and the carbon benefits of composting. The Strategy supported the EU Waste Framework Directive recycling target and the importance of promoting the concept of the waste hierarchy as the most effective way of cutting emissions from the waste sector.

Themes for Consideration
The key theme of the document is climate change mitigation and adaption. However there are a number of specific themes for consideration in the development of the JWMS: increased waste prevention and recycling, increasing landfill diversion, reducing transport impact, industrial symbiosis (circular economy) and sustainable resource management.

4.2.2 Tees Valley Strategic Infrastructure Plan 2014

The Tees Valley Strategic Infrastructure Plan sets out Tees Valley's infrastructure strengths, barriers to growth and key strategic priorities and major projects. It considers the five infrastructure themes:

- Transport;
- Utilities;

[90] Planning policies are considered in the Site Selection Assessment

- Flood risk & surface water management;
- Energy; and
- Broadband.

The Strategy does not specifically address resource and waste management but it does recognise the importance of a low carbon economy and reducing carbon emissions.

Themes for Consideration
The themes within the Strategy with links to the JWMS are a low carbon economy and reducing carbon emissions.

4.2.3 Tees Valley Strategic Economic Plan 2016 - 2026

The ambition of the Tees Valley Strategic Economic Plan is for Tees Valley to become a high value, low carbon, diverse and inclusive economy and it set a target to create 25,000 net jobs by 2026. It identifies a number of key sectors where there is potential and opportunity to create these jobs.

The 'circular economy' is a central theme within the Strategic Economic Plan, Figure 4.1, and it provides some indicative activities related to the application of the circular economy for businesses and public bodies, including:

- specialist mentors to advise on product/ process re-engineering;
- demonstration projects to test new products/processes; and
- supply chain support to promote the sourcing/sale of recycled raw materials.

Figure 4.1: Representation of the Circular Economy for the Strategic Economic Plan

It goes on to highlight two particular features of a circular economy, which are reflected in Tees Valley priorities:

- Foresight design: Examining all aspects of production and then looking at related opportunities for the use and reuse of by-products, waste and heat; and

- Integration: Circular economies are most effective when based on integrated industrial locations, where industries producing heat, by-products and waste, together with agricultural production, combine with communities to provide opportunities for other industrial processes and enterprises, co-located to maximise collaboration. Wilton in Redcar is one of only a limited number of super-integrated locations, capable of dealing with heavy production and managing the environmental issues.

In addition, the Strategic Economic Plan has an aim to introduce new processes and practices which reduce carbon emissions, whilst increasing productivity and the availability of high value jobs.

Themes for Consideration
The principal themes within Strategic Economic Plan related to the revised JWMS are the circular economy and a low carbon economy.

4.3 Darlington

4.3.1 'One Darlington: Perfectly Placed' - 'Sustainable Community Strategy 2008-2016, May 2014 revision

The Sustainable Community Strategy is designed to create and maintain a good quality of life for everyone who lives in Darlington and make Darlington the best possible place to live and work. It has a number of outcomes related to improving quality of life for all and reducing inequality by providing:

- children with the best start in life;
- more businesses and more jobs;
- a safe and caring community;
- more people caring for our environment;
- more people active and involved;
- enough support for people when needed;
- more people healthy and independent and;
- a place designed to thrive.

The outcomes will be delivered by three principal actions: building strong communities; growing the economy; and spend every pound wisely.

With regards to the environment, the strategy recognises the challenge of protecting and enhancing the environment whilst reducing the cost to the public purse of maintaining it.

In terms of resource and waste management, it identifies the need to:

- minimise the total waste sent for reprocessing to reduce processing costs;
- further reduce the amount of waste sent to landfill to approximately 20%;
- reduce the cost of waste collection;
- protect and enhance the borough's green infrastructure, as an integral component of sustainable development and not to sacrifice it to economic growth.

It also identified some actions with relevant to the JWMS, namely

- to implement the Green Infrastructure Strategy

- to ensure the environment counts in, and contributes to, regeneration and development projects and programmes;
- to implement a new household waste collection regime based on alternative weekly collections aimed at reducing collection and processing costs, waste minimisation and increased recycling rates;
- to continue to promote sustainable travel to reduce CO2 emissions; and
- for households to take responsibility for reducing the amount of waste they generate, and reusing or recycling more materials.

Themes for Consideration
The key theme of the document is sustainable communities. However there are a number of specific themes for consideration in the development of the JWMS: increased waste prevention and recycling, increasing landfill diversion, reducing transport impacts and delivering value for money and cost savings.

4.3.2 Darlington's Green Infrastructure Strategy and Action Plan 2013-2026

The Green Infrastructure Strategy sets out different green infrastructure priorities for different parts of Darlington so that those involved in promoting green infrastructure can add value to the Borough's unique environment. It translates national, sub regional and local strategies into the following local objectives:

- creating a quality, distinctive landscape and townscape;
- providing a connected network for wildlife to live, breed and migrate;
- continuing to improve off road green leisure routes and public rights of way;
- improving the outdoor sport, recreation and play network;
- creating a diverse and economically productive landscape that provides for a more competitive, profitable, sustainable and resilient farming and food sector;;
- minimising the impact of climate change by using green infrastructure;
- engaging partners and promoting initiatives to manage and maintain open spaces.

The strategy as a series of specific priority actions associated with the objectives, one which clearly links to the JWMS:

'*to reduce greenhouse gas emissions and minimise the use of resources*'

The Green Infrastructure Action Plan highlights that this action will be delivered through the priority actions of the Darlington Climate Change Action Plan and the new Local Plan.

The Green Infrastructure Strategy and Action Plan is supported by a guide that provides detailed information on the different priorities for those promoting green infrastructure in each part of the Borough as well as for those who will manage and maintain them.

Themes for Consideration
The key theme of these documents is to develop and enhance the green infrastructure across Darlington and whilst the development of waste management infrastructure needs to take account of green infrastructure, this will primary be achieved through the planning process. However the theme of reducing greenhouse gas emissions and minimise the use of resources is an important consideration for the JWMS.

4.3.3 Darlington Climate Change Action Plan 2009-2010

The vision of the Darlington Climate Change Action Plan is to reduce Darlington's contribution to climate change and to minimise the adverse impacts of climate change on Darlington's community. The Action Plan sets emissions reduction targets, for the period 2012-2030, the long term minimum target is to reduce CO_2 emissions by 27% which is an annual reduction target of 1.5%.

With respects o resource and waste management, the Plan sets a series of action about reducing the carbon impact of waste management:

- Increase household recycling rate;
- Monitor recycling rates for trade waste;
- Investigate the collection of paper waste from schools in the Borough;
- Consider fuel type when purchasing new refuse vehicles;
- Work with the supermarkets to encourage a reduction in the use of carrier bags and plastic containers;
- Work with Groundwork to investigate the development of community composting schemes;
- Campaign and awareness raising about the impact of food waste;
- Implement 'Making Waste Work' Communications Strategy.

Themes for Consideration
The key theme for consideration in the JWMS is the reducing the carbon impacts of waste management, achieved by increased recycling, reduced vehicle emissions and awareness raising about the impact of food waste.

4.4 Hartlepool

4.4.1 Hartlepool Borough Council Sustainability Policy 2012

The policy states that the Council will strive to ensure that environmental, community, economic and global aspects are considered alongside the intergenerational impacts of policy and service delivery. In addition there is a commitment to reduce carbon emissions from the Borough by at least 20% by 2020.

Themes for Consideration
The key theme for consideration in the JWMS is how effective waste management can contribute to reducing reduce carbon emissions.

4.4.2 Hartlepool's Ambition, The Sustainable Community Strategy for Hartlepool 2014 – 2020

The log-term ambition of the Strategy is that:

> '*Hartlepool will be an ambitious, healthy, respectful, inclusive, thriving and outward-looking community, in an attractive and safe environment, where everyone is able to realise their potential*.'

The strategy reiterates the commitment in the Sustainability Policy and with regards to waste management it refers to the Tees Valley Joint Waste Management Strategy as a means of delivering long-term ambitions.

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4.4.3 Procurement Strategy & Policy document 2015 – 2018

The document included the Council's Sustainable Procurement Policy Statement, which includes makes commitments to:

- consider the costs and benefits of environmentally and socio-economically preferable goods/services
- consider environmental and socio-economic risks to the organisation and endeavour to continually improve performance related to sustainability in the supply chain; and
- specify, wherever possible and practicable, the use of goods which are environmentally friendly

Themes for Consideration
Sustainable procurement is a theme for consideration in the JWMS.

4.4.4 Carbon Reduction and Climate Change, Regeneration Services Committee July 2017

The Council has been exploring the potential for '*Hartlepool Council sets a strategic goal of being carbon neutral by 2020'*. Environmental modelling and a financial business case has been undertaken and the outcomes reported to the Regeneration Services Committee in July 2017. The conclusions were that based on the Councils' emissions profile and the energy efficiency status of their building stock there are no realistic options available to achieve carbon neutrality by 2020. The report recognises that the Council does however need move toward a low / zero-carbon future by using a combination of methods and initially should consider reducing CO_{2e} emissions and not just offset them by increasing alternative energy production. The recommendation was to explore and develop a strategy to deliver carbon neutrality within an achievable 20 to 30 year timescale.

4.4.5 Draft Clean & Green Strategy for Hartlepool 2017 – 2020

The vision of the strategy is '*to create a cleaner, greener, town with everyone taking part and which everyone can take pride in'.* Specific elements related to resource and waste management include:

- ensuring streets and public spaces are free from litter, fly-tipped materials and clinical waste; and
- policies which ensure the protection and management of the natural environment
- a Household Waste Recycling Centre remains available for public use.
- household waste and recycling material is collected efficiently.
- chargeable waste collection services are offered including tailored trade waste services to businesses and a bulky waste service for households to remove large unwanted items.

Themes for Consideration
The key themes for consideration in the JWMS are litter and fly-tipping, effective collection services and environmental protection.

4.5 Middlesbrough

4.5.1 Middlesbrough's Climate Change Community Action Plan 2010-2020

Middlesbrough Climate Change Community Action Plan aims to involve all sectors of the community in reducing greenhouse gas emissions in Middlesbrough and suggests the following targets:

- A minimum target to reduce Middlesbrough's CO2 emissions by 21% by 2020 based on a 2005 baseline.
- An aspirational target to reduce Middlesbrough's CO2 emissions by 31% by 2020 based on a 2005 baseline.
- A long term target to reduce Middlesbrough's CO2 emissions by 80% by 2050 based on a 2005 baseline.

With respect to waste management's contribution to the targets, a 50% recycling target for household waste and a 5% reduction in the amount of waste sent to landfill, are set as actions. It also sets aspirational goals

- To increase the number of business that put in place programmes to reduce the amount of waste produced.
- To investigate the potential for renewable energy and heating schemes within Middlesbrough.

Themes for Consideration
The key theme for consideration in the JWMS is the reducing the carbon impacts of waste management through increased recycling and landfill diversion and renewable energy generation.

4.5.2 Sustainability Statement 2012

The Sustainability Statement sets Middlesbrough's commitment to sustainability, which is based on ten guiding principles of '*One Planet Living*'[91]. Of the ten guiding principles there are five which are linked to resource and waste management:

- Zero Carbon: Making buildings more energy efficient and delivering all energy with renewable technologies.
- Zero Waste: Reducing waste, reusing where possible, and ultimately sending zero waste to landfill.
- Sustainable Transport: Encouraging low carbon modes of transport to reduce emissions, reducing the need to travel.
- Sustainable Materials: Using sustainable, healthy products with low embodied energy, sourced locally, made from renewable or waste resources.
- Local and Sustainable Food: Choosing low impact, local, seasonal and organic diets and reducing food waste.

The Statement commits the Council to take One Planet Living priorities into account when developing and delivering services.

[91] created by international charity Bioregional

Themes for Consideration
The key themes for consideration in the JWMS are reducing the carbon impacts of waste management, reducing waste including food waste, increasing recycling and landfill diversion, using materials made from renewable or waste resources and delivering all energy with renewable technologies.

4.5.3 One Planet Middlesbrough Action Plan 2017 – 2025

One Planet Middlesbrough (OPM) Action Plan is built on the ten guiding principles of '*One Planet Living*' set out in Middlesbrough's Sustainability Statement. The Action Plan sets out a series of priority actions and outcomes associates with each of the ten guiding principles. The key actions and outcome related to waste management are summarised in the Table 4.1.

Table 4.1: Summary of key actions and outcome relevant to waste management from the OPM Action Plan

<table>
<tr><th colspan="3">Zero Carbon</th></tr>
<tr><td>Long Term Outcomes</td><td colspan="2">Work towards a carbon neutral energy management system for Council buildings</td></tr>
<tr><th colspan="3">Zero Waste</th></tr>
<tr><td colspan="2"><u>Priority Actions</u>
Deliver a comprehensive annual programme of education to further improve performance on waste minimisation
Continue to develop the Street Champion project to improve Back Alleys
Continue the promotion of the Recycling Reward Scheme.</td><td><u>Outcomes</u>
Reduce waste sent for final disposal
Engagement with school pupils across Middlesbrough
Reduce the amount of waste sent to landfill
Increase the amount of waste recycled
Increase the number of residents participating in the recycling scheme
Encourage and enable positive waste management and recycling behaviour</td></tr>
<tr><td>Medium Term Outcomes</td><td colspan="2">Deliver annual work programme of waste minimisation education, promotion of recycling and education on sustainability, all linked to the Council's waste management strategy
Increase to 95% the proportion of office waste from Council offices and buildings, including confidential wastes, batteries, WEEE materials, which is recycled
Ensure that the new waste disposal contract provides the infrastructure required for Middlesbrough organisations to follow a trajectory towards zero waste by 2025
Contribute to the review of the Tees Valley Waste disposal contract</td></tr>
<tr><td>Long Term Outcomes</td><td colspan="2">Incorporate into the new waste disposal contract measures to reclaim, recycle and compost at least 70% of domestic waste by 2025
Coordinate measures to reduce to 2% the proportion of waste generated by Middlesbrough Council which is sent to landfill</td></tr>
<tr><th colspan="3">Sustainable Materials</th></tr>
<tr><td colspan="2"><u>Priority Actions</u>
Work with each Outcome area in order to understand sustainable materials in their procurement
Continue to review and update procurement policies and procedures</td><td><u>Outcomes</u>
Provides a comprehensive understanding of impacts of procurement activities relating to the One Planet Living sustainability principle
Procurement evaluation process, incorporating assessment of sustainability criteria, used throughout the Council for all appropriate contracts</td></tr>
</table>

	Reduce the procurement of unsustainable resources Enforces positive sustainable purchasing habits across the organisation Consideration of all sustainable materials when procuring goods and services
Medium Term Outcomes	Ensure sustainability principles are applied to the delivery of all services commissioned by the Council Maximise the re-use and recycling of materials that the Council uses Provide information and advice on sustainability criteria for purchasing decisions Maximise reuse and recycling of materials used in the delivery of Council services whilst ensuring only healthy and no-toxic materials are utilised which are, where possible, from sustainable sources. Provide information and guidance on the need to reduce consumption and choose low impact goods Reduce procurement of unsustainable resources
Long Term Outcomes	Minimising the use of non-recycled and new goods and materials in order to significantly reduce the environmental impact of the delivery of services provided by the authority.
Local and Sustainable Food	
Priority Actions Undertake measures to reduce food waste in schools	

There are annual reviews of the OPM Action Plan, which highlight project that have delivered sustainable environmental, economic and social improvements across Middlesbrough.

Themes for Consideration
The key themes for consideration in the JWMS mirror those sent out in Middlesbrough's Sustainability Statement: reducing the carbon impacts of waste management; reducing waste including food waste; increasing recycling and landfill diversion; using materials made from renewable or waste resources; and delivering all energy with renewable technologies.

4.6 Redcar and Cleveland

4.6.1 The Redcar & Cleveland Way - Redcar and Cleveland Polices 2010

In 2010, Redcar and Cleveland Borough Council produced a series of policy statements related to the environment and sustainability. Relevant elements of each of the policies are summarised below:

Our Environment Policy
The policy highlights that 'Reducing our Carbon Footprint' is a key corporate objective and goes on to set out other specific commitments:

- Climate change: Deliver wide ranging carbon reduction initiatives through our Carbon Management Programme to achieve a 40% reduction in emissions from our own operations by 2014.
- Manage resources sustainably: Provide staff and residents with facilities to manage resources efficiently so that we reduce, reuse, recycle and recover value from waste where possible.
- Cleaner, safer and greener environment: Ensure the principles of sustainable development are embedded in the core strategy and local development documents; protect the distinctiveness of our natural and built environments; and clean our streets by reducing levels of graffiti, litter, fly posting and fly tipping.

Our Carbon Management Policy
The principal policies are to:

- ensure that carbon reduction and sustainability is embedded in our planning and approaches to delivering all of our services; and
- inspire staff to integrate carbon management into our everyday activities, including council policy and business planning.

There are also commitments to develop plans to use more sustainable methods of transport, including electric vehicles and increased use of biofuels and leading by example to reduce the Borough's CO_2 emissions.

Our Climate Change Policy
The policy sets out the commitment to reduce Council's carbon emissions by 40% by December 2014 and to work with partners to reduce the Borough's greenhouse gas CO_2 emissions by 20% by 2020. The policy also aims to:

- promote and install renewable energy technology where practical in our building portfolio and encourage renewable technologies across our partners and communities; and
- ensure the services we deliver and the policies we adopt take account of predicted changes to our climate and implement adaptation measures where appropriate

Our Energy and Affordable Warmth Policy
The Council is committed to becoming a leading local authority for sustainable energy use and to promote the importance of good energy management for the economic, social and environmental well-being of the communities in the Borough. In addition there is a commitment to:

- increase the proportion of our energy produced from renewable resources to 10% by 2020.

Our Sustainable Procurement Policy
The policy sets out the Council commitment to promote sustainable procurement practices and policies, recognising that there is a balance to be achieved between the conflicting issues of environmental, economic and social values. Specific measure including:

- reviewing consumption of goods and services to reduce usage where is feasible
- considering whole life costs not just initial purchase price when awarding contracts
- extending sustainability improvements throughout the supply chain
- investigate any opportunities for the recycling and re-use of materials where appropriate

Themes for Consideration
Sustainability, climate change and environmental protect are clear themes running through these polices. In addition, sustainable procurement, waste prevention, recycling, resource use and renewable energy are themes for consideration in the JWMS.

4.6.2 Redcar & Cleveland's Sustainable Environment Strategy 2011 – 2016

The vision for the Sustainable Environment Strategy is to achieve a positive approach to environmental improvement; encouraging people and communities to achieve a high quality and sustainable living environment. The Strategy sets out a package of policies and actions, developed by the Council and its partners, to raise awareness, change behaviour and deliver environmental improvement across the Borough.

Specific objectives relate to the JWMS included:

- to minimise the Borough's impact on climate change and the impact of climate change on the Borough;
- to minimise the level of pollution to air, water and land;
- to increase recycling and minimise waste, while maintaining service quality;
- to improve the management of resources including energy and water.

The action areas for environmental improvement are identified under four themes with 14 priority area or action set out under the following themes:

- Climate Change and Air Quality
    - Climate change
    - Air quality
- Natural Environment
    - Biodiversity
    - Geodiversity
    - Trees and woodland
    - Conservation
- Built Environment
    - Urban land management
    - Historic environment
    - Clean and Green
- Resource Use
    - Transport
    - Waste
    - Water
    - Environmental Management
    - Energy Management

There were specific actions relate to the continuous improvement in waste management practices:

- to raise public awareness of waste minimisation through events and campaigns;
- to measure customer satisfaction of waste management; and
- to investigate options for maximising waste for re-use and recycling from Council's own waste stream

Themes for Consideration
The key themes for consideration in the JWMS include climate change, pollution prevention, waste prevention and recycling and improved the management of resources.

4.6.3 'this is Our Flourishing Future' - Corporate Plan for Redcar & Cleveland towards 2020

The Corporate Plan sets out the Council's top priorities up to 2020 and under the priority of '*Clean and Safe Environment*' there are commitments related to environmental and waste management:

- develop new ways to manage our increasing waste to lessen impact on the environment and reduce the costs of disposal;
- work with the community to change attitudes to cleanliness and littering;

- reduce carbon emissions in the Borough to minimise our impact on global warming and climate change.

Two of the key indicators to track improvement and measure the overall health and wellbeing of the Borough are linked to the JWMS:

- Recycling rate; and
- Carbon emissions

Themes for Consideration
Alongside the common themes of lessening environmental impact of waste and climate change, this is a commitment to reduce the costs of disposal.

4.7 Stockton-on-Tees

4.7.1 Climate Change Strategy for Stockton-on-Tees 2016 – 2021

The vision for the Climate Change Strategy is to achieve a healthy, vibrant and successful low carbon community, resilient to the challenges of climate change and resource pressures. The Strategy sets three targets for emissions reduction:

- Reduce greenhouse gas emissions from Stockton-on-Tees Borough Council activity by 21% on 2014/15 levels by March 2020
- Reduce total greenhouse gas emissions from Stockton-on-Tees borough 18% on 2013 levels by March 2020
- Reduce per capita greenhouse gas emissions from Stockton-on-Tees borough by 21% on 2013 levels by March 2020.

However the role of effective waste management in delivering the visions and the targets is not specifically highlighted, although there is an accompanying Environment Policy (see below).

Themes for Consideration
The principal theme is climate change; however, there is no linkage between climate change and waste management sent out in the Strategy.

4.7.2 Environment Policy Stockton-on-Tees Borough Council 2017

The policy sets out the Council's vision and commitments on the environment. The visions is '*to make Stockton-on-Tees Borough a better place to live and a more attractive place to do business with clean streets, well maintained parks and open spaces, affordable and desirable housing'*.

There are a number of commitments related to resource and waste management:

- Continue to divert the majority of household waste from landfill to an Energy from Waste alternative;
- Continue to promote and raise awareness of kerbside recycling;
- Purchase products and services in accordance with the Social Value Policy;
- Repeats the climate changes targets in the Climate Change Strategy;
- Embed principles of sustainable development in local development documents of the Local Plan and any Local Development Documents produced;
- Protect and enhance biodiversity and deliver improved green infrastructure.

Themes for Consideration
Sustainability, climate change and reducing the carbon impacts of Council services and improved recycling and landfill diversion/ recovery of energy form residual waste are clear themes running through these policies, all of which are themes for consideration in the JWMS.

Local Strategic Flood Risk Assessments

The Strategic Flood Risk Assessments for each local authority are listed below.

- Stockton – (2010)
- Hartlepool – (2010)
- Middlesbrough – (2013)
- Darlington – (2010)
- Redcar – (2010)

5 Summary of Potential JWMS Themes

The themes identified through the policy and legislation review have been collated to identify key themes to be considered by the Councils during the development of the revised JWMS.

A summary of the themes identified within each document reviewed is provided in Appendix 1. However, a number of the themes overlap or use slightly different terminology but have similar means. Therefore, Table 5.1 collates and combines such themes to provide a consolidated list of themes for consideration as part of developing the revised JWMS.

Table 5.1: Consolidate list of themes for the consideration in the revised JWMS

Key Themes	Comments
Waste prevention	Whilst these themes could be combined under the theme of the waste hierarchy, within a JWMS it is important that they are considered as individual themes. The elements of waste hierarchy will also contribute to renewable energy generation and the emerging theme of zero avoidable waste.
Reuse, recycling and composting	
Energy recovery from waste	
Landfill diversion	
Reducing the carbon impact of waste management	Covering climate change and including carbon / greenhouse gas emissions, low carbon economy, reducing transport impacts.
Affordability	Including value for money and the potential for delivering cost savings.
Circular economy	Encompassing resource efficiency / productivity, industrial symbiosis, developing markets for recyclable materials and sustainable procurement as a means of completing the circle.
Limiting environmental impacts and harm to human health	Including environmental protection, sustainable communities.
Reducing fly-tipping and litter	Encompassing the quality of the local amenity and contributing to green infrastructure
Managing the impact of food waste	Two very topic themes, which could be considered under different elements of the waste hierarchy but could be specific themes within the JWMS.
Managing the impact of plastic wastes	
Management of all municipal waste	With the emergence of municipal waste targets cover commercial wastes similar in nature to household waste.
Raising waste awareness and education	On-going behaviour change.

Appendix 2: Summary of key themes

Themes	Tees Valley 2008 JWMS	Definition of Municipal Waste	Defra C&I Statement	Guidance on applying the Waste Hierarchy	UK Plan for Shipments of Waste	Waste Management Plan for England	Waste Prevention Programme for England	Energy from waste - A guide to the debate	National Planning Policy for Waste	Fly-tipping Partnership Framework	Litter Strategy for England	Clean Growth Strategy	Industrial Strategy White Paper	25-Year Environment Plan	European Strategy for Plastics	The Waste (England and Wales) Regulations 2011	The Waste (England and Wales) (Amendment) Regulations 2012	Controlled Waste Regulation 2012	MRF Codes of Practice	Landfill Tax	European Circular Economy Package	Waste Infrastructure Analysis	Tees Valley Climate Change Strategy 2010	Tees Valley Strategic Infrastructure Plan 2014	Tees Valley Strategic Economic Plan 2016 -	'One Darlington: Perfectly Placed' - 'Sustainable Community Strategy	Darlington's Green Infrastructure Strategy and Action Plan 2013-	Darlington Climate Change Action Plan	Hartlepool Borough Council Sustainability Policy 2012	Procurement Strategy & Policy document 2015 – 2018	Draft Clean & Green Strategy for Hartlepool 2017 – 2020	Middlesbrough's Climate Change Community Action Plan 2010-2020	Middlesbrough Sustainability Statement	One Planet Middlesbrough (OPM) Action Plan 2017 - 2025	The Redcar & Cleveland Way - Redcar and Cleveland Polices 2010	Redcar & Clevelands Sustainable Environment Strategy 2011 - 2016	'this is Our Flourishing Future' - Corporate Plan for Redcar & Cleveland	Climate Change Strategy for Stockton-on-Tees 2016 - 2021	Environment Policy Stockton-on-Tees Borough Council 2017
Affordability	X														X			X		X																		
Carbon / greenhouse gas emissions												X												X			X	X	X					X	X	X	X	X	X
Circular economy													X								X				X											X	X	X	X
Climate change	X			X								X											X											X	X	X	X	X	X
Cost savings																										X										X			
Economic development / regeneration	X																																						
Energy recovery from waste	X			X				X						X		X									X													X
Environmental protection / limiting environmental impacts	X							X						X																X					X			
Fly-tipping / litter										X	X			X																X					X			
Food waste													X	X								X						X						X	X			
Industrial symbiosis																							X															
Landfill diversion	X			X								X		X		X					X		X			X												
Low carbon economy																								X	X														
Management of municipal waste		X	X																																				
Markets for recyclable materials					X								X						X																				
Plastic wastes														X	X							X																	
Product design													X																										
Reducing transport impacts																							X			X		X										
Renewable energy generation																																X	X	X	X				
Resource efficiency / productivity											X	X	X	X													X												
Reuse, recycling and composting	X			X										X	X	X				X	X		X			X		X			X	X	X	X	X	X	X	X	X
Separate collection of recylables																	X				X	X																	
Sustainable communities																										X													
Sustainable procurement																															X			X	X	X				X
Sustainable resource / waste management	X																						X											X	X	X	X			X
Value for money								X																		X													
Waste awareness							X																					X											
Waste prevention	X			X			X					X	X		X								X			X							X	X	X	X			
Zero waste / zero avoidable waste												X	X																										

Appendix 3: WRATE results

The WRATE (Waste and Resources Assessment Tool for the Environment) software developed by the Environment Agency was used to perform a life cycle analysis for the baseline and alternative scenarios (primarily the collection and residual treatment options). WRATE is applied to assess environmental impacts of waste management activities during their whole life cycle. The model incorporates the EcoInvent life cycle database, allowing the environmental impacts of the material inputs and outputs to be calculated. The model includes peer reviewed waste management data and processes to facilitate the benefits and disbenefits of waste treatment, recycling and disposal.

The WRATE results include the following parameters which have been utilised for the Strategy development process, either in terms of this options appraisal or the Strategic environmental assessment:

- Climate Change impacts
- Human Toxicity
- Acidification
- Eutrophication
- Resource Use
- Freshwater Aquatic Toxicity
- Land Take
- Vehicle Mileage data

It should be noted that WRATE is not a good tool for measuring waste prevention or re-use activity, and for these options alternative approaches have been used within the SEA.

A comparison of alternative collection and treatment options and the effect of implementing alternative collection systems was modelled using the 2027 waste arisings (from the waste flow model) and associated estimated energy mix (within WRATE). This is the mid-point of the strategy and a point by which alternative residual waste treatment systems are assumed to have been implemented.

The assumptions applied within the models incorporated the data from the collection modelling (KAT) exercise, waste growth assumptions and the Waste Flow model assumptions, for further detail on these areas see the Options Appraisal report. Other key assumptions applied to the modelling are:

- Default technologies and closest vehicles applied from WRATE database
- Existing mass balances and energy recovery efficiency applied for the RDF and EfW plants respectively
- New EfW plant scenario has 29% electrical efficiency
- Third party EfW plant assumed at 50 mile A-B distance from waste arisings
- Anaerobic Digestion assumed for food waste processing
- Where waste is displaced (e.g. via the charged garden collection), this is sent to home composting in the model as a proxy of impact
- Collection mileages from KAT are inflated by the same factor as waste growth (in 2027) as a proxy of vehicle impacts
- RDF is exported as per actual situation, to Latvia
- All reprocessors / non-specific outputs are set as 20km (A-B) distance, with the exception of Air Pollution Control residues which are 50km. Incinerator Bottom Ash (IBA) assumed to be processed at the EfW site, as per current arrangement
- Separated recyclate fractions are sent straight to a transfer station, comingled recyclate streams to an MRF

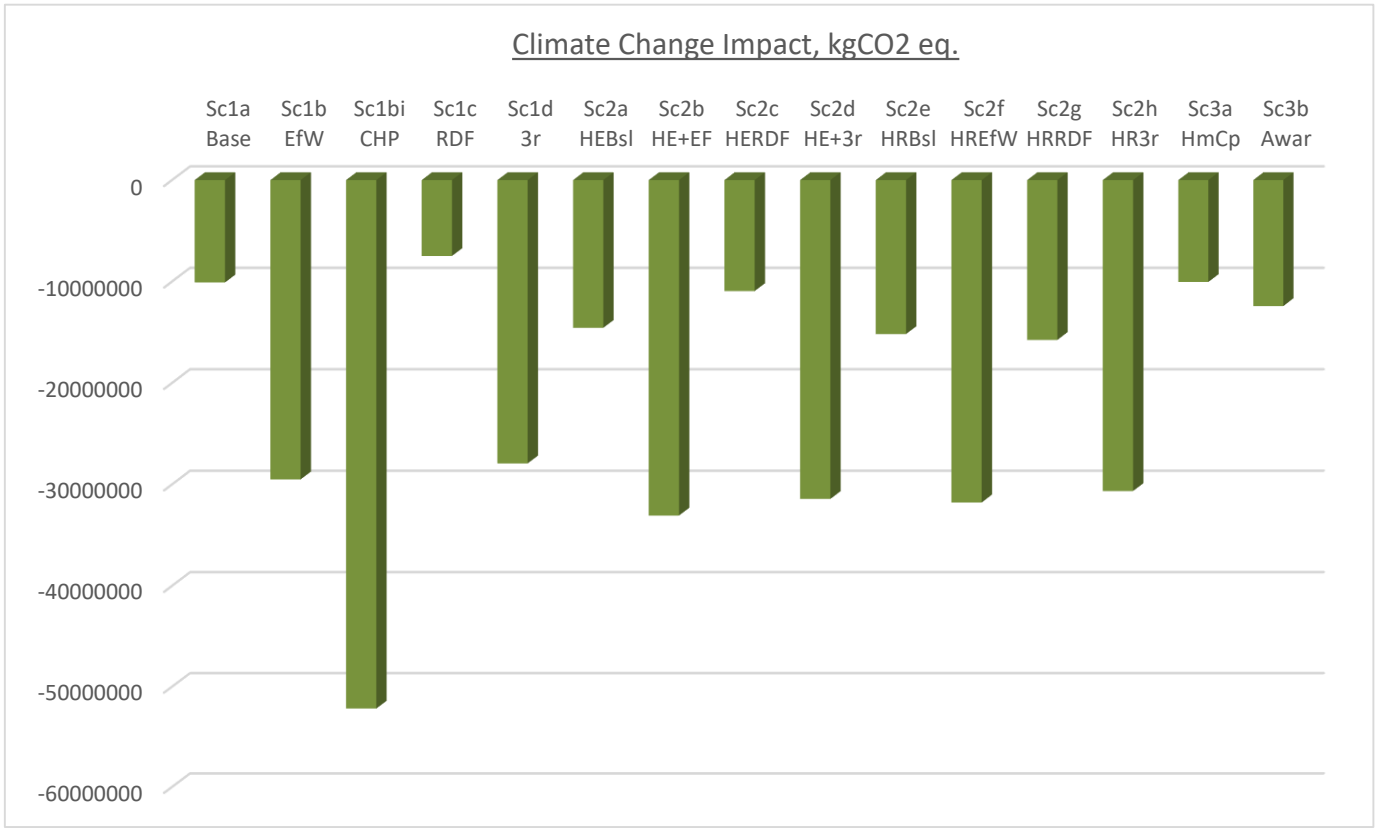
Key results and outputs are found below in Table 42. These results were used to assess the 20 options. Scenario 3 was not modelled in WRATE as the waste prevention campaign and awareness raising activities cannot be incorporated into the WRATE model.

Table 42 Key WRATE outputs for scenarios 1 and 2.

Raw Data	Unit	Sc1a (Baseline)	Sc1b EfW (electricity only)	Sc1b EfW (CHP)	Sc1c	Sc1d	Sc2a	Sc2b EfW (electricity only)	Sc2c	Sc2d	Sc2e	Sc2f EfW (electricity only)	Sc2g	Sc2h
Climate change: GWP 100a	kg CO2-Eq	-10,090,974	-29,507,099	-52,175,384	-7,479,756	-27,927,226	-14,563,558	-33,067,854	-10,936,213	-31,427,214	-15,182,048	-31,777,034	-15,756,06	-30,649,906
Climate change: GWP 100a Change from baseline	t CO2-Eq		-19,400	-42,100	2,600	-17,800	-4,500	-23,000	-800	-21,300	-5,100	-21,700	-5,700	-20,600
Acidification potential: average European	kg SO2-Eq	-113,435	-111,320	-133,577	-217,651	-102,795	183,710	184,925	81,331	193,779	207,962	206,909	116,398	212,991
Eutrophication potential: generic	kg PO4-Eq	21,249	12,971	12,862	53,109	14,605	87,601	79,919	119,739	81,616	89,458	83,331	115,427	84,496
Freshwater aquatic ecotoxicity: FAETP infinite	kg 1,4-DCB-Eq	-7,922,771	-8,538,891	-8,536,584	-7,713,597	-8,392,579	-8,617,423	-9,216,150	-8,373,291	-9,064,210	-8,565,552	-9,145,763	-8,300,587	-9,041,380
Human toxicity: HTP infinite	kg 1,4-DCB-Eq	-96,566,232	-99,971,347	-102,687,607	-97,228,199	-99,267,663	-100,769,624	-104,112,354	-100,942,537	-103,381,605	-100,589,203	-103,807,886	-100,713,163	-103,305,857
Resources: depletion of abiotic resources	kg antimony-Eq	-750,360	-816,308	-999,816	-1,425,738	-802,791	-772,400	-839,637	-1,417,230	-825,600	-766,045	-825,077	-1,413,915	-815,433
Acidification potential: average European	Eur.Person.Eq	-1,586	-1,556	-1,867	-3,042	-1,437	2,568	2,585	1,137	2,709	2,907	2,892	1,627	2,977
% change from baseline			-2%	18%	92%	-9%	-262%	-263%	-172%	-271%	-283%	-282%	-203%	-288%
Raw Data	**Unit**	**Sc1a (Baseline)**	**Sc1b EfW (electricity only)**	**Sc1b EfW (CHP)**	**Sc1c**	**Sc1d**	**Sc2a**	**Sc2b EfW (electricity only)**	**Sc2c**	**Sc2d**	**Sc2e**	**Sc2f EfW (electricity only)**	**Sc2g**	**Sc2h**
Eutrophication potential: generic	Eur.Person.Eq	636	388	385	1,589	437	2,621	2,391	3,583	2,442	2,677	2,493	3,454	2,528
% change from baseline			39%	39%	-150%	31%	-312%	-276%	-463%	-284%	-321%	-292%	-443%	-297%
Freshwater aquatic ecotoxicity: FAETP infinite	Eur.Person.Eq	-6,009	-6,476	-6,474	-5,850	-6,365	-6,536	-6,990	-6,350	-6,874	-6,496	- 6,936	-6,295	-6,857
% change from baseline			8%	8%	-3%	6%	9%	16%	6%	14%	8%	15%	5%	14%
Human toxicity: HTP infinite	Eur.Person.Eq	-4,886	-5,058	-5,195	-4,919	-5,022	-5,098	-5,268	-5,107	-5,231	-5,089	-5,252	-5,096	-5,227
% change from baseline			4%	6%	1%	3%	4%	8%	5%	7%	4%	7%	4%	7%
Resources: depletion of abiotic resources	Eur.Person.Eq. Eq	-9,418	-21,125	-25,874	-36,896	-20,775	-19,988	-21,728	-36,676	-21,365	-19,824	-21,352	-36,590	-21,102
% change from baseline			9%	33%	90%	7%	3%	12%	89%	10%	2%	10%	88%	9%
Note: For the % change from baseline, a positive value is an improvement in performance and a negative value is a deterioration in performance														

Table 43 Carbon savings ($KgCO_2$)

Scenario 1b which models a new build EfW plant also has a variation (Sc1bi) with a Combined Heat and Power plant which captures and utilises the heat as a by-product, this has the most positive impact on the environment in terms of the amount of Carbon saved. Scenario 1c which models a new RDF plant saves the least amount of Carbon.



WRATE schematics have been produced to clearly show the transfer of waste for a number of scenarios as shown in Figures 1 -4 below.

Figure 1: WRATE schematic for baseline (current service)

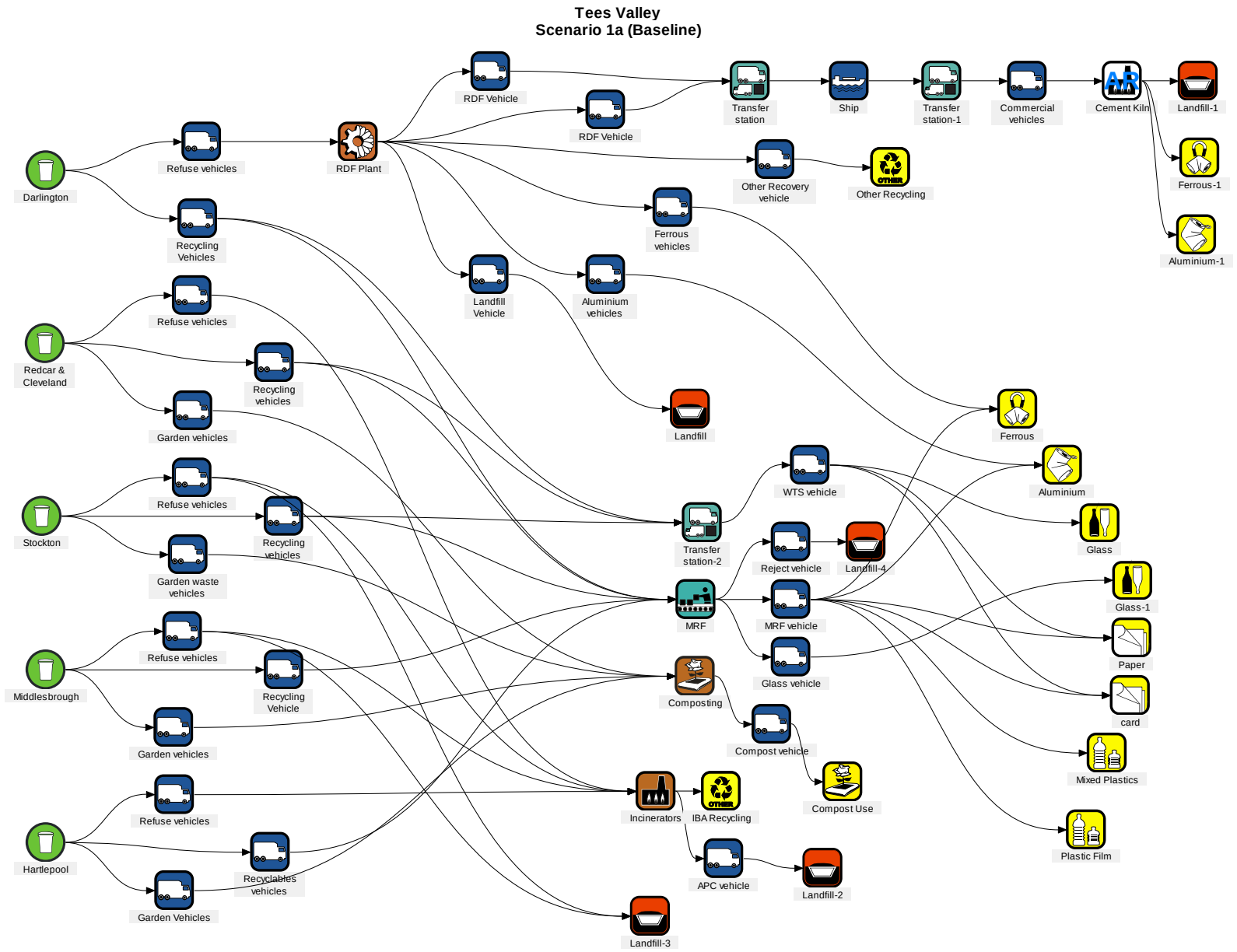
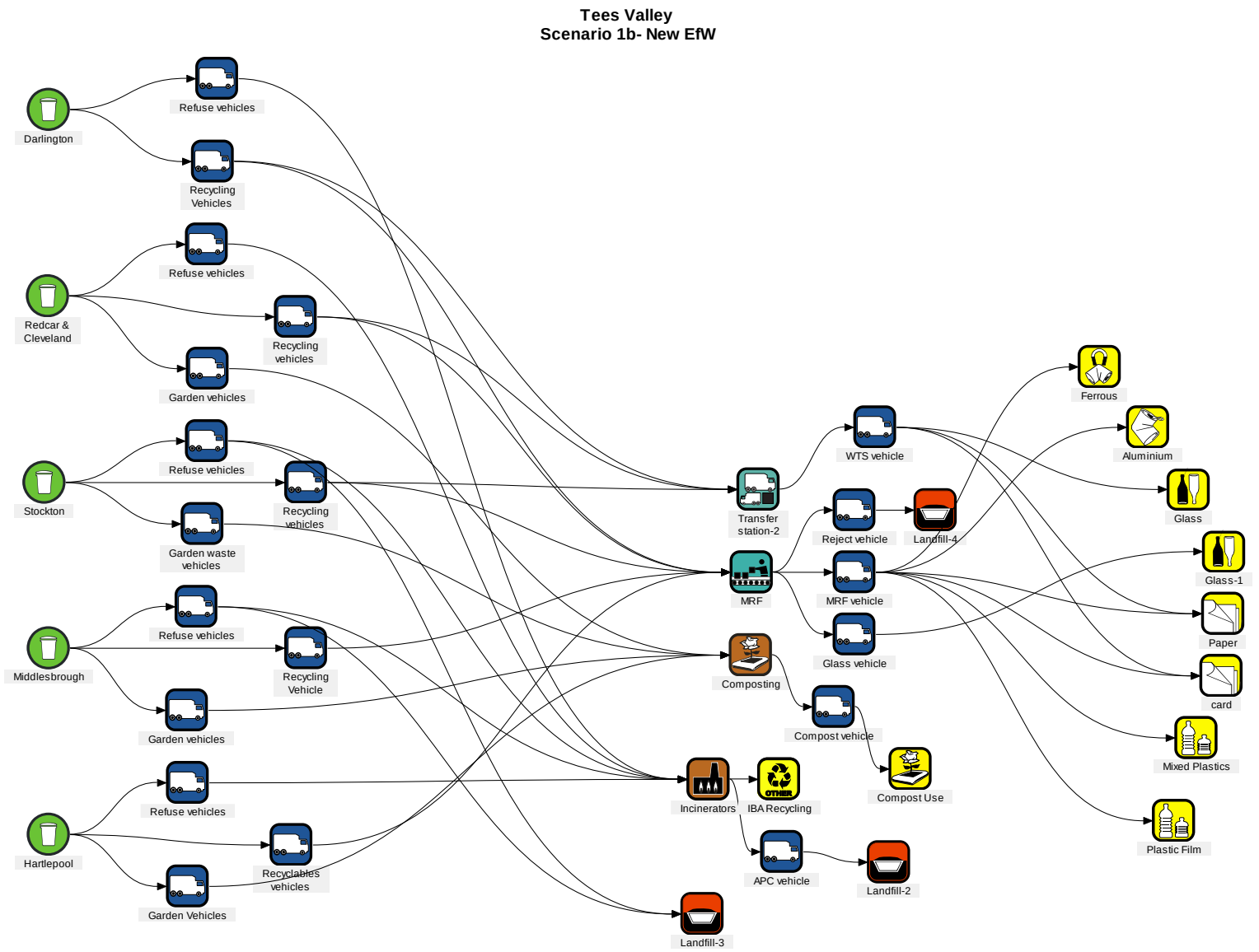
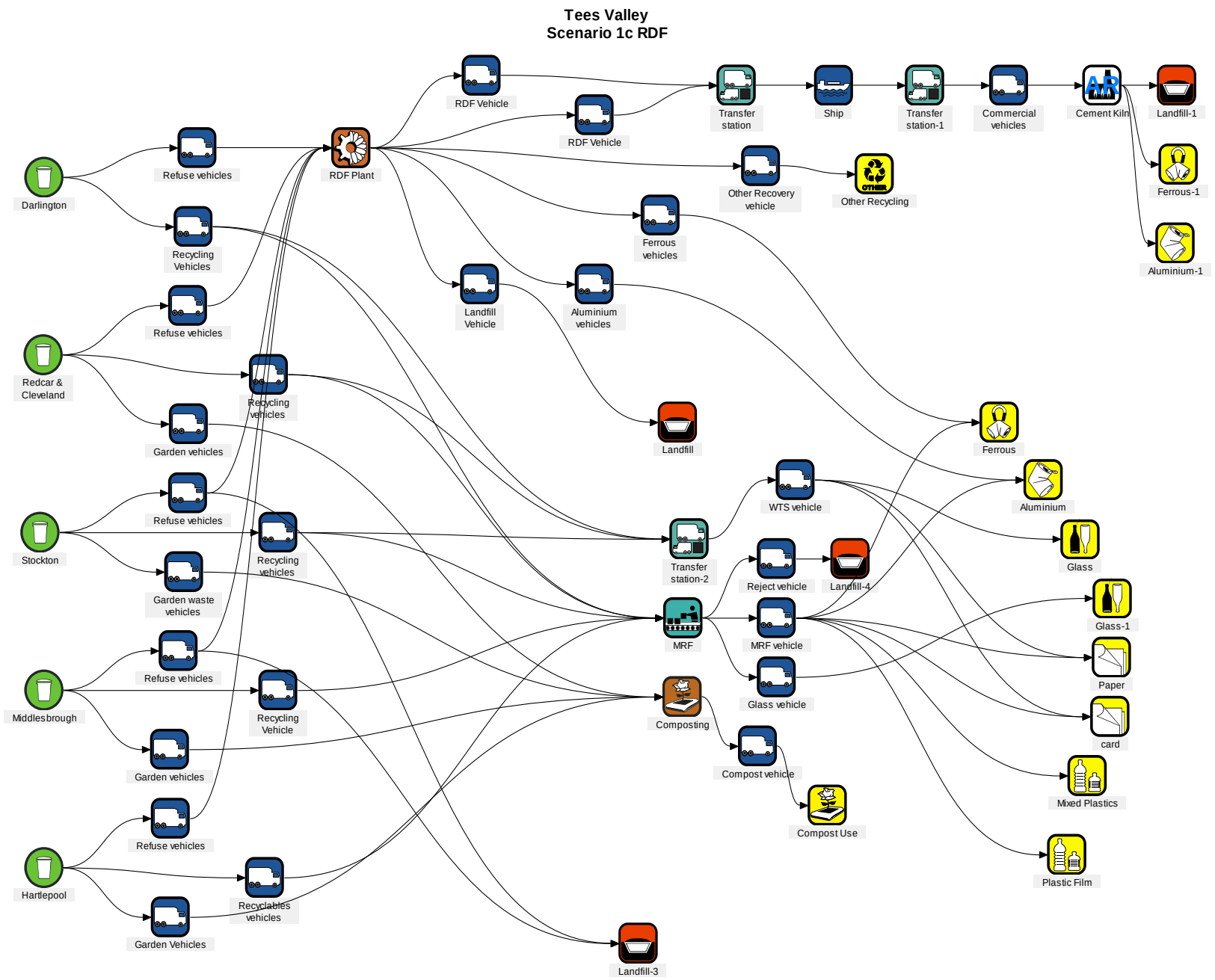


Figure 2: WRATE schematic for scenario 1b (new EfW facility)



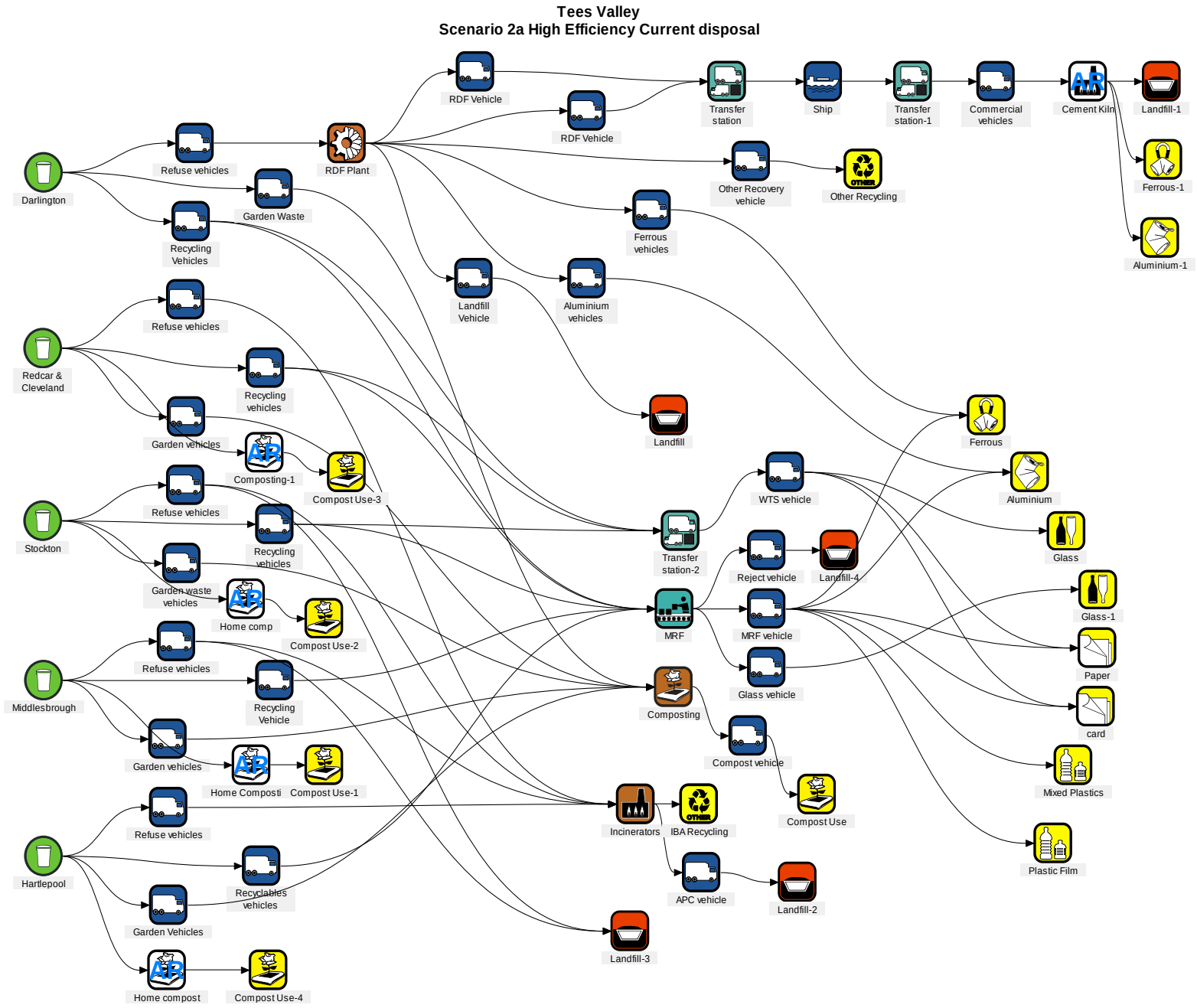
Date 15/06/2018
Software Version 4.0.1.0
Database Version 4.0.1.0

Figure 3: WRATE schematic for scenario 1c (new RDF facility)



Date 15/06/2018
Software Version 4.0.1.0
Database Version 4.0.1.0

Figure 4: WRATE schematic for scenario 2a (High Efficiency Collection - Existing EfW)



Date 15/06/2018
Software Version 4.0.1.0
Database Version 4.0.1.0

Appendix 4: Options assessment matrices

These matrices include the scoring introduced previously but also include consideration of cumulative, indirect and synergistic impacts.

The analysis considers each criteria and whether its impacts are likely to be delivered over the **short, medium or long term**. In each case, as the focus is on scenarios (i.e. groups of changes) the emphasis on this judgement is on the principal change, i.e. residual waste treatment changes tend to be tied into long contracts (c. 20 years) and so if the emission is continuous will tend to be a long term impact. Conversely collection changes tend to be tied to medium term contracts (c. 7 years), etc.

The **level of uncertainty** is also assessed in the analysis. This is to reflect areas where the data or evidence for a particular effect is for example, poor, meaning that the estimate of the impact might be very uncertain. Another use of this measure is the context where there may be a wide range of outcomes, depending on how a particular measure is implemented, again delivering high levels of uncertainty as to how it will impact. For those processes or options that are well known and, for example, well controlled, there would be 'low' uncertainty.

Scenario 1a - Contract extension only

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0	Low	Medium	As current practice, no change	n/a
To support the beneficial re-use and recycling of waste	0	Low	Medium	As current practice, no change	n/a
To divert waste away from landfill	0	Low	Medium	As current practice, no change	n/a
To manage waste in a manner that limits transport impacts	0	Low	Medium	As current practice, no change	n/a
To improve access to waste services and facilities	0	Low	Medium	As current practice, no change	n/a
To make better use of all resources	0	Low	Medium	As current practice, no change	n/a
To maintain and enhance good air and environmental quality for all	0	Low	Medium	As current practice, no change	n/a
To protect and enhance the quality of the sub regions water resources	0	Low	Medium	As current practice, no change	n/a
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	0	Low	Medium	As current practice, no change	n/a
To protect and enhance the quality and diversity of the rural land and landscapes	0	Low	Medium	As current practice, no change	n/a
To reduce the causes and impacts of climate change from waste management activities	0	Low	Medium	As current practice, no change	n/a
To reduce waste related crime	0	Low	Medium	As current practice, no change	n/a
To contribute to high and stable levels of employment and economic growth;	0	Low	Medium	As current practice, no change	n/a
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0	Low	Medium	As current practice, no change	n/a
Cumulative, synergistic, secondary/in-direct effects	*No change*				

II Scenario 1b -New energy recovery

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0	Low	Medium	No change	n/a
To support the beneficial re-use and recycling of waste	0	Low	Long	Very minor change as a result of residual treatment, very slight positive modelled	n/a
To divert waste away from landfill	+	Low	Long	Avoids the use of the RDF plant resulting in >2% landfill diversion	n/a
To manage waste in a manner that limits transport impacts	0	Low	Medium	As current practice, no change	n/a
To improve access to waste services and facilities	0	Low	Medium	As current practice, no change	n/a
To make better use of all resources	0/+	Low/medium	Long	Higher efficiency EfW plant improving resource use	Only substantial improvements delivered by also utilising heat (CHP)
To maintain and enhance good air and environmental quality for all	0/+	Low/medium	Long	Minor reductions in acidification and human toxicity	Use best available techniques for residual treatment and optimise collection systems and vehicles for low emissions
To protect and enhance the quality of the sub regions water resources	+	Low/medium	Long	Minor improvements in eutrophication and fresh water impacts	Adopt best available techniques for emissions control
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	+	Low/medium	Long	Minor environmental improvements from higher efficiency EfW technology	Sensitive sighting of facility through planning and permitting processes, consider incorporation of areas that can foster biodiversity within site design and layout
To protect and enhance the quality and diversity of the rural land and landscapes	0/+	Low/medium	Long	Slight reduction in land take requirement modelled	Design and site waste facilities in consideration of land use/landscape impacts

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce the causes and impacts of climate change from waste management activities	+/++	Low/medium	Long	Energy recovery efficiency from EfW plant improves both carbon performance and renewable/low carbon energy generation	The most substantial improvements delivered by also utilising heat (CHP)
To reduce waste related crime	0	Low	Medium	As current practice, no change	n/a
To contribute to high and stable levels of employment and economic growth;	+	Medium	Medium	Additional jobs through construction, associated suppliers and potential to secure associated manufacturing roles using heat off take	Seek to establish CHP
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0	Low	Medium	As current practice and no change to customer facing/engagement services	n/a
Cumulative, synergistic, secondary/indirect effects	*Broadly positive effects, cumulative and secondary/ indirect benefits to the environment by reducing acidification and eutrophication.*				

III Scenario 1c - New RDF only

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0	Low	Medium	No change	n/a
To support the beneficial re-use and recycling of waste	0	Low	Long	Very minor increase observed as recycling from the front of RDF similar to the back of EFW	Engineer front end of MBT to extract higher quality and quantity of recyclables
To divert waste away from landfill	--	Low/medium	Long	Increased MBT residues to landfill	Look to enhance MBT processing to minimise residues to landfill
To manage waste in a manner that limits transport impacts	0	Low	Medium	As current practice, no change	n/a
To improve access to waste services and facilities	0	Low	Medium	As current practice, no change	n/a
To make better use of all resources	+/++	Medium	Long	Higher efficiency RDF recovery and potentially materials recovery from MBT plant	Design and operate MBT plant to deliver high levels of resource efficiency
To maintain and enhance good air and environmental quality for all	+/++	Medium	Long	Less combustion results in a notable improvement in acidification	Use best available techniques for residual treatment and optimise collection systems and vehicles for low emissions
To protect and enhance the quality of the sub regions water resources	-	Medium	Long	Negative impact on eutrophication, no significant change in fresh water impacts	Seek to desire an MBT plant to limit landfill
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	0	Low/medium	Long	Some positive impacts on ecotoxicity measures but overall a larger land take generating a broadly neutral score	Sensitive sighting of facility through planning and permitting processes, consider incorporation of areas that can foster biodiversity within site design and layout
To protect and enhance the quality and diversity of the rural land and landscapes	-	Medium	Long	Significant negative impact on land use criteria modelled	Design and site waste facilities in consideration

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
					of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	$^{-}$/ $^{+}$	Medium	Long	Carbon impacts are worse however the energy recovered is substantially better	Look to enhance MBT processing to minimise residues to landfill
To reduce waste related crime	0	Low	Medium	As current practice, no change	n/a
To contribute to high and stable levels of employment and economic growth;	0/$^{+}$	Medium	Short	Additional short-term jobs through construction	Look to utilise MBT outputs locally
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0	Low	Medium	As current practice and no change to customer facing/engagement services	n/a
Cumulative, synergistic, secondary/in-direct effects	Significant negative and some positive cumulative and secondary/ indirect benefits to the environment. Negative impact on eutrophication and land take however a positive impact on ecotoxicity.				

IV Scenario 1d - 3rd Party EfW

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0	Low	Medium	No change	n/a
To support the beneficial re-use and recycling of waste	0	Low	Medium	Very minor change as a result of residual treatment, very slight positive modelled	n/a
To divert waste away from landfill	+	Low	Long	Avoids the use of the RDF plant resulting in >2% landfill diversion	n/a
To manage waste in a manner that limits transport impacts	0	Low	Medium	As current practice, no change	n/a
To improve access to waste services and facilities	0	Low	Medium	As current practice, no change	n/a
To make better use of all resources	0/+	Low/medium	Long	Higher efficiency EfW plant improving resource use	Only substantial improvements delivered by also utilising heat (CHP)
To maintain and enhance good air and environmental quality for all	-/0	Low/medium	Long	Minor increase in acidification and no change in human toxicity	Use best available techniques for residual treatment and optimise collection systems and vehicles for low emissions
To protect and enhance the quality of the sub regions water resources	+	Low/medium	Long	Minor improvements in eutrophication and fresh water impacts	Adopt best available techniques for emissions control
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	+	Low/medium	Long	Minor environmental improvements from higher efficiency EfW technology	Sensitive sighting of facility through planning and permitting processes
To protect and enhance the quality and diversity of the rural land and landscapes	0/+	Low/medium	Long	Slight reduction in land take requirement modelled	Procure waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	+/++	Low/medium	Long	Energy recovery efficiency from EfW plant improves both carbon performance and renewable/low carbon energy generation	The most substantial improvements delivered by also utilising heat (CHP)

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste related crime	0	Low	Medium	As current practice, no change	n/a
To contribute to high and stable levels of employment and economic growth;	-	Low/medium	Long	Jobs lost within Tees Valley and unable to support potential heat users	Due to the nature of the scenario unable to mitigate
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0	Low	Medium	As current practice and no change to customer facing/engagement services	n/a
Cumulative, synergistic, secondary/in-direct effects	*Broadly positive cumulative and secondary/ indirect benefits to the environment. Minor improvements in eutrophication and acidification and resource use.*				

V Scenario 2a - High efficiency collection with contract extension

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/$^{+}$	Medium	Medium	The effect is dependent on householder behaviour (home composting)	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	0	Medium	Medium	Some uncertainty around impact of collection methods, v. minor increase modelled	Maximise uptake of garden waste and ensure that alternative dry recycling options are well designed and implemented
To divert waste away from landfill	0	Low	Medium	Minor diversion from landfill from restricted residual collections and charged garden collections	Maximising uptake of dry/organics collections and home composting
To manage waste in a manner that limits transport impacts	$^{+}$	Low	Medium	Removal of free garden waste collection reduces the overall vehicle movements	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	$^{-}$/0	Low	Medium	Charging for garden waste is likely to reduce service accessibility	Provide alternative options for householders e.g. home composting
To make better use of all resources	0	Low	Medium	No significant change from current practice	n/a
To maintain and enhance good air and environmental quality for all	0/$^{--}$	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the quality of the sub regions water resources	0/--	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home	Promote good home composting practice to limit anaerobic degradation which can generate

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
				composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air.	negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	+	Low/medium	Medium	Minor environmental improvements through recycling activity	Sensitive sighting of recycling/bulking facilities through planning and permitting processes, consider incorporation of areas that can foster biodiversity within site design and layout
To protect and enhance the quality and diversity of the rural land and landscapes	0	Medium	Medium	Only minor impact modelled	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	0/+	Low/medium	Medium	Slight reduction in energy recovery but reasonable improvement in carbon emissions	Maximising uptake of dry/organics collections and home composting
To reduce waste related crime	-	Medium	Medium	Restriction on residual capacity and access to home composting could lead to increase in fly tipping	Increase the awareness of the benefits of recycling and support for home composting/other waste outlets
To contribute to high and stable levels of employment and economic growth;	-	Low	Medium	Estimated (40-50) collection roles lost (based on KAT model)	Due to the nature of the scenario unable to mitigate
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	-/+	Medium	Medium	Change of service to increase awareness but could have negative impacts on behaviours	To communicate the positive outcomes of service changes to counter negative perceptions of service change
Cumulative, synergistic, secondary/in-direct effects	*Broadly positive cumulative and secondary/ indirect benefits to the environment with minor environmental improvements through increased recycling activity and reduced vehicle movements.*				

VI Scenario 2b- High efficiency collection with new energy recovery

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/$^{+}$	Medium	Medium	The effect is dependent on householder behaviour (home composting)	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	0	Medium	Medium	Some uncertainty around impact of collection methods, v. minor increase modelled	Maximise uptake of garden waste and ensure that alternative dry recycling options are well designed and implemented
To divert waste away from landfill	$^{+}$	Low	Long	Diversion of waste from MBT to EfW	No specific mitigation
To manage waste in a manner that limits transport impacts	$^{+}$	Low	Medium	Removal of free garden waste collection reduces the overall vehicle movements	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	$^{-}$/0	Low	Medium	Charging for garden waste is likely to reduce service accessibility	Provide alternative options for householders e.g. home composting
To make better use of all resources	0/$^{+}$	Low/medium	Long	Higher efficiency EfW plant improving resource use	Only substantial improvements delivered by also utilising heat (CHP)
To maintain and enhance good air and environmental quality for all	0/$^{--}$	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the quality of the sub regions water resources	0/--	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact	Promote good home composting practice to

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
				however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air.	limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	$^{+}$	Low/medium	Medium	Minor environmental improvements from improved recycling and EfW facilities	Sensitive sighting of the incineration and recycling facilities through planning and permitting processes, consider incorporation of areas that can foster biodiversity within site design and layout
To protect and enhance the quality and diversity of the rural land and landscapes	0	Medium	Medium	Almost identical impacts to baseline	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	+/++	Low/medium	Long	Energy recovery efficiency from EfW plant improves both carbon performance and renewable/low carbon energy generation	The most substantial improvements delivered by also utilising heat (CHP)
To reduce waste related crime	$^{-}$	Medium	Medium	Restriction on residual capacity and access to home composting could lead to increase in fly tipping	Increase the awareness of the benefits of recycling and support for home composting/other waste outlets
To contribute to high and stable levels of employment and economic growth;	0/$^{+}$	Low/medium	Medium	Additional jobs through construction, associated suppliers and potential to secure associated manufacturing roles using heat off take however offset by the loss of collection jobs	Seek to establish CHP

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	$^{-}/^{+}$	Medium	Medium	Change of service to increase awareness but could have negative impacts on behaviours	To communicate the positive outcomes of service changes to counter negative perceptions of service change
Cumulative, synergistic, secondary/in-direct effects	*Some uncertainty on cumulative and secondary/ indirect benefits and impacts as results are dependent on householder behaviours however higher efficiency EfW plant will result in improved resource use.*				

VII Scenario 2c - High efficiency collection with new RDF facility

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/$^{+}$	Medium	Medium	The effect is dependent on householder behaviour (home composting)	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	0	Medium	Medium	Some uncertainty around impact of collection methods, v. minor increase modelled	Maximise uptake of garden waste and ensure that alternative dry recycling options are well designed and implemented
To divert waste away from landfill	$^{--}$	Low/medium	Long	Increased MBT residues to landfill	Look to enhance MBT processing to minimise residues to landfill
To manage waste in a manner that limits transport impacts	$^{+}$	Low	Medium	Removal of free garden waste collection reduces the overall vehicle movements	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	$^{-}$/0	Low	Medium	Charging for garden waste is likely to reduce service accessibility	Provide alternative options for householders e.g. home composting
To make better use of all resources	+/++	Medium	Long	Higher efficiency RDF recovery and potentially materials recovery from MBT plant	Design and operate MBT plant to deliver high levels of resource efficiency
To maintain and enhance good air and environmental quality for all	0/$^{--}$	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To protect and enhance the quality of the sub regions water resources	-/--	Low/medium	Medium	Negative impact on eutrophication from both RDF and home composting activity	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	0	Low/medium	Medium	Some positive impacts on ecotoxicity measures but overall a larger land take generating a broadly neutral score	Sensitive sighting of recycling and RDF facility through planning and permitting processes, consider incorporation of areas that can foster biodiversity within site design and layout
To protect and enhance the quality and diversity of the rural land and landscapes	-	Medium	Long	Significant negative impact on land use criteria modelled	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	0/+	Medium	Medium	No significant change in Carbon, improved energy recovery	Look to enhance MBT processing to minimise residues to landfill
To reduce waste related crime	-	Medium	Medium	Restriction on residual capacity and access to home composting could lead to increase in fly tipping	Increase the awareness of the benefits of recycling and support for home composting/other waste outlets
To contribute to high and stable levels of employment and economic growth;	0	Medium	Short	Additional short-term jobs through construction however offset by lose of collection jobs	Look to utilise MBT outputs locally
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	-/ +	Medium	Medium	Change of service to increase awareness but could have negative impacts on behaviours	To communicate the positive outcomes of service changes to counter negative

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
					perceptions of service change
Cumulative, synergistic, secondary/in-direct effects	*Some positive and some negative cumulative and secondary/ indirect benefits to the environment. A significant negative impact on land use however improved energy recovery and resource use.*				

VIII Scenario 2d- High efficiency collection with 3rd Party EfW

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/$^{+}$	Medium	Medium	The effect is dependent on householder behaviour (home composting)	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	0	Medium	Medium	Some uncertainty around impact of collection methods, v. minor increase modelled	Maximise uptake of garden waste and ensure that alternative dry recycling options are well designed and implemented
To divert waste away from landfill	$^{+}$	Low	Long	Diversion of waste from MBT to EfW	No specific mitigation
To manage waste in a manner that limits transport impacts	$^{+}$	Low	Medium	Removal of free garden waste collection reduces the overall vehicle movements	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	$^{-}$/0	Low	Medium	Charging for garden waste is likely to reduce service accessibility	Provide alternative options for householders e.g. home composting
To make better use of all resources	0/$^{+}$	Low/medium	Long	Higher efficiency EfW plant improving resource use	Only substantial improvements delivered by also utilising heat (CHP)
To maintain and enhance good air and environmental quality for all	0/$^{--}$	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To protect and enhance the quality of the sub regions water resources	0/--	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air.	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	+	Low/medium	Medium	Minor environmental improvements from higher efficiency EfW technology and improved recycling performance	Sensitive sighting of facility through planning and permitting processes
To protect and enhance the quality and diversity of the rural land and landscapes	0	Medium	Medium	Almost identical impacts to baseline	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	+/++	Low/medium	Long	Energy recovery efficiency from EfW plant improves both carbon performance and renewable/low carbon energy generation	The most substantial improvements delivered by also utilising heat (CHP)
To reduce waste related crime	-	Medium	Medium	Restriction on residual capacity and access to home composting could lead to increase in fly tipping	Increase the awareness of the benefits of recycling and support for home composting/other waste outlets
To contribute to high and stable levels of employment and economic growth;	--	Low/medium	Medium	Jobs lost within Tees Valley and unable to support potential heat users in addition collection roles also reduced	Due to the nature of the scenario unable to mitigate
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	-/ +	Medium	Medium	Change of service to increase awareness but could have negative impacts on behaviours	To communicate the positive outcomes of service changes to counter negative

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
					perceptions of service change
Cumulative, synergistic, secondary/in-direct effects	*Some uncertainty on cumulative and secondary/ indirect benefits and impacts as results are dependent on householder behaviours however higher efficiency EfW plant will result in improved resource use.*				

IX Scenario 2e- High recycling collection with contract extension

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/$^{+}$	Medium	Medium	The effect is dependent on householder behaviour (home composting)	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	$^{++}$	Medium	Medium	High levels of recycling driven by food waste collection and restricted residual	Limit uncertainty through well designed and implemented organic and dry recycling schemes
To divert waste away from landfill	$^{+}$	Low/medium	Medium	Diversion driven by food waste collections and restricted residual	Limit uncertainty through well designed and implemented organic and dry recycling schemes
To manage waste in a manner that limits transport impacts	$^{-}$	Low	Medium	Addition of weekly food waste collection will have minor negative impacts on transport	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	0	Low/medium	Medium	Charging for garden waste is likely to reduce service accessibility however householders would receive an additional weekly food waste collection	Provide alternative options for householders e.g. home composting
To make better use of all resources	0/$^{+}$	Low	Medium	Additional recycling but limited impact on resources measure from WRATE	Higher uptake of recycling systems and utilise high efficiency AD
To maintain and enhance good air and environmental quality for all	0/$^{--}$	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To protect and enhance the quality of the sub regions water resources	0/--	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air.	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	+	Low/medium	Medium	Minor environmental improvements through recycling activity	Sensitive sighting of recycling/bulking facilities through planning and permitting processes, consider incorporation of areas that can foster biodiversity within site design and layout
To protect and enhance the quality and diversity of the rural land and landscapes	0	Medium	Medium	Only minor impact modelled	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	0/+	Low/medium	Medium	Slight reduction in energy recovery but reasonable improvement in carbon emissions	Maximising uptake of dry/organics collections and home composting
To reduce waste related crime	-/0	Medium	Medium	Restriction on residual capacity and access to home composting could lead to increase in fly tipping although the addition of food waste may improve perception of service	Increase the awareness of the benefits of recycling and support for home composting/other waste outlets
To contribute to high and stable levels of employment and economic growth;	+	Low	Medium	Estimated (30) collection roles gained (based on KAT model)	Due to the nature of the scenario unable to mitigate
To raise the awareness of the importance of resource and waste management and to	0/+	Low/medium	Medium	Change of service to increase awareness but could have	To communicate the positive outcomes of

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
contribute to behavioural change that improves environmental outcomes				negative impacts on behaviours further mitigated by food waste collection	service changes to counter negative perceptions of service change
Cumulative, synergistic, secondary/in-direct effects	*Some uncertainty on cumulative and secondary/ indirect benefits and impacts as results are dependent on householder behaviours however higher efficiency EfW plant will result in improved resource use however the change of collection system may have minor negative impacts on air quality.*				

X Scenario 2f- High recycling collection with new energy recovery

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/$^{+}$	Medium	Medium	The effect is dependent on householder behaviour (home composting)	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	$^{++}$	Medium	Medium	High levels of recycling driven by food waste collection and restricted residual	Limit uncertainty through well designed and implemented organic and dry recycling schemes
To divert waste away from landfill	$^{+}$	Low/medium	Long	Diversion of waste from MBT to EfW + enhanced recycling	Adopt good practice
To manage waste in a manner that limits transport impacts	$^{-}$	Low	Medium	Addition of weekly food waste collection will have minor negative impacts on transport	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	0	Low/medium	Medium	Charging for garden waste is likely to reduce service accessibility however householders would receive an additional weekly food waste collection	Provide alternative options for householders e.g. home composting
To make better use of all resources	+/++	Low/medium	Long	Higher efficiency EfW plant and high recycling improving resource use	Further improvements delivered by also utilising heat (CHP)
To maintain and enhance good air and environmental quality for all	0/$^{--}$	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To protect and enhance the quality of the sub regions water resources	0/--	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air.	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	+	Low/medium	Medium	Minor environmental improvements from improved recycling and EfW facilities	Sensitive sighting of the incineration and recycling facilities through planning and permitting processes, consider incorporation of areas that can foster biodiversity within site design and layout
To protect and enhance the quality and diversity of the rural land and landscapes	0	Medium	Medium	Almost identical impacts to baseline	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	+/++	Low/medium	Long	Energy recovery efficiency from EfW plant improves both carbon performance and renewable/low carbon energy generation	The most substantial improvements delivered by also utilising heat (CHP)
To reduce waste related crime	-/0	Medium	Medium	Restriction on residual capacity and access to home composting could lead to increase in fly tipping although the addition of food waste may improve perception of service	Increase the awareness of the benefits of recycling and support for home composting/other waste outlets

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To contribute to high and stable levels of employment and economic growth;	+/++	Medium	Medium	Additional jobs through construction, associated suppliers and potential to secure associated manufacturing roles using heat off take plus additional collection jobs	Seek to establish CHP
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0/$^{+}$	Low/medium	Medium	Change of service to increase awareness but could have negative impacts on behaviours further mitigated by food waste collection	To communicate the positive outcomes of service changes to counter negative perceptions of service change
Cumulative, synergistic, secondary/in-direct effects	*Some uncertainty on cumulative and secondary/ indirect impacts as results are dependent on householder behaviours, however higher efficiency EfW plant will result in improved resource use however the change of collection system may have minor negative impacts on air quality.*				

XI Scenario 2g- High recycling collection with new RDF facility

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/$^{+}$	Medium	Medium	The effect is dependent on householder behaviour (home composting)	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	$^{++}$	Medium	Medium	High levels of recycling driven by food waste collection and restricted residual	Limit uncertainty through well designed and implemented organic and dry recycling schemes
To divert waste away from landfill	$^{--}$	Low/medium	Long	Increased MBT residues to landfill	Look to enhance MBT processing to minimise residues to landfill
To manage waste in a manner that limits transport impacts	$^{-}$	Low	Medium	Addition of weekly food waste collection will have minor negative impacts on transport	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	0	Low/medium	Medium	Charging for garden waste is likely to reduce service accessibility however householders would receive an additional weekly food waste collection	Provide alternative options for householders e.g. home composting
To make better use of all resources	+/++	Medium	Long	Higher efficiency RDF recovery and potentially materials recovery from MBT plant plus high kerbside recycling	Design and operate MBT plant to deliver high levels of resource efficiency maximise resource recovery via high participation in recycling and high efficiency AD for food waste
To maintain and enhance good air and environmental quality for all	0/$^{--}$	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a	Promote good home composting practice to limit anaerobic degradation which can generate

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
				substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	negative environmental impacts
To protect and enhance the quality of the sub regions water resources	-/--	Low/medium	Medium	Negative impact on eutrophication from both RDF and home composting activity	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	0	Low/medium	Medium	Some positive impacts on ecotoxicity measures but overall a larger land take generating a broadly neutral score	Sensitive sighting of recycling and RDF facility through planning and permitting processes, consider incorporation of areas that can foster biodiversity within site design and layout
To protect and enhance the quality and diversity of the rural land and landscapes	-	Medium	Long	Significant negative impact on land use criteria modelled	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	+	Medium	Medium	Improved in Carbon, improved energy recovery	Look to enhance MBT processing to minimise residues to landfill
To reduce waste related crime	-/0	Medium	Medium	Restriction on residual capacity and access to home composting could lead to increase in fly tipping although the addition of food waste may improve perception of service	Increase the awareness of the benefits of recycling and support for home composting/other waste outlets
To contribute to high and stable levels of employment and economic growth;	+	Medium	Medium	Additional short-term jobs through construction and additional collection roles	Look to utilise MBT outputs locally

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0/+	Low/medium	Medium	Change of service to increase awareness but could have negative impacts on behaviours further mitigated by food waste collection	To communicate the positive outcomes of service changes to counter negative perceptions of service change
Cumulative, synergistic, secondary/in-direct effects	*Some uncertainty on cumulative and secondary/ indirect impacts as results are dependent on householder behaviours, however higher efficiency EfW plant will result in improved resource use however the change of collection system may have minor negative impacts on air quality.*				

XII Scenario 2h - High recycling collection with 3rd Party EfW

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/$^{+}$	Medium	Medium	The effect is dependent on householder behaviour (home composting)	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	$^{++}$	Medium	Medium	High levels of recycling driven by food waste collection and restricted residual	Limit uncertainty through well designed and implemented organic and dry recycling schemes
To divert waste away from landfill	$^{+}$	Low/medium	Long	Diversion of waste from MBT to EfW + enhanced recycling	Adopt good practice
To manage waste in a manner that limits transport impacts	$^{-}$	Low	Medium	Addition of weekly food waste collection will have minor negative impacts on transport	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	0	Low/medium	Medium	Charging for garden waste is likely to reduce service accessibility however householders would receive an additional weekly food waste collection	Provide alternative options for householders e.g. home composting
To make better use of all resources	+/++	Low/medium	Long	Higher efficiency EfW plant and high recycling improving resource use	Further improvements delivered by also utilising heat (CHP)
To maintain and enhance good air and environmental quality for all	0/$^{--}$	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To protect and enhance the quality of the sub regions water resources	0/--	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air.	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	+	Low/medium	Medium	Minor environmental improvements from higher efficiency EfW technology and improved recycling performance	Sensitive sighting of facility through planning and permitting processes
To protect and enhance the quality and diversity of the rural land and landscapes	0	Medium	Medium	Almost identical impacts to baseline	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	+/++	Low/medium	Long	Energy recovery efficiency from EfW plant improves both carbon performance and renewable/low carbon energy generation	The most substantial improvements delivered by also utilising heat (CHP)
To reduce waste related crime	-/0	Medium	Medium	Restriction on residual capacity and access to home composting could lead to increase in fly tipping although the addition of food waste may improve perception of service	Increase the awareness of the benefits of recycling and support for home composting/other waste outlets
To contribute to high and stable levels of employment and economic growth;	0	Medium	Medium	Loss in waste treatment jobs offset by additional collection jobs	Due to the nature of the scenario unable to mitigate

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0/+	Low/medium	Medium	Change of service to increase awareness but could have negative impacts on behaviours further mitigated by food waste collection	To communicate the positive outcomes of service changes to counter negative perceptions of service change
Cumulative, synergistic, secondary/in-direct effects	*Some uncertainty on cumulative and secondary/ indirect impacts as results are dependent on householder behaviours. The higher efficiency EfW plant will result in improved resource use, however the change of collection system may have minor negative impacts on air quality.*				

XIII Scenario 3a - Waste prevention with high efficiency collection and contract extension

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/+	Medium	Medium	The effect is dependent on householder behaviour (home composting) but there is a minor improvement from support to home composting initiatives	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	+	Low/medium	Medium	Additional options to householders and behaviour change activity increases recycling performance	Adopt good practice
To divert waste away from landfill	0	Low	Medium	Minor diversion from landfill from restricted residual collections and charged garden collections	Maximising uptake of dry/organics collections and home composting
To manage waste in a manner that limits transport impacts	+	Low	Medium	Removal of free garden waste collection reduces the overall vehicle movements	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	0	Low/medium	Medium	Charging for garden waste is likely to reduce service accessibility however additional services such as home composting improved bulky waste and HWRC services could offset this	Adopt good practice
To make better use of all resources	0/+	Low	Medium	No significant change from current practice	Good practice in communications
To maintain and enhance good air and environmental quality for all	0/−−	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a	Promote good home composting practice to limit anaerobic degradation which can generate

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
				substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	negative environmental impacts
To protect and enhance the quality of the sub regions water resources	0/--	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air.	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	0	Low/medium	Medium	Broadly neutral impact in terms of eco toxicity and land take, other environmental impacts captured in criteria 14	Encourage good home composting practice to minimise potential environmental impacts
To protect and enhance the quality and diversity of the rural land and landscapes	0	Medium	Medium	Only minor impact modelled	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	+	Medium	Medium	Slight reduction in energy recovery but reasonable improvement in carbon emissions enhanced by additional recycling	Maximising uptake of dry/organics collections and home composting
To reduce waste related crime	0/+	Medium	Medium	Use of communications and additional services to reduce motivation for waste crime	Use best practice techniques
To contribute to high and stable levels of employment and economic growth;	-	Low	Medium	Estimated net loss of 30 jobs	Due to the nature of the scenario unable to mitigate

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0/+	Low/medium	Medium	Campaigns support service change	Adopt good practice
Cumulative, synergistic, secondary/in-direct effects	*Some uncertainty on cumulative and secondary/ indirect impacts as results are dependent on householder behaviours. Increased acidification impact due to the diversion of organic waste to incineration, however broadly neutral impact in terms of ecotoxicity and land take*				

XIV Scenario 3b - Waste prevention with high efficiency collection and new energy recovery

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/+	Medium	Medium	The effect is dependent on householder behaviour (home composting) but there is a minor improvement from support to home composting initiatives	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	+	Low/medium	Medium	Additional options to householders and behaviour change activity increases recycling performance	Adopt good practice
To divert waste away from landfill	+	Low	Long	Diversion of waste from MBT to EfW	Adopt good practice
To manage waste in a manner that limits transport impacts	+	Low	Medium	Removal of free garden waste collection reduces the overall vehicle movements	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	0	Low/medium	Medium	Charging for garden waste is likely to reduce service accessibility however additional services such as home composting improved bulky waste and HWRC services could offset this	Adopt good practice
To make better use of all resources	+	Low/medium	Long	Higher efficiency EfW plant improving resource use plus some additional recycling	Only substantial improvements delivered by also utilising heat (CHP)

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To maintain and enhance good air and environmental quality for all	0/−−	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the quality of the sub regions water resources	0/--	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air.	Promote good home composting, prevention and recycling practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	0	Low/medium	Medium	Broadly neutral impact in terms of eco toxicity and land take, other environmental impacts captured in criteria 14	Encourage good home composting, prevention and recycling practice to minimise potential environmental impacts
To protect and enhance the quality and diversity of the rural land and landscapes	0	Medium	Medium	Almost identical impacts to baseline	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	+/++	Low/medium	Long	Energy recovery efficiency from EfW plant improves both carbon performance and renewable/low carbon energy generation	The most substantial improvements delivered by also utilising heat (CHP)

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste related crime	0/+	Medium	Medium	Use of communications and additional services to reduce motivation for waste crime	Use best practice techniques
To contribute to high and stable levels of employment and economic growth;	0/+	Low/medium	Medium	Additional jobs through communications, construction, associated suppliers and potential to secure associated manufacturing roles using heat off take however offset by the loss of collection jobs	Seek to establish CHP
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0/+	Low/medium	Medium	Campaigns support service change	Adopt good practice
Cumulative, synergistic, secondary/in-direct effects	*Some uncertainty on cumulative and secondary/ indirect impacts as results are dependent on householder behaviours, however broadly positive impacts expected, a higher efficiency EfW plant will have a positive impact on resource use.*				

XV Scenario 3c - Waste prevention with high efficiency collection and new RDF facility

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/+	Medium	Medium	The effect is dependent on householder behaviour (home composting) but there is a minor improvement from support to home composting initiatives	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	+	Low/medium	Medium	Additional options to householders and behaviour change activity increases recycling performance	Adopt good practice
To divert waste away from landfill	--	Low/medium	Long	Increased MBT residues to landfill	Look to enhance MBT processing to minimise residues to landfill
To manage waste in a manner that limits transport impacts	+	Low	Medium	Removal of free garden waste collection reduces the overall vehicle movements	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	0	Low/medium	Medium	Charging for garden waste is likely to reduce service accessibility however additional services such as home composting improved bulky waste and HWRC services could offset this	Adopt good practice
To make better use of all resources	+/++	Medium	Long	Higher efficiency RDF recovery and potentially materials recovery from MBT plant plus high kerbside recycling	Design and operate MBT plant to deliver high levels of resource efficiency maximise resource recovery via high participation in recycling plus good practice in communications

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To maintain and enhance good air and environmental quality for all	0/−−	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the quality of the sub regions water resources	-/--	Low/medium	Medium	Negative impact on eutrophication from both RDF and home composting activity	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	0	Low/medium	Medium	Generally, a neutral impact envisaged consistent with other modelled scenarios	Encourage good home composting, prevention and recycling practice to minimise potential environmental impacts
To protect and enhance the quality and diversity of the rural land and landscapes	−	Medium	Long	Significant negative impact on land use criteria modelled	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	+	Medium	Medium	Slight improvement in Carbon due to enhanced recycling	Look to enhance MBT processing to minimise residues to landfill
To reduce waste related crime	0/+	Medium	Medium	Use of communications and additional services to reduce motivation for waste crime	Use best practice techniques
To contribute to high and stable levels of employment and economic growth;	0	Medium	Short	Additional short-term jobs through construction plus	Look to utilise MBT outputs locally

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
				communications jobs however offset by lose of collection jobs	
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0/+	Low/medium	Medium	Campaigns support service change	Adopt good practice
Cumulative, synergistic, secondary/in-direct effects	*Some uncertainty on cumulative and secondary/ indirect impacts as results are dependent on householder behaviours. Due to enhanced recycling and higher efficiency RDF plant this is expected to result in a slight improvement in Carbon however a significant negative impact on land use.*				

XVI Scenario 3d- Waste prevention with high efficiency collection and 3rd Party EfW

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/+	Medium	Medium	The effect is dependent on householder behaviour (home composting) but there is a minor improvement from support to home composting initiatives	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	+	Low/medium	Medium	Additional options to householders and behaviour change activity increases recycling performance	Adopt good practice
To divert waste away from landfill	+	Low	Long	Diversion of waste from MBT to EfW	Adopt good practice
To manage waste in a manner that limits transport impacts	+	Low	Medium	Removal of free garden waste collection reduces the overall vehicle movements	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	0	Low/medium	Medium	Charging for garden waste is likely to reduce service accessibility however additional services such as home composting improved bulky waste and HWRC services could offset this	Adopt good practice
To make better use of all resources	+	Low/medium	Long	Higher efficiency EfW plant improving resource use plus some additional recycling	Only substantial improvements delivered by also utilising heat (CHP)
To maintain and enhance good air and environmental quality for all	0/−−	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
				composting, a relatively uncontrolled emission to soil, water and air	
To protect and enhance the quality of the sub regions water resources	0/--	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air.	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	0	Low/medium	Medium	Generally, a neutral impact envisaged consistent with other modelled scenarios	Encourage good home composting, prevention and recycling practice to minimise potential environmental impacts
To protect and enhance the quality and diversity of the rural land and landscapes	0	Medium	Medium	Almost identical impacts to baseline	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	+/++	Low/medium	Long	Energy recovery efficiency from EfW plant improves both carbon performance and renewable/low carbon energy generation	The most substantial improvements delivered by also utilising heat (CHP)
To reduce waste related crime	0/$^{+}$	Medium	Medium	Use of communications and additional services to reduce motivation for waste crime	Use best practice techniques
To contribute to high and stable levels of employment and economic growth;	$^{--}$	Low/medium	Medium	Jobs lost within Tees Valley and unable to support potential heat users in addition collection	Due to the nature of the scenario unable to mitigate

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
				roles also reduced, only minor job increases through comms	
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	0/+	Low/medium	Medium	Campaigns support service change	Adopt good practice
Cumulative, synergistic, secondary/in-direct effects	*Broadly positive cumulative and secondary/ indirect impacts including carbon performance and resource use, however diversion of organic waste increased acidification.*				

XVII Scenario 3e- Waste prevention with high recycling collection and contract extension

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/$^{+}$	Medium	Medium	The effect is dependent on householder behaviour (home composting) but there is a minor improvement from support to home composting initiatives	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	$^{++}$	Low/medium	Medium	High levels of recycling driven by food waste collection and restricted residual enhanced by awareness campaigns and additional reuse/recycling options	Adopt good practice
To divert waste away from landfill	$^{+}$	Low	Medium	Diversion driven by food waste collections and restricted residual	Limit uncertainty through well designed and implemented organic and dry recycling schemes
To manage waste in a manner that limits transport impacts	$^{-}$	Low	Medium	Addition of weekly food waste collection will have minor negative impacts on transport	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	0/$^{+}$	Low/medium	Medium	Charging for garden waste is likely to reduce service accessibility however householders would receive an additional weekly food waste collection, home composting improved bulky waste and HWRC services could offset this	Adopt good practice

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To make better use of all resources	+	Low/medium	Medium	Additional recycling but limited impact on resources measure from WRATE	Higher uptake of recycling systems and utilise high efficiency AD
To maintain and enhance good air and environmental quality for all	0/−−	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the quality of the sub regions water resources	0/--	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air.	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	0	Low/medium	Medium	Generally, a neutral impact envisaged consistent with other modelled scenarios	Encourage good home composting, prevention and recycling practice to minimise potential environmental impacts
To protect and enhance the quality and diversity of the rural land and landscapes	0	Medium	Medium	Only minor impact modelled	Design and site waste facilities in consideration of land use/landscape impacts

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce the causes and impacts of climate change from waste management activities	+	Medium	Medium	Slight reduction in energy recovery but reasonable improvement in carbon emissions enhanced by additional recycling	Maximising uptake of dry/organics collections and home composting
To reduce waste related crime	+	Medium	Medium	Use of communications and additional services to reduce motivation for waste crime	Use best practice techniques
To contribute to high and stable levels of employment and economic growth;	+	Low	Medium	Estimated (40) collection and comms roles gained (based on KAT model)	Due to the nature of the scenario unable to mitigate
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	+	Low/medium	Medium	Campaigns support service change	Adopt good practice
Cumulative, synergistic, secondary/in-direct effects	*Some uncertainty on cumulative and secondary/ indirect impacts as results are dependent on householder behaviours. Broadly negative impacts, the assumption of a significant increase in home composting models a substantial negative impact in terms of acidification*				

XVIII Scenario 3 f - Waste prevention with high recycling collection and new energy recovery

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/$^{+}$	Medium	Medium	The effect is dependent on householder behaviour (home composting) but there is a minor improvement from support to home composting initiatives	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	$^{++}$	Low/medium	Medium	High levels of recycling driven by food waste collection and restricted residual enhanced by awareness campaigns and additional reuse/recycling options	Adopt good practice
To divert waste away from landfill	$^{+}$	Low	Long	Diversion of waste from MBT to EfW enhanced through waste awareness campaigns	Adopt good practice
To manage waste in a manner that limits transport impacts	$^{-}$	Low	Medium	Addition of weekly food waste collection will have minor negative impacts on transport	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	0/$^{+}$	Low/medium	Medium	Charging for garden waste is likely to reduce service accessibility however householders would receive an additional weekly food waste collection, home composting improved bulky waste and HWRC services could offset this	Adopt good practice
To make better use of all resources	+/++	Low/medium	Long	Higher efficiency EfW plant and high recycling improving resource use	Further improvements delivered by also utilising heat (CHP)
To maintain and enhance good air and environmental quality for all	0/$^{--}$	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact	Promote good home composting practice to limit

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
				however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	anaerobic degradation which can generate negative environmental impacts
To protect and enhance the quality of the sub regions water resources	0/--	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air.	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	0	Low/medium	Medium	Generally, a neutral impact envisaged consistent with other modelled scenarios	Encourage good home composting, prevention and recycling practice to minimise potential environmental impacts
To protect and enhance the quality and diversity of the rural land and landscapes	0	Medium	Medium	Almost identical impacts to baseline	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	++	Medium	Medium	Energy recovery efficiency from EfW plant improves both carbon performance and renewable/low carbon energy generation. High recycling further enhances carbon performance.	The most substantial improvements delivered by also utilising heat (CHP)

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste related crime	+	Medium	Medium	Use of communications and additional services to reduce motivation for waste crime	Use best practice techniques
To contribute to high and stable levels of employment and economic growth;	+/++	Medium	Medium	Additional jobs through communications, construction, associated suppliers and potential to secure associated manufacturing roles using heat off take plus additional collection jobs	Seek to establish CHP
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	+	Low/medium	Medium	Campaigns support service change	Adopt good practice
Cumulative, synergistic, secondary/in-direct effects	*The effect is dependent on householder behaviour (home composting) but there is a minor improvement from support to home composting initiatives Some uncertainty on cumulative and secondary/ indirect impacts as results are dependent on householder behaviours. Broadly negative impacts, the assumption of a significant increase in home composting models a substantial negative impact in terms of acidification*				

XIX Scenario 3g - Waste prevention with high recycling collection and new RDF facility

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/+	Medium	Medium	The effect is dependent on householder behaviour (home composting) but there is a minor improvement from support to home composting initiatives	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	++	Low/medium	Medium	High levels of recycling driven by food waste collection and restricted residual enhanced by awareness campaigns and additional reuse/recycling options	Adopt good practice
To divert waste away from landfill	--	Low/medium	Long	Increased MBT residues to landfill	Look to enhance MBT processing to minimise residues to landfill
To manage waste in a manner that limits transport impacts	-	Low	Medium	Addition of weekly food waste collection will have minor negative impacts on transport	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	0/+	Low/medium	Medium	Charging for garden waste is likely to reduce service accessibility however householders would receive an additional weekly food waste collection, home composting improved bulky waste and HWRC services could offset this	Adopt good practice
To make better use of all resources	+/++	Medium	Long	Higher efficiency RDF recovery and potentially materials recovery from MBT plant plus high kerbside recycling	Design and operate MBT plant to deliver high levels of resource efficiency maximise resource recovery via high

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
					participation in recycling and high efficiency AD for food waste plus good practice in communications
To maintain and enhance good air and environmental quality for all	0/−−	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the quality of the sub regions water resources	-/--	Low/medium	Medium	Negative impact on eutrophication from both RDF and home composting activity	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	0	Low/medium	Medium	Generally, a neutral impact envisaged consistent with other modelled scenarios	Encourage good home composting, prevention and recycling practice to minimise potential environmental impacts
To protect and enhance the quality and diversity of the rural land and landscapes	−	Medium	Long	Significant negative impact on land use criteria modelled	Design and site waste facilities in consideration of land use/landscape impacts
To reduce the causes and impacts of climate change from waste management activities	+	Medium	Medium	Improved in Carbon, improved energy recovery	Look to enhance MBT processing to minimise residues to landfill

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste related crime	+	Medium	Medium	Use of communications and additional services to reduce motivation for waste crime	Use best practice techniques
To contribute to high and stable levels of employment and economic growth;	+	Medium	Medium	Additional short-term jobs through construction and additional collection and communication roles	Look to utilise MBT outputs locally
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	+	Low/medium	Medium	Campaigns support service change	Adopt good practice
Cumulative, synergistic, secondary/in-direct effects	*Some uncertainty on cumulative and secondary/ indirect impacts as results are dependent on householder behaviours. Broadly some positive and some negative impacts, the assumption of a significant increase in home composting models a substantial negative impact in terms of acidification however improved carbon performance and resource use due to the improved efficiency of RDF plant.*				

XX Scenario 3h- Waste prevention with high recycling collection and 3rd Party EfW

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce waste generation	0/+	Medium	Medium	The effect is dependent on householder behaviour (home composting) but there is a minor improvement from support to home composting initiatives	Support waste prevention aspects of collection systems
To support the beneficial re-use and recycling of waste	++	Low/medium	Medium	High levels of recycling driven by food waste collection and restricted residual enhanced by awareness campaigns and additional reuse/recycling options	Adopt good practice
To divert waste away from landfill	+	Low	Long	Diversion of waste from MBT to EfW enhanced through waste awareness campaigns	Adopt good practice
To manage waste in a manner that limits transport impacts	-	Low	Medium	Addition of weekly food waste collection will have minor negative impacts on transport	Optimise collection systems and vehicle types to reduce emissions
To improve access to waste services and facilities	0/+	Low/medium	Medium	Charging for garden waste is likely to reduce service accessibility however householders would receive an additional weekly food waste collection, home composting improved bulky waste and HWRC services could offset this	Adopt good practice

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To make better use of all resources	+/++	Low/medium	Long	Higher efficiency EfW plant and high recycling improving resource use	Further improvements delivered by also utilising heat (CHP)
To maintain and enhance good air and environmental quality for all	0/−−	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the quality of the sub regions water resources	0/--	Low/medium	Medium	The recycling activity is broadly neutral in terms of impact however the assumption of a significant increase in home composting WRATE models a substantial negative impact associated for home composting, a relatively uncontrolled emission to soil, water and air.	Promote good home composting practice to limit anaerobic degradation which can generate negative environmental impacts
To protect and enhance the sub-regions biodiversity and geodiversity (minerals & soils)	0	Low/medium	Medium	Generally, a neutral impact envisaged consistent with other modelled scenarios	Encourage good home composting, prevention and recycling practice to minimise potential environmental impacts
To protect and enhance the quality and diversity of the rural land and landscapes	0	Medium	Medium	Almost identical impacts to baseline	Procure waste facilities in consideration of land use/landscape impacts

SEA Criteria	Score	Uncertainty	Duration	Comment	Mitigation
To reduce the causes and impacts of climate change from waste management activities	++	Medium	Medium	Energy recovery efficiency from EfW plant improves both carbon performance and renewable/low carbon energy generation. High recycling further enhances carbon performance.	The most substantial improvements delivered by also utilising heat (CHP)
To reduce waste related crime	+	Medium	Medium	Use of communications and additional services to reduce motivation for waste crime	Use best practice techniques
To contribute to high and stable levels of employment and economic growth;	0	Medium	Medium	Loss in waste treatment jobs offset by additional collection and communications jobs	Due to the nature of the scenario unable to mitigate
To raise the awareness of the importance of resource and waste management and to contribute to behavioural change that improves environmental outcomes	+	Low/medium	Medium	Campaigns support service change	Adopt good practice
Cumulative, synergistic, secondary/in-direct effects	*Some uncertainty on cumulative and secondary/ indirect impacts as results are dependent on householder behaviours. Broadly some positive and some negative impacts, the assumption of a significant increase in home composting models a substantial negative impact in terms of acidification however improved carbon performance and resource due to improved energy recovery.*				

Appendix 5 Responses from Statutory Consultees

Natural England

Date: 20 June 2018
Our ref: 246968
Your ref: Tees Valley JWMS Scoping Report

Mr G. Fisher
Tees Valley Waste Management Group
Middlesbrough Council
Resolution House
Cargo Fleet Lane
Middlesbrough
TS3 8AL

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T 0300 060 3900

BY EMAIL ONLY

Dear Mr Fisher

Planning consultation: Tees Valley Joint Waste Management Strategy Scoping Report

Thank you for your consultation on the above dated 15 May 2018 which was received by Natural England on the same day.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

This letter is split between some general comments regarding the approach taken, and then some more specific comments relating to certain parts of the document.

General Comments

On the whole Natural England supports the approach taken in detailing the scope of the strategy. The elements included for consideration appear appropriate, although it is noticeable that there is limited reference to the various landfill sites across the Tees Valley, and how the continuing operation of these sites would fit with the approach described in the strategy.

Natural England considers that the approach proposed will allow for a robust assessment of the potential impacts of the strategy.

Specific Comments

- Table 9 – It is pleasing to note that the environment within and surrounding the Tees Valley has been identified as a strength and opportunity for the economy of the area;
- Section 2.8 – Biodiversity – Teesmouth National Nature Reserve lies within both Stockton and Hartlepool Boroughs;
- Teesmouth and Cleveland Coast SPA does not currently have a marine element – its boundary extends as far as mean low water. Natural England has submitted documentation to Defra which proposes an extension to the SPA, which will result in a considerable marine extension the current boundary, but until such time as the consultation on this extension commences there is no marine element to this designation;
- Section 2.10.2 – Landscape – Part of the coast within Redcar and Cleveland is designated as a Heritage Coast, which is a statutory landscape designation that should be recognised in this section;
- Chapter 3 (Page 39, final bullet) – The Teesmouth and Cleveland Coast SPA does not contribute most of the Sites of Special Scientific Interest (SSSIs) within the Tees Valley. These are different designations – the SPA is designated through the Habitats Regulations which are derived from the EU Birds Directive, while SSSIs are designated under the Wildlife and Countryside Act 1981, which is UK legislation. It is more accurate to say that the SPA is underpinned by a number of SSSIs. Potential impacts from strategy objectives on these sites

should be considered at strategic level, which may include the need for a strategic Habitats Regulations Assessment to consider impacts on the SPA and Ramsar site (please note Ramsar is a place name, not an acronym and as such should not be capitalised);

- Chapter 4 - We welcome the amendment to the draft objective for air quality to include a reference to enhancement;

We would be happy to comment further should the need arise but if in the meantime you have any queries please do not hesitate to contact us.

For any queries relating to the specific advice in this letter only please contact me on 0208 0265533 or andrew.whitehead@naturalengland.org.uk. For any new consultations, or to provide further information on this consultation please send your correspondences to consultations@naturalengland.org.uk.

Yours sincerely

Andrew Whitehead
Northumbria Area Team

Historic England

Historic England

Mr G Fisher
Tees Valley Waste Management Group
Middlesbrough Council
Resolution House
Cargo Fleet Lane
Middlesbrough
TS3 8AL

Our ref: PL00409942
Your ref:

Telephone 0191 269 1237
Mobile 07775 003532

Date 20 June 2018

Sent by email to: wasteservices@middlesbrough.gov.uk

Dear Mr Fisher

Consultation on Scoping Report for the Strategic Environmental Assessment of the Joint Waste Management Strategy (JWMS) for the Tees Valley

Thank you for consulting Historic England on the Scoping Report for the Strategic Environmental Assessment of the Joint Waste Management Strategy (JWMS) for the Tees Valley. As the Government's statutory adviser on all matters relating to the historic environment in England, we champion and protect England's historic places, providing expert advice to local planning authorities, developers, owners and communities to help ensure our historic environment is properly understood, conserved and enjoyed. We are therefore pleased to offer our comments.

We have noted (on page 41) that SA Objective 8 from the Tees Valley Joint Minerals and Waste Development Plan, covering cultural heritage, has been scoped out of the Sustainability Objectives for the JWMS. This is on the basis that the JWMS is not specific, and therefore this objective cannot be

evaluated. Given the nature of the JWMS, this would appear appropriate.

However, in reviewing the JWMS, it is important that the Tees Valley Waste Partnership keeps in mind the implication of any policies, should circumstances change. Protecting and enhancing the historic environment is integral to the achievement of sustainable development, and the Strategic Environmental Assessment (SEA) Directive (2001/42/EC) identifies that particular regard should be had for cultural heritage when undertaking an SEA. Historic England has produced advice on what constitutes an effective assessment of the historic environment under SEA. This can be accessed from our website at https://historicengland.org.uk/images-books/publications/strategic-environ-assessment-sustainability-appraisal-historic-environment/ . This includes recommendations on: relevant plans, programmes and policies; the testing of baseline information; key sustainability issues which might affect the historic environment; indicators and monitoring; and the assessment process.

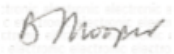
We would recommend that the relevant conservation staff and archaeological advisers are involved throughout the review of the Strategy and the SEA. They are best placed to advise on aspects such as: local historic environment issues and priorities, including access to data held in the Historic Environment Record; how the policy or proposal can be tailored to minimise potential adverse impacts on the historic environment; the nature and design of any required mitigation measures; and

opportunities for securing wider benefits for the future conservation and management of historic assets.

Finally, a minor point on page 35, but the reference to English Heritage should be changed to Historic England.

We hope that this information is helpful, but please do not hesitate to contact us should you require any further information.

Yours sincerely



Barbara Hooper
Principal, Historic Places Team

Email: barbara.hooper@historicengland.org.uk

Environment Agency

creating a better place

Environment Agency

Mr Gary Fisher
Tees Valley Waste Management Group
Middlesbrough Council
Resolution House
Cargo Fleet Lane
Middlesbrough
TS3 8AL

Our ref: DA/2007/101360/SE-01/SP1-L01
Your ref:

Date: 20 June 2018

Dear Mr Fisher

Tees Valley Joint Waste Management Strategy: Strategic Environment Assessment – Scoping Report

Thank you for the opportunity to comment on the above consultation document. In general, we are in support of the sustainability issues and measures identified within the Tees Valley Joint Waste Management Strategy (JWMS) Strategic Environment Assessment (SEA) Scoping Report. We have the following additional comments to make.

Waste Recycling
Table 9 summarises the current recycling material destinations for the collected kerbside recyclables. We note, however, that the information in Table 9 appears to be incomplete. Stockton-on-Tees Council provides no information as to the intermediate facility(s) for their collected recyclables. In addition, no information is provided on the intermediate facility for Darlington and Redcar and Cleveland Council's paper and card collections. This information should be provided where possible.

In Section 3: Key Sustainability Issues and Interrelationships it is identified that:

- In order to deliver the recycling/composting targets within the EC Revised Waste Framework Directive[1] and European Circular Economy Package, significant increases in recycling/composting performance would be required from all Tees Valley authorities. This may require development of organics waste collection systems where not already maximised and / or general measures to improve participation in existing dry recycling schemes across all authorities.

[1] 2008/98/EC requires 50% recycling by 2020

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Email: enquiries@environment-agency.gov.uk
www.environment-agency.gov.uk

We welcome this as a key sustainability issue for the Tees Valley JWMS review and we encourage the ambition to collect and process more organic waste. We encourage the implementation of citizen engagement to improve household recycling rates, and intercepting higher value and bulky household waste for resale.

It is acknowledged that specific waste management site locations will be considered on a case by case basis through the planning process. However, it is considered that there could be an opportunity to have a strategic policy that promotes large strategic sites at locations with exceptional rail or coastal transport links. The transportation of Local Authority Collected Waste over long distances by road to Energy from Waste (EfW) facilities is unlikely to meet future sustainability criteria.

Regulated Household Waste Recycling Centres
For information, the following sites are permitted Household Waste Recycling Centres in the Tees Valley Area. These sites are permitted and regulated by the Environment Agency.

Permit No.	Permit Holder	Permit Site
HP3496ZA	Hartlepool Borough Council	Burn Road Household Waste Site, Hartlepool
GP3396ZE	Suez Recycling And Recovery Tees Valley Ltd	Haverton Hil H W R C And Transfer Station, Stockton-on-Tees

HP3496ZA	Hartlepool Borough Council	Burn Road Household Waste Site, Hartlepool
GP3396ZE	Suez Recycling And Recovery Tees Valley Ltd	Haverton Hil H W R C And Transfer Station, Stockton-on-Tees

| HP3196ZC | Redcar & Cleveland Borough Council | Carlin Howe Farm Civic Amenity Site, Redcar and Cleveland |
| AP3699VW | Stonegrave Aggregates Ltd | Drinkfield Household Waste Recycling Centre, Darlington |

Waste Prevention and Neighbouring Authorities
Both Newcastle City Council and Durham County Council are reviewing waste strategies and aiming to reduce waste, particularly, single use plastics.

Recommendations for the Newcastle strategy on waste has a number of suggestions for reducing waste, including:

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- A voluntary ban on single use plastics in the city (including straws, cups and cutlery),
- Aiming to be a zero food waste city
- Setting up a regional partnership
- Drinking water points – to reduce water bottle use/waste

In line with neighbouring authorities, we acknowledge and support consideration within the Tees Valley JWMS SEA Scoping Report of the opportunity to embed a waste prevention plan with the revised JWMS including reducing the use of disposable and single use products.

EA Support with Waste Contracts and Crime
The EA waste enforcement team can assist during the negotiation of new waste handling contracts to act as a critical friend and to ensure service providers have a good track record in order to avoid issues arising later with waste crime. The EA have a new role, which is dedicated to working with local authorities. For further information please contact: NE-Waste@environment-agency.gov.uk

Pollution Prevention
We support the draft sustainability objective in Section 4, which seeks to protect and enhance the quality of sub regions controlled waters.

Water Framework Directive
We agree with the draft sustainability objective in Section 4 to protect and enhance the sub-regions biodiversity and geodiversity (minerals and soils). However, we suggest that the indicator/criteria for this objective will not provide a useful indication of whether the biodiversity element of the objective is being met as only a qualitative assessment of impact on geodiversity/soils is recommended.

Section 2.8 'Biodiversity', outlines the various conservations sites, including designated sites. It would be useful to set out in the SEA Scoping Report a map showing the locations of such sites together with current and, if known, future landfill locations. There is a potential correlation between the proximity of such sites.

Groundwater and Contaminated Land
We now abbreviate the term Groundwater Source Protection Zones to SPZs. The previous term GPZ's is referenced on page 24 of the report. We advise that this is amended accordingly.

In Section 2.5.3 Land and Soil, only the Coal Measures and Millstone Grit are of Carboniferous age, the Magnesian Limestone is Permian. We advise that you

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either remove the term Carboniferous or rearrange the sentence and insert the word Permian for the Magnesian Limestone.

On page 39 we suggest that you insert the word Source into Groundwater Protection Zone, as there are other types of Groundwater Protection Zones, for example, Safeguard Zones (though none of these Safeguard Zones are located in the Tees Valley).

The document states 'Waste management activities may have site specific impacts related to groundwater, however these will be considered through the planning and permitting processes rather than at a waste strategy level.' However, we suggest that groundwater could be considered further within the waste strategy, for example, avoiding the location of waste sites within SPZ1.

We advise amending the following key sustainability issue on page 39 of the report so that it reads:

The predominant soil type is slowly permeable, seasonally wet basic loams and clays. There are also smaller areas of freely draining loamy soils in the Tees Valley. Waste management activities may have site specific impacts related to soils, however these, **including land contamination risks**, will be considered through the planning and permitting processes rather than at a waste strategy level.

Air Quality
Dr Caitlin Burns is the Air Quality Champion of the North East EA area, supporting the transformation of our fleet and travel arrangements to low carbon options, and would be happy to discuss and share knowledge about clean air zones and strategies with the Tees Valley Combined Authority. For further information please contact: Caitlin.burns@environment-agency.gov.uk

Further Comments
The "Authority" title in the top left box of Table 4 on page 10 appears to be a mis-label.

Paragraph 4 of Section 2.5.2 Water makes reference to the "EA". For clarity, we suggest that this reference should be expanded to the "Environment Agency" for readers unfamiliar with our role in dealing with water quality issues.

We consider that the documents, guidance and regulations listed in Appendix 1 are comprehensive. We would advise that any adopted Strategic Flood Risk Assessments for the relevant local authorities are included in the Appendix 1 table.

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Environment Agency

If you have any questions in respect of the above, please do not hesitate to contact me.

Yours sincerely

Louise Tait
Senior Planning Advisor

Direct dial 02084746523
Direct e-mail louise.tait@environment-agency.gov.uk

North York Moors National Park Authority

From: Paul Fellows [mailto:p.fellows@northyorkmoors.org.uk]
Sent: 21 May 2018 11:30
To: Waste Services <wasteservices@middlesbrough.gov.uk>
Cc: Chris France <c.france@northyorkmoors.org.uk>
Subject: SEA baseline report on the JWS

Gary – this is to acknowledge that we have received and reviewed the baseline report for your SEA of the joint Waste Management Strategy and have no substantive comments to make.

The one comment we would make that it might be worth mentioning that the National Park is a separate planning authority for the bit of Redcar and Cleveland in the National Park and develops its own waste management policies (for example at 4.1), and that the consideration of plans, programmes and policies won't cover this area. The forthcoming York/N Yorkshire NYMNP Minerals and Waste Joint Plan will also need to be in the list of plans and programmes when complete.

If I can be of any help please let me know.

Paul Fellows.

Appendix 6 Responses to Statutory Consultees

Consultee	Comment	Action
Natural England	Limited reference to the various landfill sites across the Tees Valley, and how the continuing operation of these sites would fit with the approach described in the strategy	Added to Waste Management section.
	Section 2.8 – Biodiversity - Teesmouth National Nature Reserve lies within both Stockton and Hartlepool Boroughs	Actioned amendment made to section 2.8
	Section 2.10.2 – Landscape Part of the coast within Redcar and Cleveland is designated as a Heritage Coast, which is a statutory landscape designation	Actioned amendment made to section 2.10.2
	The Teesmouth and Cleveland Coast SPA does not contribute most of the Sites of Special Scientific Interest (SSSIs) within the Tees Valley. These are different designations – the SPA is designated through the Habitats Regulations which are derived from the EU Birds Directive, while SSSIs are designated under the Wildlife and Countryside Act 1981, which is UK legislation. It is more accurate to say that the SPA is underpinned by a number of SSSIs. Potential impacts from strategy objectives on these sites should be considered at strategic level, which may include the need for a strategic Habitats Regulations Assessment to consider impacts on the SPA and Ramsar site (please note Ramsar is a place name, not an acronym and as such should not be capitalised)	Actioned amendment made to section 3 (page 40)
Historic England	Recommend that the relevant conservation staff and archaeological advisers are involved throughout the review of the Strategy and the SEA.	Relevant staff will be advised when the strategy and SEA go out to public consultation
	Reference to English Heritage should be changed to Historic England.	Actioned amendment made to section 2.10.1 (page 35)
Environment Agency	We note, however, that the information in Table 9 appears to be incomplete. Stockton-on-Tees Council provides no information as to the intermediate facility(s) for their collected recyclables. In addition, no information is provided on	Table updated

Consultee	Comment	Action
	the intermediate facility for Darlington and Redcar and Cleveland Council's paper and card collections. This information should be provided where possible.	
	It is considered that there could be an opportunity to have a strategic policy that promotes large strategic sites at locations with exceptional rail or coastal transport links. The transportation of Local Authority Collected Waste over long distances by road to Energy from Waste (EfW) facilities is unlikely to meet future sustainability criteria.	The Strategy is not site specific, but any site select process would consider proximity and potential links to strategic rail and water transport infrastructure
	For information, the following sites are permitted Household Waste Recycling Centres in the Tees Valley Area. These sites are permitted and regulated by the Environment Agency – Burn Road Household Waste Site, Hartlepool – Haverton Hill H W R C and Transfer Station, Stockton-on-Tees – Carlin Howe Farm Civic Amenity Site, Redcar and Cleveland – Drinkfield Household Waste Recycling Centre, Darlington	Information noted, with thanks.
	In line with neighbouring authorities, we acknowledge and support consideration within the Tees Valley JWMS SEA Scoping Report of the opportunity to embed a waste prevention plan with the revised JWMS including reducing the use of disposable and single use products.	Specific waste prevention activities will be determined by the individual councils following the adoption of the overarching strategy. It is envisaged that specific initiatives with regards to use of disposable and single use products would be part of raising waste awareness and education campaigns
	Sustainability objective in Section 4 to 'protect and enhance the sub-regions biodiversity and geodiversity' we suggest that the indicator/criteria for this objective will not provide a useful indication of whether the biodiversity element of the objective is being met as only a qualitative assessment of impact on geodiversity/soils is recommended.	Comment noted, and the criteria will be adjusted to include a qualitative assessment of biodiversity

Consultee	Comment	Action
	Section 2.8 'Biodiversity', outlines the various conservations sites, including designated sites. It would be useful to set out in the SEA Scoping Report a map showing the locations of such sites together with current and, if known, future landfill locations. There is a potential correlation between the proximity of such sites.	Full maps of locations are under development at an individual authority level[92]
	We now abbreviate the term Groundwater Source Protection Zones to SPZs. The previous term GPZ's is referenced on page 24 of the report. We advise that this is amended accordingly	Actioned- GPZs have been amended to state SPZs
	In Section 2.5.3 Land and Soil, only the Coal Measures and Millstone Grit are of Carboniferous age, the Magnesian Limestone is Permian. We advise that you either remove the term Carboniferous or rearrange the sentence and insert the word Permian for the Magnesian Limestone.	Actioned- amended to state Permian Magnesian Limestone
	On page 39 we suggest that you insert the word Source into Groundwater Protection Zone, as there are other types of Groundwater Protection Zones, for example, Safeguard Zones (though none of these Safeguard Zones are located in the Tees Valley)	Actioned- amended to state Source Groundwater Protection Zone
	The document states 'Waste management activities may have site specific impacts related to groundwater, however these will be considered through the planning and permitting processes rather than at a waste strategy level.' However, we suggest that groundwater could be considered further within the waste strategy, for example, avoiding the location of waste sites within SPZ1	Actioned- 'The location of future waste management activities will avoid SPZ1 zones' has been added to the third bullet point on page 39
	We advise amending the following key sustainability issue on page 39 of the report so that it reads: The predominant soil type is slowly permeable, seasonally wet basic loams and clays. There are also smaller areas of freely draining	Amended accordingly

[92] http://teesvalleynaturepartnership.org.uk/resources/natural-networks-opportunity-maps/

Consultee	Comment	Action
	loamy soils in the Tees Valley. Waste management activities may have site specific impacts related to soils, however these, including land contamination risks, will be considered through the planning and permitting processes rather than at a waste strategy level.	
	The “Authority” title in the top left box of Table 4 on page 10 appears to be a mislabel	Amended accordingly
	Paragraph 4 of Section 2.5.2 Water makes reference to the “EA”. For clarity, we suggest that this reference should be expanded to the “Environment Agency” for readers unfamiliar with our role in dealing with water quality issues.	Amended accordingly
	We consider that the documents, guidance and regulations listed in Appendix 1 are comprehensive. We would advise that any adopted Strategic Flood Risk Assessments for the relevant local authorities are included in the Appendix 1 table.	Included in s. 4.7.3
North York Moors National Park Authority	The one comment we would make that it might be worth mentioning that the National Park is a separate planning authority for the bit of Redcar and Cleveland in the National Park and develops its own waste management policies (for example at 4.1), and that the consideration of plans, programmes and policies won’t cover this area.	Actioned – ‘it is a separate planning authority and develops its own waste management policies’ added to section 2.8 page 33.
	The forthcoming York/N Yorkshire NYMNP Minerals and Waste Joint Plan will also need to be in the list of plans and programmes when complete.	This is unpublished and currently behind the proposed publication schedule.

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PLACE SCRUTINY COMMITTEE
25 OCTOBER 2018

ITEM NO. .....8.....

WORK PROGRAMME

SUMMARY REPORT

Purpose of the Report

1. To provide Members with an update on the current work programme for this Scrutiny Committee and seek their views on the new methodology.

Summary

2. Members will recall that, at previous meetings of this Scrutiny Committee, discussions have been held and agreement reached on areas where this Scrutiny Committee would like to focus its work. Work is currently being undertaken in relation to some of these areas of work is still due to commence on others.

Recommendation

3. It is recommended that Members note the current status of the Work Programme.

Luke Swinhoe
Assistant Director Law and Governance

Background Papers

No background papers were used in the preparation of this report.

Author: Karen Graves – Ext 5801

S17 Crime and Disorder	This report has no implications for Crime and Disorder
Health and Well Being	This report has no direct implications to the Health and Well Being of residents of Darlington.
Carbon Impact	There are no issues which this report needs to address.
Diversity	There are no issues relating to diversity which this report needs to address
Wards Affected	The impact of the report on any individual Ward is considered to be minimal.
Groups Affected	The impact of the report on any individual Group is considered to be minimal.
Budget and Policy Framework	This report does not represent a change to the budget and policy framework.
Key Decision	This is not a key decision.
Urgent Decision	This is not an urgent decision
One Darlington: Perfectly Placed	The report contributes to the Sustainable Community Strategy in a number of ways through the involvement of Members in contributing to the delivery of the eight outcomes.
Efficiency	The Work Programmes are integral to scrutinising and monitoring services efficiently (and effectively), however this report does not identify specific efficiency savings.
Impact on Looked After Children and Care Leavers	This report has no impact on Looked After Children or Care Leavers.

MAIN REPORT

Information and Analysis

4. The format of the proposed work programme has been reviewed to enable Members of this Scrutiny Committee to provide a rigorous and informed challenge to the areas for discussion. The templates attached at **Appendix 1** contain the existing work programme as agreed plus some additional subject areas included following discussion with the Chair and Vice-chair.

5. Each topic has been reviewed to link it to the outcomes and the conditions in the Sustainable Community Strategy – One Darlington Perfectly Placed:-

SCS Outcomes		Three Conditions	
a)	Children with the best start in life	a)	Build Strong Communities
b)	More businesses more jobs	b)	Grow the Economy
c)	A safe and caring community	c)	Spend every pound wisely
d)	More people caring for our environment		
e)	More people active and involved		
f)	More people healthy and independent		
g)	A place designed to thrive		

6. In addition, each topic has been linked to performance indicators from the Performance Management Framework (PMF) or other published sources to provide robust and accurate data for Members to use when considering topics and the work they wish to undertake. There are some topics where appropriate PMF indicators have not yet been identified however; these can be added as the work programme for each topic is developed.

7. The topics have been grouped into two sections as follows:

   a) Overarching e.g. Performance Management; and
   b) Place.

8. To assist in the development of the work programme Members may wish to ask questions to act as a catalyst to the discussions for each topic and assist in further developing the direction Members may wish to take with each topic. Suggested questions are :

   What is the impact on services within the Borough?;

What is the impact on residents?;

How can this Committee influence or assist in developments?; and

Which organisations are involved?

9. Once the Work Programme has been agreed by this Scrutiny Committee, any Member seeking to add a new item to the work programme will need to complete a Quad of Aims. A revised process for adding an item to a previously approved work programme, which has been agreed by the Monitoring and Co-ordination Group, is attached at **Appendix 2.**

APPENDIX 1

PLACE SCRUTINY COMMITTEE WORK PROGRAMME

Topic	Timescale	Lead Officer/ Organisation Involved	SCS Outcome	Darlington Conditions	Scrutiny's Role
Performance Management and Regulation/ Management of Change Regular Performance Reports to be Programmed	Quarter 1 – September 2018 Quarter 2 -December 2018 Quarter 3 – March 2019 Quarter 4 July 2019	Relevant AD	A safe and caring community More businesses, more jobs More people caring for our environment A place designed to thrive	Build strong communities. Spend every pound wisely Grow the economy	To receive quarterly monitoring reports and undertake any further detailed work into particular outcomes if necessary.
End of Year Performance (including Compliments Comments and Complaints)	July 2019 Last considered 28 June 2018	Relevant AD			

Topic	Timescale	Lead Officer/ Organisation Involved	SCS Outcome	Darlington Conditions	Scrutiny's Role
Monitoring Outcomes from the Medium-Term Financial Plan 2016-20 *Impact of ceasing/reducing the following and whether there has been any cost shunting to other areas within the Council :-*		Ian Thompson/ Dave Winstanley/ Peter Carrick	A safe and caring community More businesses, more jobs A place designed to thrive	Spend every pound wisely	To monitor whether the savings identified are being achieved and consider the impact, if any, on residents
Concessionary fares	To be programmed				
Library Services including Mobile Library, Rockerton Library, Crown Street Library, Art Gallery and Local Studies	Central Library Services December 2018				
Street Cleansing, Environmental Crime, Litter and Ground Maintenance	Last considered 28 June 2018				
Indoor /Outdoor Market	To be programmed				

Topic	Timescale	Lead Officer/ Organisation Involved	SCS Outcome	Darlington Conditions	Scrutiny's Role
New Local Plan	Last considered 31 May 2018 at a Special Meeting of Scrutiny To be considered following consultation period – Special Date TBC	David Hand	A place designed to thrive	Grow the economy	To update Scrutiny on progress preparing the Local Plan. To contribute to and influence the development of the New Local Plan.
Economic Strategy	Date to be advised Last considered 12 February 2015	David Hand/ Mark Carrigan	More businesses, more jobs	Grow the economy	To scrutinise progress of the Strategy Action Plan against outcomes and understand relationship with Tees Valley SEP and Local Plan.
Housing Strategy	Date to be advised Last considered 17 December 2015	Pauline Mitchell	A safe and caring community A place designed to thrive	Build strong communities Spend every pound wisely Grow the economy	To scrutinise progress of the Strategy Action Plan against outcomes
Car Parking Strategy **Town Centre Parking**	Last considered 6 February 2014 Last considered 5 April 2018	Graham Hall/ Dave Winstanley	A place designed to thrive	Build strong communities Grow the economy	To scrutinise progress of the Strategy Action Plan against outcomes

Topic	Timescale	Lead Officer/ Organisation Involved	SCS Outcome	Darlington Conditions	Scrutiny's Role
Experience Darlington **Including -** **Rail Heritage**	Last considered 15 December 2016 Item appears on today's Agenda	John Anderson John Anderson	More people caring about our environment More people active and involved	Build strong communities. Grow the economy	To contribute to the development of 'Experience Darlington' Strategy
Bank Top Masterplan	Last considered 7 December 2017	Dave Winstanley	A place designed to thrive	Spend every pound wisely Grow the economy	To influence the Bank Top Masterplan and ensure the best outcomes for Darlington's residents and its economy
Red Hall Neighbourhood Renewal Strategy – Healthy New Town	Last considered16 Feb 2017	Tim Crawshaw/ Pauline Mitchell/ Miriam Davidson	A place designed to thrive More people caring for our environment More people healthy and independent	Grow the economy Build strong communities	To contribute to and influence the Strategy to ensure the best outcomes for residents
Broadband Infrastructure in Darlington 2012 - 2020	Last considered 6 Sept 2018 Progress requested 13 March 2019	Jochen Werres	A place designed to thrive	Grow the economy	To scrutinise progress of the Broadband Delivery (BDUK) and Local Full Fibre Network (LFFN) programmes

Topic	Timescale	Lead Officer/ Organisation Involved	SCS Outcome	Darlington Conditions	Scrutiny's Role
Tees Valley Waste Strategy	Item appears on today's Agenda	Ian Thompson/ Jim Busby, Local Partnerships	A place designed to thrive More people caring for our environment	Grow the economy Build strong communities	To contribute to and influence the Strategy to ensure the best outcomes for residents
Tees Valley Combined Authority Transport Strategy	Item appears on today's Agenda	Dave Winstanley/ Mark Wilson TVCA	A place designed to thrive	Grow the economy	To contribute to and influence the Strategy to ensure the best outcomes for residents

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APPENDIX 2

PROCESS FOR ADDING AN ITEM TO SCRUTINY COMMITTEE'S PREVIOUSLY APPROVED WORK PROGRAMME

Member Completes Quad of Aims (Section 1)

Completed Quad of Aims to Democratic Services

Refer to Monitoring and Co-ordination Group for clarification of appropriate Scrutiny Committee and in cases of cross cutting issues if needed

Advise Chair of relevant Scrutiny Committee of the Quad of Aims and the view of Officers

Include on next Scrutiny Committee Agenda (new work requests)

Scrutiny Committee decision about addition to Work Programme

Forwarded to Director/AD for views (Section 2)

(**NOTE** – There is an expectation that the Officer will discuss the request with the Member)

Criteria

1. Information already provided/or will be provided to Member
2. Extent of workload involved in meeting request
3. Request linked to an ongoing Scrutiny Committee item of work and can be picked up as part of that work
4. Subject to another Council process for enquiry or examination (such as Planning Committee or Licensing Committee)
5. About an individual or entity that has a right of appeal
6. Some other substantial reason

Note

Statutory Scrutiny Officer can liaise with Member AD/Director and Chair over how best any requests can be dealt with