

National Review of Civic Amenity Sites



Rialtas na hÉireann
Government of Ireland

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TERMINOLOGY

The regional waste management plans RWMPs provide the following definitions. This report is an examination of CAS and recycling centres, referred to together in this report as civic amenity sites (CAS). Bring centres are typically unstaffed facilities that accept a smaller range of materials and are not addressed in this report.

Term	Definition
Bring Bank	In the context of this report, is a facility in which members of the public deposit recyclable waste material such as, glass bottles, aluminium and metal cans, into specific receptacles for subsequent collection and delivery to material recovery facilities.
Civic Amenity Sites (CAS)	In the context of this report, is a reception facility that enables householders, and commercial users at some facilities, to deposit a wide range of waste including recyclable and non-recyclable materials, bulky waste and certain categories of hazardous waste
Commercial waste	In the context of this report, is a term used to describe the non-household fraction of municipal waste, which is produced by commercial premises such as shops, offices and restaurants, as well as municipal premises such as schools, hospitals etc. It also includes non-processed industrial waste arising from factory canteens, offices etc. Commercial waste is broadly similar in composition to household waste, consisting of a mixture of paper and cardboard, plastics, organics, metal, glass and residual waste.
Construction and demolition waste	In the context of this report, is all waste that arises from construction and demolition activities (including excavated soil from contaminated sites). These wastes are listed in chapter 17 of the List of Waste (LoW).
Disposal	(a) means any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy, and (b) without prejudice to the generality of paragraph (a), includes the disposal operations listed in the Third Schedule of the Waste Management Act, as amended and “waste disposal activity” is construed accordingly
Hazardous waste	Waste which displays one or more of the hazardous properties listed in the Second Schedule of the Waste Management Act, as amended.
Household waste	Waste produced within the curtilage of a building/residence or self-contained part of a building/premises used for the purposes of living accommodation.
Kerbside collection	In the context of this report, is a common reference for the practice of collecting household or commercial waste directly from its source, often, though not necessarily, from the pavement or front door. This service to customers generally entails waste collectors using separate bins to collect the various waste streams (usually dry recyclables, organic waste and residual waste).
Landfilling	Means a waste disposal site for the deposit of waste onto or into land (i.e. underground), including: internal waste disposal sites (i.e. landfill where a producer of waste is carrying out its own waste disposal at the place of production), and a permanent site (i.e. more than 1 year) which is used for temporary storage of waste, but excluding facilities where waste is unloaded in order to permit its preparation for further transport for recovery, treatment or disposal elsewhere, and storage of waste prior to recovery or treatment for a period less than 3 years as a general rule, or storage of waste prior to disposal for a period less than 1 year.
Pay by Weight Schemes (PBW)	Schemes whereby the waste producer pays based on the weight of the waste generated. This scheme is devised to offer financial incentives for the waste producer to reduce the amount of waste generated.
Pay-To-Use (PTU)	In the context of this report, are waste compactor units which members of the public can pay to use to deposit their municipal residual and mixed dry recyclable waste. These are primarily located on garage forecourts and parking areas of supermarkets and other retail outlets. PTU must, where applicable, also have containers for organic waste.

Term	Definition
Polluter Pays Principle	The 'polluter pays' principle is the commonly accepted practice that those who produce pollution should bear the costs of managing it to prevent damage to human health or the environment.
Public Waste Infrastructure	This term references local authority waste management infrastructure which is open to the public for public use for management of wastes. CAS and bring banks are public waste infrastructure.
Preparing for Reuse	Checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be reused without any further pre-processing.
Prevention	Measures taken before a substance, material or product has become waste, that reduce: (a) the quantity of waste, including through the reuse of products or the extension of the life span of products; (b) the adverse impacts of the generated waste on the environment and human health; or (c) the content of harmful substances in materials and products.
Producer Responsibility Initiatives (PRI)	Initiatives undertaken by the Government to facilitate better management of priority waste streams, in line with the 'Polluter Pays Principle'. Examples of PRIs include Repak, WEEE Ireland, ERP, IFFPG, RepakELT, ELVES.
Recovery	(a) means any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy, and (b) without prejudice to the generality of paragraph (a) of the Waste Management Act, as amended, includes the recovery operations listed in the Fourth Schedule of that Act. and "waste recovery activity" is construed accordingly.
Recyclables	Waste materials that may be subjected to any process or treatment to make it reusable in whole or in part.
Recycling	Means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.
Recycling Centre	See Civic Amenity Sites, CAS.
Regional waste management plans (RWMPs)	Statutory waste management plans implemented on a Regional basis in Ireland since 2001.
Regional Waste Management Steering Group (RWMSG)	Each of the three regional waste management planning offices are governed by a steering group which is made up of the Director of Services / Executive Manager of the Environment Departments from each of the local authorities within the respective region.
Reuse	Means any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.
Separate Collection / Source Segregation	Collection where a waste stream is kept separate by type and nature so as to facilitate a specific treatment.
Social enterprises	Community repair, reuse and recycling organisations, in context of this report
Waste	"waste" means any substance or object which the holder discards or intends or is required to discard. (2) A reference in the Waste Management Act, as amended, to waste is construed as including a reference to hazardous waste.
Waste electrical and electronic equipment (WEEE)	Refers to electrical and electronic equipment which is waste within the meaning of Article 3(a) of the Waste Directive 2008/98/EC, including all components, subassemblies and consumables which are part of the product, at the time of discarding.

ACRONYMS

Term	Definition
CUR	Connaught Ulster Region
CAS	Civic Amenity Site
CEP	Circular Economy Package
C&D, CDW	Construction and demolition waste
EMR	Eastern Midlands Region
EPA	The Environmental Protection Agency
HHW	Household waste
KPI	Key performance indicator
KWCS	Kerbside Waste Collection Service
LA	Local authority
MDR	Mixed dry recyclables.
MRW	Municipal Residual Waste
MSW	Municipal solid waste
PRI	Producer Responsibility Initiative
SR	Southern Region
TPA	Tonnes per annum.

EXECUTIVE SUMMARY

The 96 local authority Civic Amenity Sites (CAS) play a significant role in waste management in Ireland. The CAS are designed in particular to cater for waste streams outside current kerbside collection systems such as hazardous, WEEE, wood, metals, paints, green waste and 'higher-order' activities such as reuse and education. They also complement, and in some instances provide an alternative option to, kerbside collection of household wastes. The CAS have evolved to changing circumstances such as privatised waste management; changing waste compositions, circular economy considerations and legislative changes.

Against this background of ongoing change, it is timely to analyse the role, function, and financing of CAS to determine their optimal role in the future. Accordingly, the Department of Environment, Climate & Communications has supported this national study by the regional waste management planning offices into the operations of the CAS and the sustainability of CAS operations.

This study evaluates operations at 30 of the 96 local authority CAS using data gathered in 2019. It uses data from site visits, tonnage, and footfall data. Information from 384 verbal customer surveys and internal stakeholders (Regional Waste Management Steering Group meetings) and ten external stakeholder interviews are also considered and inform the outcome.

Details gathered about the operation of the sampled facilities, and the network as a whole, are presented. The data indicates that over 275,000 households used the 30 facilities in 2018. Customers reported a mean travel time of 14 minutes and a mean distance of 9.5km to use the facilities. Customer survey data indicates that most (65%) visits to CAS occur at monthly to quarterly intervals and that 99% of customers were householders, the 1% balance being commercial waste customers. CAS facilities accept a broad range of materials, though variable between facilities.

Good practices at the individual facility level are recorded. These include effective targeted material campaigns, well-segregated materials, ambitious reuse activities, educational activity, efficient and clear customer communications delivered by uniformly helpful, courteous staff. A small number of facilities show financial sustainability. The community values the CAS service.

At the network-level, however, issues with the operation of CAS are apparent. The overarching issue is that the potential '*strength in numbers*' of 96 facilities is not harnessed. Activities are not, shared or aligned at network-level for maximum impact and efficiency. Learnings and effort are not shared; a unified message is not presented to the public; existing tools are not used to full advantage. Activities that could be leveraged include procurement and service contracts, material sales, message delivery and development, pricing structures, decisions on acceptable materials and customers, and circular economy activities. This deficit that comes at a financial and operational effectiveness cost. The lack of integration comes at a cost – average annual subventions per local authority operated site are €447k, while 8 of the 14 facilities privately contracted included in the survey required subvention. This situation is not sustainable given the policy and financial challenges faced by the local authority sector, and in the context of continuing change, increased demands on services, and the requirement for maximised efficiency.

The study makes recommendations to address the issues identified. These recommendations are designed to realise and release the full, collective potential of the CAS network to provide sustainable public waste infrastructure, which responds to the needs of consumers and of policy challenges. Recommendations are made in three groupings: for the integration of the network of facilities; for the consolidation of arrangements and practices; and for the coordination of service provision.

VISION STATEMENT

The desired outcome for the network is described by the vision statement developed:

"To develop an integrated, consolidated and coordinated public waste infrastructure network that responds sustainably to consumer needs, regulatory and policy challenges, and the circular economy".

INTEGRATION - COMBINING IN AN EFFECTIVE WAY

The study identified issues with integration between CAS. The significant resources employed in the management and delivery of CAS activities are not used to maximum efficiency. Information sharing and learning are not supported. There is little integration of activity across local authority boundaries, even over short distances. There are inconsistencies with opening hours, materials accepted and branding. Individual or LA-level procurement of services, or sales of materials, do not capitalise on the market's appetite for scale, losing potential value.

The lack of integration comes at operational effectiveness and financial cost that is not sustainable. Better integration of existing facilities is a central requirement for a sustainable future.

The study recommends that the strength of the 96 CAS public waste infrastructure be harnessed through integration driven by proposed Regional Public Waste Infrastructure Managers (RPWIM). The RPWIM will be responsible for all aspects of integration including emergency management, administration, procurement, policy delivery, national CAS branding, and to develop a national gate fee protocol and a national funding model. The integration will set the footing for the consolidation and coordination subsequently required.

CONSOLIDATION - MAKING STRONGER

The consolidation of arrangements and practices at CAS can potentially deliver significant savings. The current lack of a consolidated approach, for example, on whether to accept, and whether and how to charge for specific materials or commercial wastes leads to widely variable cost recoveries. Agreements and messaging are also suited to the consolidation of efforts, but the opportunity is not taken. This situation is unsustainable.

The financial position of the CAS can be strengthened through a consolidated approach, including optimisation of income and cost management and consistency on domestic and commercial gate fees and their structures. A consolidated approach will ensure that the revenue from subvention supports priority waste streams and not the management of waste streams that could achieve cost recovery.

Consolidation will focus on closing the gap between revenue and expenditure, with loss-making streams identified for action. Revenue generating streams will be promoted: commercial waste and reuse collaborations in particular offer the potential for revenue growth. Collective agreements with extended producer responsibility schemes, material outlets, and service suppliers would consolidate the CAS position efficiently.

The study recommends that a framework for a collective approach to finance be developed – to optimise income, minimise costs, and create consistency on gate fees. It also recommends collective approaches to compliance schemes and service providers and collaborative approaches to the promotion of services. A consolidated strategy to the CEP is recommended, with support from the Government.

These recommendations are fundamental to the successful financial management of CAS and to attract support from the Government, and others, to deliver on policy challenges.

COORDINATION - WORKING TOGETHER IN AN ORGANISED WAY

As a public service, a coordinated approach to the provision of waste services is essential. The study found, however, that the CAS do not significantly coordinate the role, function, or finance of their operations. CAS operations vary significantly as there is no national standard defining how CAS could coordinate. Thus, for example, the types and timing of services provided to consumers differ widely. Many CAS open relatively limited hours – only half of CAS surveyed open >40 hours per week; many CAS do not prioritise times that may best suit customers. CAS branding, and messaging delivery, is uncoordinated. CAS have not adopted customer charters to demonstrate that customer experience is being prioritised and coordinated. The reach and spread of CAS provision are not coordinated, and some areas may be underserved.

Recommendations on coordination are made to improve the coordination of CAS and to improve service provision and address post-COVID-19 functioning. These focus on the development of a CAS standard, an associated hierarchy and designations of CAS. These processes will be led by the RPWIM. The study recommends consultation with the local authority sector on the designations, as is an analysis of the reach of CAS services. A multiannual programme for the development of the revised public waste infrastructure network described is recommended.

RECOMMENDATIONS

The recommendations generated by the study are compiled here. Implementation of these recommendations will enable the development of a truly integrated network of CAS during the lifetime of the national Waste Action Plan for a Circular Economy 2020-2025 and will position the network to the forefront of the delivery of the circular economy in Ireland.

INTEGRATION RECOMMENDATIONS

1. New Regional Public Waste Infrastructure Manager (RPWIM) posts to be established to oversee the integration of public waste infrastructure.
2. Each RPWIM will be responsible for all aspects of integration including emergency management, administration, procurement, policy delivery, and to develop the funding model.
3. The RPWIM's will be responsible for the development of a national gate fee protocol and to deliver national branding for the network.

CONSOLIDATION RECOMMENDATIONS

4. Develop a framework for a collective approach to the optimisation of income, minimisation of costs, and consistency on gate fees, domestic and commercial.
5. Determine the relative benefits of the collective LA subvention of the network versus continued local subvention or a combination of both.
6. Develop a framework agreement to consolidate the approach to compliance schemes and service providers.
7. Develop a consolidated strategy for the promotion of general and specific CAS services.
8. Devise a strategy for the promotion of the CEP by the LA sector with the support of Government.

COORDINATION RECOMMENDATIONS

9. Complete the national hierarchy of sites and associated standards.
10. Designate sites following the site hierarchy and standards to ensure appropriate national coverage of service.
11. Consult with local authorities based on proposed site designations.
12. Complete the analysis of reach of the designated and private sites nationally.
13. The Regional Public Waste Infrastructure Managers are to develop a multiannual programme for the implementation of the revised public waste network.

1 INTRODUCTION

The Eastern Midlands Regional (EMR) Waste Management Planning Office, the Southern Regional (SR) Waste Management Planning Office and the Connaught Ulster Regional (CUR) Waste Management Planning Office - have undertaken a national study of the status of local authority owned civic amenity sites evaluating the current role, function and financing of the sites. The study is to make recommendations about the sustainability of CAS operations. The study also considers CAS in the context of changed policy.

A Project Steering Group consisting of the 3 Regional Waste Planning Coordinators and relevant technical staff was created to oversee delivery of the project.

1.1 CAS in the waste management system

Ireland's management of waste has improved significantly in recent decades, driven by previous step changes. Ireland has moved away from over-reliance on landfill and developed more sustainable integrated waste collection and management options for reuse, recycling and recovery. The national integrated waste collection and management infrastructure has helped to improve Ireland's recycling rates. We have much increased awareness of the need to prevent, avoid and minimise waste and we have embedded a segregation and recycling mindset in the household sector.

CAS play a central role in Ireland's waste infrastructure and in delivering targets. The sites, with bring banks, collected 15% of household waste in 2017 and achieves high recycling rates driven by good onsite segregation of materials. The sites provide an alternatives to kerbside collections for responsible waste management and provide additional services, many of which are not available elsewhere. This is important for items that are not collected, or are costly to collect, at the kerbside. Developing the CAS sites will help Ireland's transition to a circular economy.

Financial pressures and the resources required to achieve better performance impact LA budgets. Central Government supports for operation of CAS have ceased. There is intent to achieve full cost recovery from CAS waste acceptance operations. At the same time, customers wish to manage wastes better and they expect more from CAS services. Customers want a wider range of materials accepted, additional services, friendly and efficient staff and expect a clean, modern, pleasant site, for a competitive fee.

These financial and operational pressures mean that CAS need to adjust their service model.

1.2 The Future

Waste management targets will be challenging to achieve. Our recycling rate has not improved in recent years and the easy-to-implement measures to deliver targets have been delivered. Measures to improve Ireland's waste management have a basis in European legislation. The European Commission 2015 package of legislative proposals is driving higher performance across Member States. The European Green Deal sets a roadmap for a climate neutral continent by 2050, encompassing actions supporting a closed loop approach to our resources. The focus is for Europe to become more resource efficient and to embrace the transition to a green circular economy embracing more sustainable products and reduce waste significantly.

These very significant, continent-wide requirements require a step change in Ireland. The Waste Action Plan for a Circular Economy 2020-2025 will transition Ireland to a circular economy. This circular economy policy and legislative agenda is an opportunity to enhance development of our green economy. This change will see business systems transform to circular economy models to harness the longevity of resources in preference to linear make-take-dispose supply chains. This economic opportunity has the potential to create jobs and foster innovative solutions.

The CAS has a role in encouraging this economic opportunity as part of a balanced and sustainable waste infrastructure. Step change is required to deliver this next phase of policy thinking. The RWMOs analysis of the future role, function and financing of CAS is being considered against this background.

2 DATA GATHERING

2.1 Site Selection

The sites selected are listed on table following. There are 96 LA CAS in the country¹. The RWMOs selected 30 of the 96 LA CAS for this study. The criteria used to select these CAS included:

- The range of wastes accepted, including CAS with the lowest, highest and mid-ranges.
- A balance of urban - rural settings.
- Consideration of the full range of wastes accepted across all CAS and a consideration if all of the waste types are represented in the selection.
- Selection of 16 LA operated CAS and 14 CAS operated by a contractor on behalf of the LA.
- A spread in each waste region.

The CAS selected are listed in **Table 2-1**, and indicative locations are shown in **Figure 2-1**.

Table 2-1: List of CAS selected

Region	LA	Name of CAS	Operator
EMR	Dublin City	Shamrock Terrace, North strand CAS	Contractor
EMR	DLR CoCo	Shanganagh Recycling Centre	LA
EMR	Fingal CoCo	Estuary Recycling Centre	LA
EMR	Kildare CoCo	Silliot Hill CAS	Contractor
EMR	Laois CoCo	Portarlinton CAS	Contractor
EMR	Louth CoCo	Dundalk CAS	Contractor
EMR	Meath CoCo	Kells CAS	Contractor
EMR	Offaly CoCo	Birr CAS	Contractor
EMR	South Dublin CoCo	Ballymount CAS	Contractor
EMR	Westmeath CoCo	Athlone CAS	Contractor
EMR	Wicklow CoCo	Murrough Recycling Centre	LA
SR	Carlow	Powerstown	LA
SR	Clare	Inagh	LA
SR	Cork City	Kinsale Road	LA
SR	Cork County	Mallow	LA
SR	Kerry	Milltown	LA
SR	Kilkenny	Dunmore	LA
SR	Limerick	Mungret	Contractor
SR	Tipperary	Cashel	LA
SR	Waterford	Dungarvan	LA
SR	Wexford	Holmestown	LA
CUR	Cavan CoCo	Corranure CAS	Contractor ²
CUR	Donegal CoCo	Letterkenny CAS	Contractor
CUR	Galway City	CAS, Liosban Industrial Estate, Galway	LA

¹ Based on the 2016 annual returns by LAs to the EPA.

² Were marked as 'LA owned/Private Operator'

Region	LA	Name of CAS	Operator
CUR	Galway CoCo	Clifden Recycling Centre	Contractor
CUR	Leitrim CoCo	Mohill CAS	LA
CUR	Mayo CoCo	Derrinmera Landfill & Civic Amenity	LA
CUR	Monaghan CoCo	Scotch Corner Recycling Centre	Contractor
CUR	Roscommon CoCo	Ballaghaderreen CA Site	LA
CUR	Sligo CoCo	Tubbercurry CAS	Contractor

Indicative locations of the CAS are indicated in **Figure 2-1**.

2.2 Operational

Tonnages are reported on all CAS in annual returns from LAs to the EPA. The EPA supplied the 2017 dataset to the project team. Also provided was 2017 data on WEEE tonnages.

In total, 29 site operational and customer surveys were conducted between 21 May and 5 July 2019. A site survey for one of the sites could not be arranged in the timeframe for operational reasons, although this site is included in the financial analysis. (See section 3)

2.3 Customer Survey

Customers were surveyed on 29 CAS using the method and questionnaire copied in **APPENDIX E: Customer survey Methodology**.

Calculations were made to determine an appropriate sample size of customers as follows:

- Footfall for the CAS was approximately 1,010,398 customers per annum (based on 2016-2018 data).
- Footfall was combined with data on frequency of visits (collected from a number of earlier surveys), to account for repeat visits, reducing the footfall to give the 'customer base' of 153,173 using the CAS.
- To sample a statistical 'population' of 153,173, a sample size of 383 is required. This 383 was distributed proportionately to footfall across the 30 CAS.
- The surveyor was tasked with surveying at least the calculated number of customers at each site.

Full details of these calculations applied are copied in **APPENDIX F: Calculations of customer base**.

The estimate of customer base changed after the survey when updated calculations were made using the more accurate data collected during the 2019 survey. This change is addressed in **Section 4.1.3**.

The customer survey findings are presented in **Section 4** of this report.

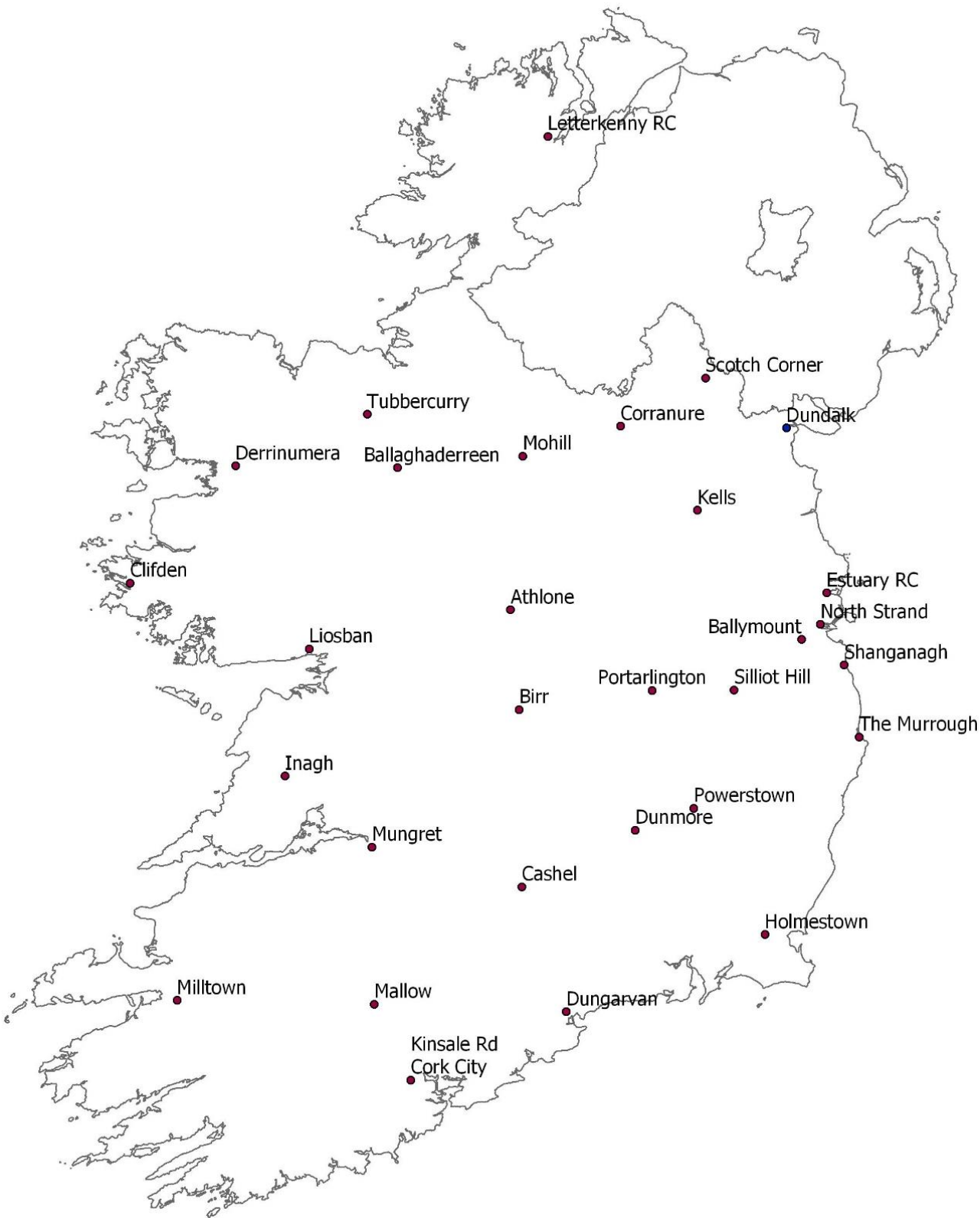


Figure 2-1: Locations of the 30 CAS examined

2.4 Stakeholder Engagement - Steering Groups

Engagement was undertaken with Regional Waste Management Steering Groups (RWMSG) to ensure that the study included the views and/or input of these parties, which can make a meaningful contribution to the project objective of maximising the function and value of the CAS sites. A description of the process and outcomes of consultations with the RWMSG have been collated into the discussion section of this report, and a summary is presented.

2.5 Stakeholder Engagement - Third Party Stakeholders

Engagement was undertaken with a wider audience in October, November 2019. These stakeholders were selected from the groupings: PRI Schemes (3), Waste contractors operating CAS (3), Customer representative groups (3) and waste management sector representative organisation members (3). The list of questions presented to each group are listed in **Appendix I**.

Responses to the consultations have been collated in the discussion section of this report.

2.6 Finance

Financial data on 30 CAS was collected from May to July with clarifications ongoing until October 2019. The data requested during the surveys is listed Appendix A. In addition, the charge structures of the CAS were identified by way of a web-based search for the relevant information on each of the sample sites.

The purpose of the financial appraisal was to:

1. Analyse the data collected and collated,
2. Identify income and expenditure profiles for the CAS,
3. Identify fixed and overhead costs associated with CAS,
4. Compare the financial performance of contracted and LA operated facilities,
5. Determine the reasons for differences in financial performance,
6. Compare the charges at each facility,
7. Identify key finance success factors, and.
8. Assess the implications of current financial performance.

3 OPERATIONAL FINDINGS

This section of the report presents summary findings following the survey of operations on the CAS.

3.1 Household and Commercial Waste reception

The CAS were categorised according to source of materials accepted. Figure following shows numbers of surveyed CAS that accept household only or both household and commercial waste.

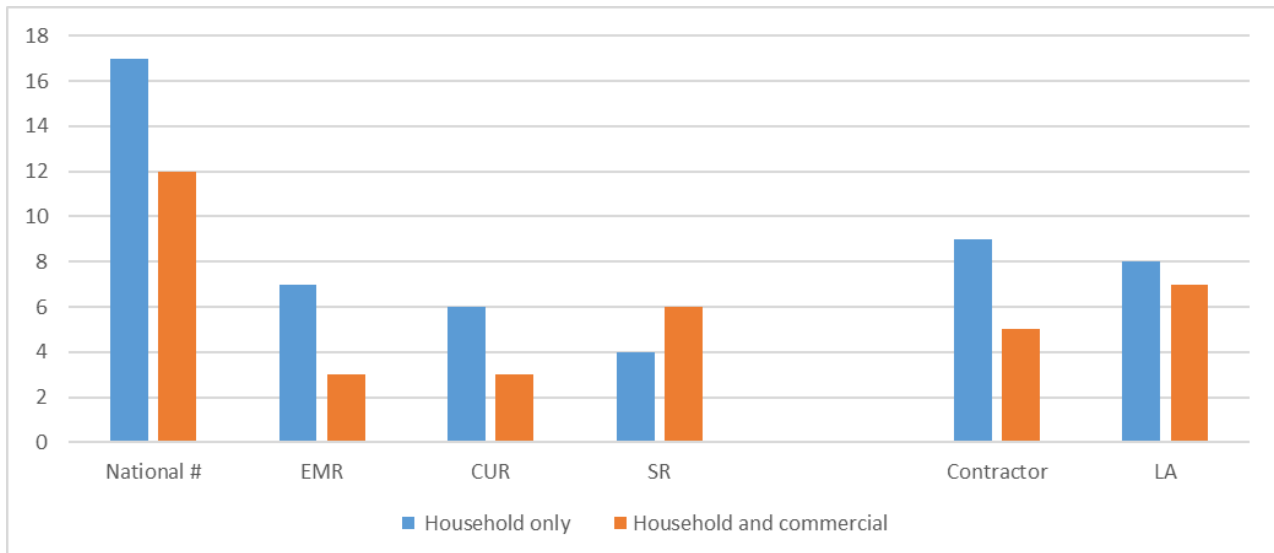


Figure 3-1: Number of CAS accepting Household and/or Commercial Waste

Onsite discussions clarified that some commercial waste tonnage, primarily from smaller generators, does enter household waste only CAS.

The volume of commercial operators encountered during customer surveys was very small (1%)

3.2 Tonnage Accepted

EPA collects tonnage information for CAS in annual returns and the RWMOs obtained a copy of this data. The 30 CAS examined in this study handled 67,023 tonnes in 2017.

Data is presented on waste volumes, which is presented in **Table 3.1**. Waste streams are recorded individually under 48 reported categories - see Appendix I.

Table 3.1 presents the tonnages recorded for the Top 10 streams for the combined tonnage of all 30 CAS.

Table 3-1: The top 10 streams (combined tonnage) reported at the 30 CAS (2017)

Stream Description	Tonnes / annum
Mixed Residual Waste	14,011
Bulky waste	11,493
Garden / green waste	8,272
Wood (non-packaging)	6,380
WEEE	6,248
Mixed CDW (non-haz)	3,259
Other metals (non-packaging)	2,770
Cardboard & paper (non-packaging)	2,048
Paint, inks, adhesives and resins - Haz	2,024
Card & paper (packaging)	1,983
Total waste reception - streams above	58,488 (87%)
Total waste reception - all streams	67,023

The combined tonnage data for the 30 CAS is depicted in **Figure 3.2** which illustrates the scale proportion of wastes accepted.

The 22 smallest fractions together account for 1.6% of intake tonnages. These are split out into **Figure 3-3**.

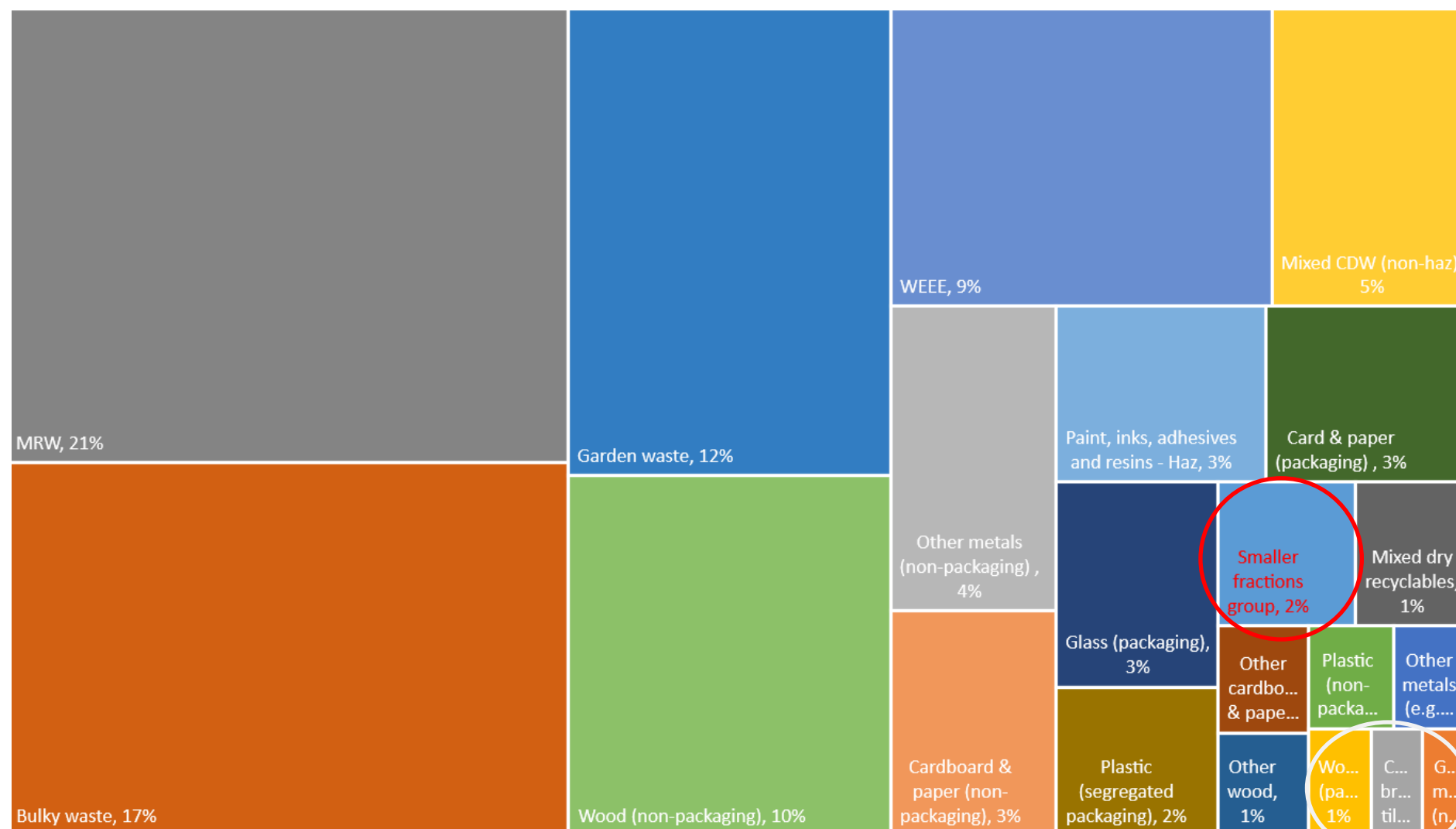


Figure 3-2: Relative proportions of 20 largest fractions and 1 combined smaller fractions group (circled red) for 30 CAS (67,023 tonnes)

The three smallest fractions (circled white) in Figure 3-2 are wood packaging (0.6%) in yellow, concrete, bricks, tiles (0.4%) in grey and gypsum (0.4%) in orange.

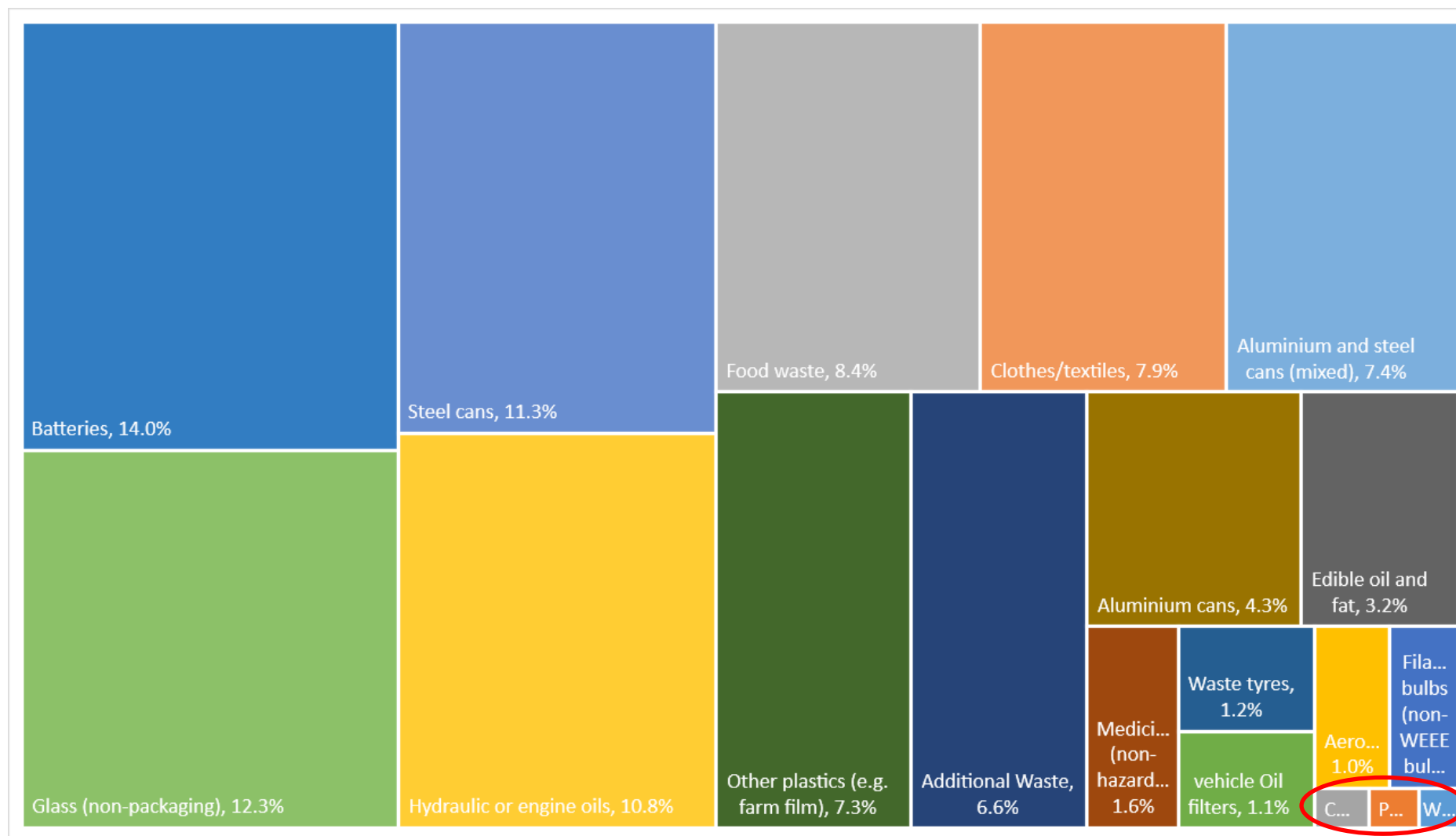


Figure 3-3: 'Sunburst' depiction of relative proportions of 22 smallest fractions reported by 30 CAS, 2017 (1,082 tonnes)

The 3 smallest fractions (circled, red) in Figure 3-3 are composites (0.2%, grey), pesticides (0.2%, orange) and WEEE - charities (0.1%, light blue).

Using the tonnage data reported, the 5 largest waste streams were identified at each site. These are depicted by a green cell (actual tonnages not shown) in figure 3-4 below. There are patterns apparent:

- There are 6 streams that sites report as their largest: WEEE, wood primarily non packaging, mixed residual waste, green waste, metals (mostly non-packaging) and bulky waste.
- Other streams are important for smaller numbers of CAS including mixed dry recyclables, plastics, batteries, paints and CDW (mixed and non-mixed streams).

The list indicates that most facilities have the same primary waste streams, with some variance in lower-tonnage streams.

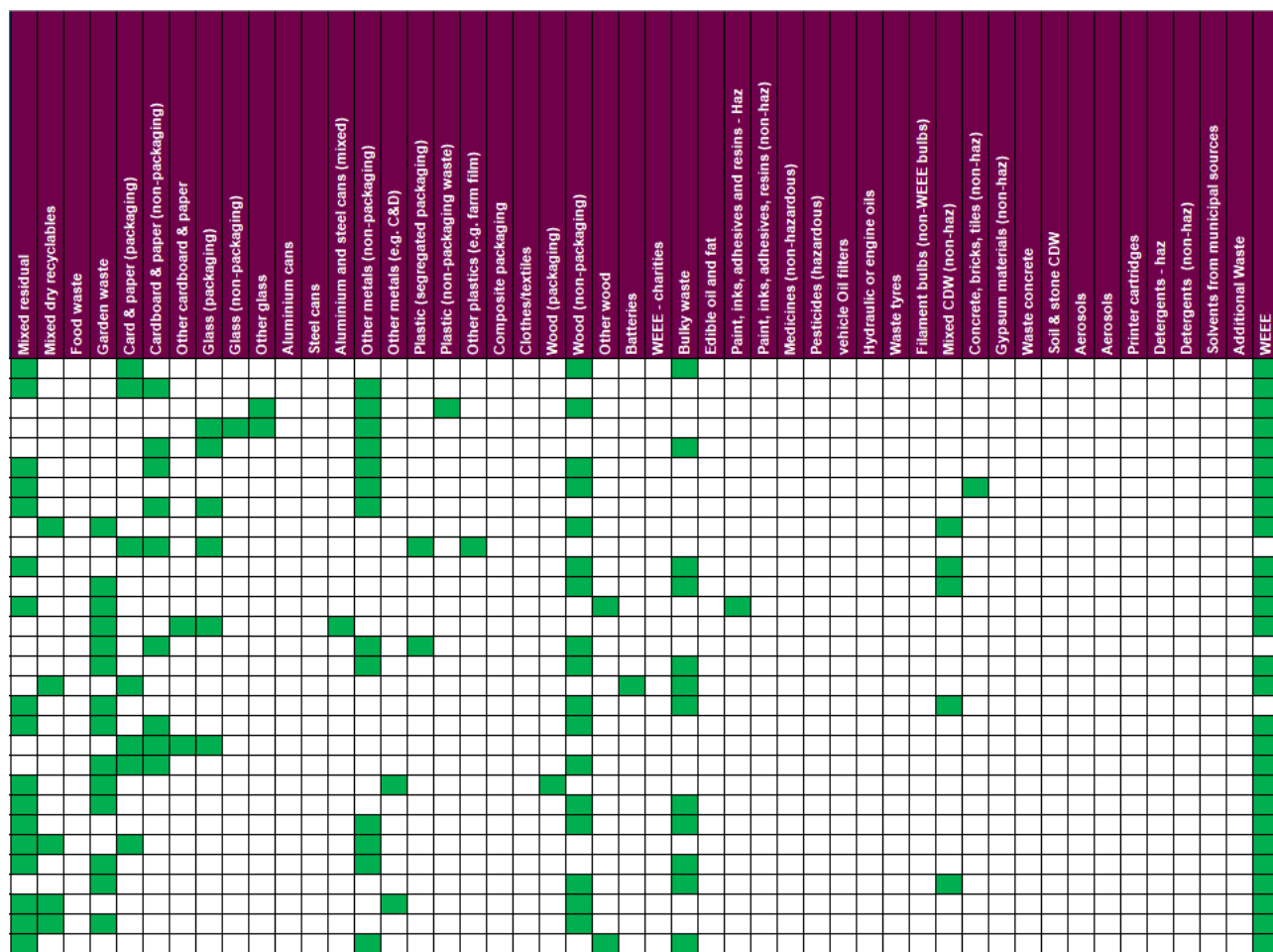


Figure 3.4: Top 5 streams per CAS (rows), by tonnage, depicted by a green cell,

Tonnage collected per regional inhabitant in 2017 is presented in table following including 2010-2012 data from Table 9.9 of the RWMPs.

Table 3-2: Data on tonnage and population densities relative to CAS

Year	Number of CAS ³	Population	CAS / 50,000 inhabitants	Waste managed (Tonnes)	Tonnes / CAS	Waste managed (kg) / inh
2010	107 (All)	4,549,000	1.2	158,303	1,479	35
2011	113 (All)	4,571,000	1.2	141,235	1,250	31
2012	118 (All)	4,589,000	1.3	130,136	1,103	28
2017	96 (LA only)	4,784,000	1.0	131,202	1,367	27

Tonnage is one consideration of the importance of materials to individual CAS e.g. collection of light, bulky materials, such as mixed dry recyclables or Styrofoam plastics, are likely more important than collected weights imply. The gross revenue (or cost) accruing to CAS from these materials would be a useful consideration if data were available.

Local circumstances (e.g. competing waste management services available or types of streams arising locally) likely partially dictate which mix of materials arise and are managed at CAS.

3.3 Management of Unprocessed Residual Waste

Unprocessed residual waste means residual municipal waste collected at kerbside or deposited at landfill/CAS /transfer stations that has not undergone appropriate treatment through physical, biological, chemical or thermal processes including sorting. Unprocessed residual waste was reported as going directly from the CAS to landfill at 2 CAS. Unprocessed residual waste is reported as going directly from site to incineration at 5 CAS.

3.4 Reuse and Educational Activities

The surveyor recorded reuse activities that were visible and / or were reported during the site visits.

Re use activities were recorded at 14 CAS as follows:

- Book reuse (6 CAS). These activities are typically informal bookshelves where customers are encouraged to take books laid out on a table located in a building on site.
- In total, 1 CAS collects gaming console controllers on behalf of the Enable Ireland's National Assistive Technology Training Service.
- In total, 2 CAS facilitates collection of bicycles for the 'School for Africa' initiative on behalf of Rotary Ireland while 1 CAS does the same for Bicycles for Africa.
- In total, 1 CAS facilitates segregation and reuse of materials like toys and bicycles or materials for theatre productions.
- In total, 2 CAS will source difficult to find or expensive equipment parts, for example a knob or a handle for a cooker/fridge. This could form the basis of a micro-enterprise if appropriately managed and subject to site licence agreement.
- In total, 1 CAS conducts minor amounts of reuse activities, primarily on electrical goods and books.
- Paint is segregated for reuse at 5 CAS, either continually or on an annual day as at 1 site in EMR.

The CAS, with a few exceptions, typically do not have detailed records of the reuse activities engaged in by their customers.

Findings of interest at specific CAS include:

³ The 2010 to 2012 data account for all CAS nationally. the 2017 data only accounts for LA facilities.

- The Reuse Cottage concept which enables a number of social enterprises access to its CAS, which facilitates a wide range of material management and creates a hub/cluster of activity.
- Leasing space for reuse activities to social enterprises for procurement of stock before it is discarded occurs at some CAS. One LA site reports leasing a property unit adjacent to the CAS to a social enterprise (a charity shop). This shop collects materials that would otherwise have been disposed of as waste. The materials collected are sent for sale to that organisations retail shops. The LA representative at the RWMSG meeting expressed satisfaction with the initiative. In total, 1 contracted site reported intent to trial a linkage with a charity shop during 2019, based on positive experience elsewhere, where the model is profitable, and it is therefore seeking to replicate.
- Licensing restrictions may prevent activities that could be classified as 'scavenging'. Formal arrangements may be required if reuse activities are to be located on CAS.
- In total, 1 LA-operated CAS reported operating as an educational centre which hosts events. The Environmental Awareness Officer works from this CAS, bringing visibility to the site, and linking their work directly to practicalities of circular economy.
- Retrieval (formally) of difficult to find replacement parts (e.g. a knob for a particular cooker) by order from a customer and actioned by CAS employees.
- Retrieval (informally) of old newspapers as mementos for sale on specialist websites as birthday presents.

3.5 Infrastructure (Buildings, weighbridge, access)

3.5.1 Container Ownership, Numbers

Appendix I provides information gathered during the survey about a list of 67 material streams. These materials are reported to EPA annually. The site interviewee was asked to indicate

- If their site collected this stream;
- Who owns the container for the material;
- How many containers there are for that stream;
- If each stream was weighed leaving the site.

It is important to note:

- Materials collected loose are counted as captured, despite the lack of containers.
- Different materials may be collected together - e.g. Gaming controllers (#59 in the Appendix listing), print cartridges (#42) and spectacles (#64) may be collected in the same container, and this same container would appear to be recorded 3 times. Further, this container may be weighed on site exit, explaining the anomaly of why spectacles are recorded as being weighed.
- Some of the 67 materials are further sub-divided and are collected by both LA and contractor.
- Not all CAS accept all of these materials in the form described - e.g. Wood (non-packaging waste, municipal) is not collected as a separate stream by any site - likely any collected is commingled with a mixed wood stream or may be mis-labelled as packaging wood.

3.5.2 Security and Reception

A monitored security alarm system is provided at 24 of 29 CAS (11 contractor-operated and 13 LA-operated).

A CCTV system is provided at 26 of 29 (11 contractor-operated and 15 LA-operated) CAS.

3.5.3 Buildings

Temporary buildings - primarily office or canteen/welfare facilities - were present on site at 13 CAS (6 contractor-operated and 7 LA-operated, of which 3, 4 and 6 are in EMR, CUR and SR respectively). Some of these temporary buildings have large combined floor areas - estimated at over 200m² at Silliot Hill and Liosban CAS for example.

Some 16 CAS (8 contractor- and 8 LA-operated) were equipped with permanent buildings as operational and office or canteen/welfare facilities. Some permanent buildings have large combined floor areas - e.g. estimated at over 1,600m² at Cashel and at 900m² at Kinsale road.

By contrast 10 CAS recorded having no permanent buildings onsite.



Figure 3-5: Temporary and permanent buildings at CAS

3.5.4 Utilities and Services and Access

There were 19 CAS recorded as having a single combined entrance/exit and 8 CAS recorded having separate customer entrance/exits. In total, 2 CAS reported having a dedicated operational entrance/exit - a setup that improves safety aspects by separating the public from plant and machinery.

Mains water is available, piped, onsite at 27 of 29 CAS (14 contractor-operated and 13 LA-operated), while the remaining 2 CAS have onsite wells for water. Of these CAS 10, 9 and 8 are in EMR, CUR and SR respectively. None of the 29 CAS reported that their water supply restricted or limited operations.

Wastewater treatment is available onsite, or the site is piped and connected to sewer at 25 CAS (13 contractor-operated and 12 LA-operated CAS, of which 10, 6 and 9 are in EMR, CUR and SR respectively). The surveyor reported that 2 CAS operate a septic tank rather than a sewage pipe connection. Similarly, 2 CAS reported leachate being transported off site. None of these CAS reported that reliance on tanks or transport restricted operations.

Electricity mains availability was reported at all CAS, and no site reported power supply restrictions.

None of the 29 CAS reported significant restrictions as a result of site infrastructure or services - electricity, water, wastewater or roads.

3.5.5 Site Vehicles

Nationally, 9 of 29 CAS (6 contractor-operated and 3 LA-operated) report having no dedicated site vehicles.

The LA owns the vehicles at 8 of the 15 LA CAS.

A contractor / third party owns the site vehicles at 12 CAS. Of these, 4 of 12 are LA-operated (meaning that the vehicles are leased to the LA) and 8 of 12 are contractor-operated (contractor owns / hires vehicles).

The site vehicles recorded and reported at the CAS, if any, during site visits were recorded (data not presented here).

3.5.6 Surrounding Area Land Uses

Of the 29 CAS surveyed, 13 CAS (3 contractor-operated and 10 LA-operated) are co-located on or adjacent to a landfill /closed landfill site. Of these, 1, 5 and 7 of these CAS are in EMR, CUR and SR respectively.

The surveyor recorded land uses on all sides of the CAS visited. This information is presented in **APPENDIX H: Surrounding area land uses**.

3.5.7 Employment at CAS

Numbers of employees (staff) at each site are presented in Figure 3.6. Numbers presented are in full time equivalents as reported at the CAS during the site surveys.

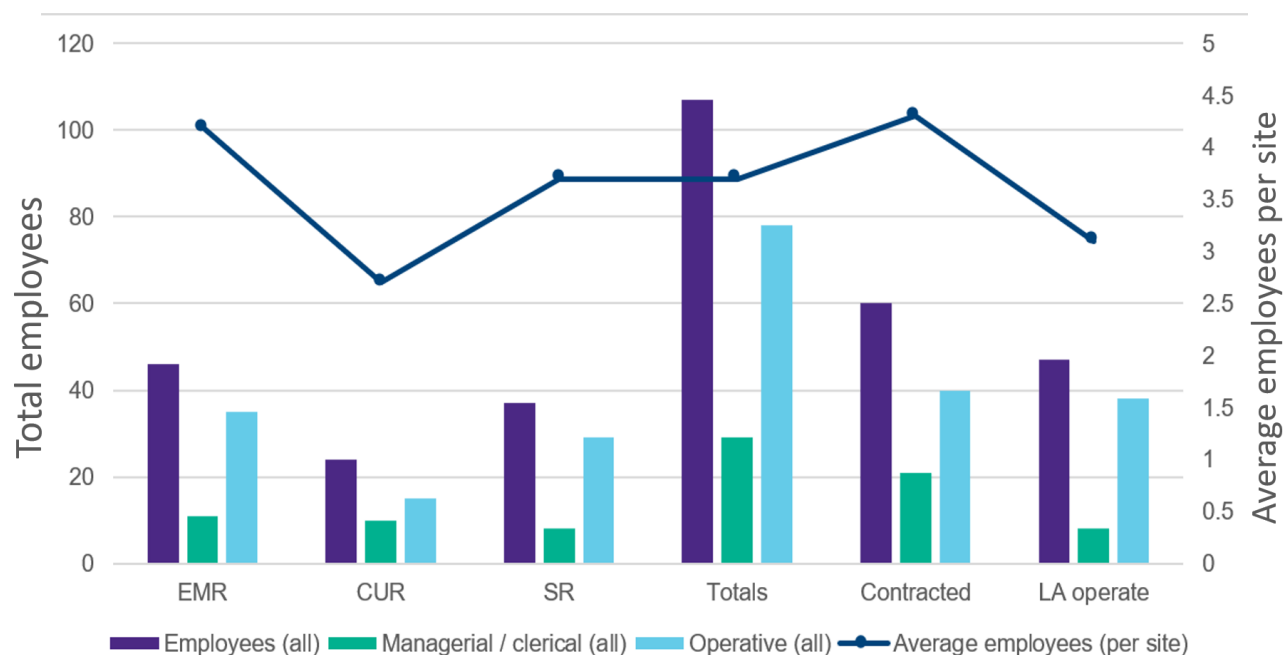


Figure 3-6: Employment details for CAS - FTE (average employees on secondary axis)

The total number of people working at the CAS, collectively across the 29 CAS surveyed, as reported by the individual site contacts, is 107. These were divided into 60 employees on contractor-operated CAS, and 47 employees on LA-operated CAS. Of these people, 46 are in EMR, 24 are in CUR and 37 are in SR.

Nationally (based on the 29 CAS surveyed), the average number of employees is 3.7 per site - 4.3 on contractor-operated CAS and 3.1 on LA-operated CAS. Operationally, dealing with customers on the site face, the average is 1-2 employees.

Nationally (based on the 29 CAS surveyed), 29 people (21 on contractor-operated CAS and 8 on LA-operated CAS) are reported as working in managerial/clerical roles at the CAS surveyed. Of these, 11 are in EMR, 10 are in CUR and 8 are in SR.

Nationally (based on the 29 CAS surveyed), 78 people (40 on contractor-operated CAS and 38 on LA-operated CAS) are reported as working in operative roles at the CAS surveyed. Of these, 35 are in EMR, 14 are in CUR and 29 are in SR.

3.5.8 Back Office Systems (Hardware / Software and capabilities)

There is a central IT server for site, either onsite or offsite at 3 (10%) CAS, one in each region, and 1 of these operates under contract and 2 are operated by the LA. Nationally, there is specialised software at 17 (6 contractor-operated and 11 LA-operated) CAS. The specialist software used is not listed in this report.

3.5.8.1 Receipting and weighing and identification

- Customers can be routinely supplied with a receipt for waste delivered at 24 of 29 CAS. Of the CAS that cannot provide receipts, 4 are LA-operated and 1 is contracted.
- Customers are routinely supplied with a receipt for waste delivered to site at 17 (6 contractor-operated and 11 LA-operated) CAS. Of these, 3, 4 and 10 are in EMR, CUR and SR respectively.
- Receipts for waste are print-automated at 17 (7 contractor-operated and 10 LA-operated) CAS. Of these, 3, 4 and 10 are in EMR, CUR and SR respectively.
- Cash is handled by a cashier at 22 (11 contractor-operated and 7 LA-operated) CAS, of which 7, 6 and 9 are in EMR, CUR and SR respectively).
- In total, 4 CAS report card payments only onsite.
- No charges are applied at 3 CAS - these accept dry recycling and WEEE streams.
- Customers are not routinely identified at 14 of 29 CAS, although users of the weighbridge or those bringing in large volumes of waste may be identified at those CAS if required.
- For CAS that do identify customers identification is by car registration, name and address or Eircode.
- A vehicle weighbridge is present at 19 (8 contractor-operated and 11 LA-operated) CAS. Of these CAS, 12 are automated. Of the 19 weighbridges 2, 7 and 10 are in EMR, CUR and SR respectively.
- Two CAS have small, non-vehicle scales for weighing incoming waste, 1 each in CUR and SR.

3.6 Site promotion and customer information

3.6.1 Opening hours

The CAS open for an average of 38.2 hours per week. Contracted CAS open an average of 38.6 hours per week and LA operated CAS open an average of 37.8 hours per week. Nationally, 6 CAS close for lunch and these CAS open an average of 32.9 hours per week. CAS closing for lunch are on average smaller (average tonnage handled 1,170 tonnes compared to national average of 2,234 tonnes for all 30 CAS). CAS not closing for lunch open an average of 37.9 hours per week.



Figure 3-7: Opening hours analysis - CAS opening for lunch (left), numbers of hours (right)

Of the 29 CAS, 27 are closed on public holidays. There were 2 CAS that open are both contract-operated CAS. Only 1 CAS reported opening on Sundays.

Many CAS operate restricted hours on Saturdays with 14 of 29 CAS closing around lunchtime, some from 12:30 and only 5 of 29 operating to or past 17:00 on Saturdays.

3.6.2 Signage and Literature Information

Signage was described as being clearly displayed at 28 of 29 CAS in the site reports.

Site promotion (in the form of written literature / leaflets) is available onsite at 24 (80%) CAS. There were 2 LA CAS and 3 contracted CAS that did not have literature onsite.

Variations in quality and quantity of literature and signage were recorded during the survey. Consistent iconography was not evident between the sites surveyed - the signage being legacies of various previous local and national campaigns. There may be potential for savings and standardisation through coordinated national purchasing of signage design and production.

The finding is that signage content was poorly coordinated between CAS and quality was mixed. Sign design costs are being incurred repeatedly to generate non-standard signage.

3.6.3 Website Promotional Activity

Each of the 30 CAS also had an online presence in the form of webpages and online brochures. These webpages were hosted on:

- The www.mywaste.ie website which has details of all CAS including opening hours and wastes accepted
- Contractor websites (contracted CAS)
- Contractor websites (contracted CAS)
- LA websites (both contracted and LA CAS)
- Dedicated Websites - e.g. www.limerickrecyclingcentres.ie
- Social media - Facebook and Twitter

Site staff participating in the survey reported that website and social media work was often conducted by office staff using content generated by or agreed with site staff.

4 STAKEHOLDER ENGAGEMENT

4.1 Customer Surveys

The significant outcomes of the customer surveys are presented in the sections following.

4.1.1 Customer Profile

Nationally 384 customers were surveyed, distributed as depicted in **Figure 4-1** following. **Figure 4-1** also presents numbers of customers surveyed reporting that they were:

- Household paid - meaning that they had paid to use the CAS or
- Household free - meaning that they had not paid to use the CAS.

Figure 4-1 also depicts numbers of customers reporting managing self-generated commercial waste and disposing HHW for others commercially. These customers were small scale authorised collectors serving primarily household customers.

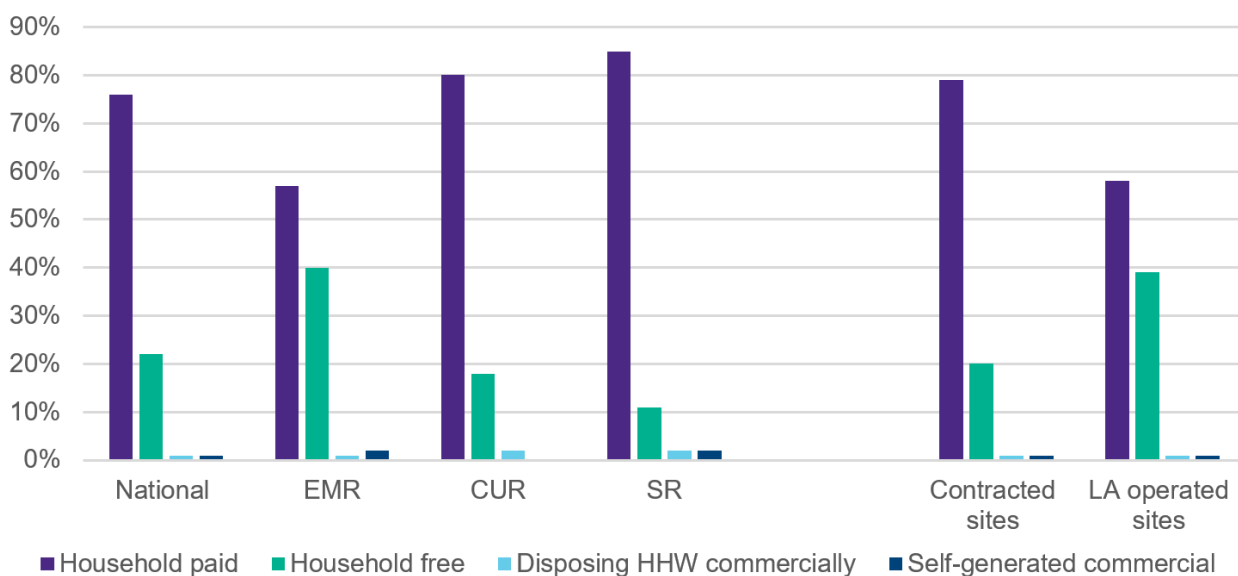


Figure 4-1: Customers - numbers profile numbers and paying or free or commercial

Observations that may be made about these findings include:

- Customers are more likely to be in the paid categories in CUR and SR
- Customers are more likely to be in the paid categories on LA operated rather than contracted CAS
- More customers reported managing waste for others in CUR and SR
- More customers reported managing of commercial waste in EMR and SR

4.1.2 Frequency of Visits

The frequency of visits reported by customers during site surveys is depicted in figure following.

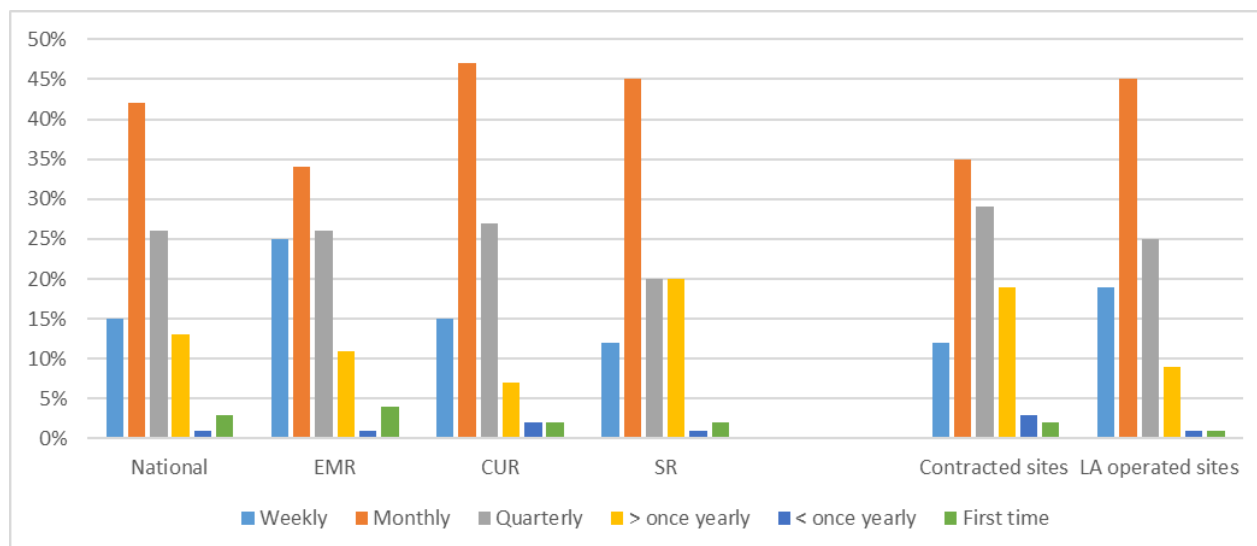


Figure 4-2: Frequency of visits reported by customers by site type and location

There is an apparent preference for customers to visit contracted CAS less frequently than LA CAS.

4.1.3 Customer Base Estimate

A calculation was made of the 'customer base' of individual customers/households that avail of the service using visit frequency and footfall data.

Footfall at each of the 30 CAS had been measured in 2018 (or most recent previous year) giving a combined footfall of 1,010,398 customers. Customers reported to the surveyor the frequency with which they visited the CAS. Footfall is reduced, to account for multiple visits in a year, to deliver a 'customer base' of individual customers/households that avail of the service. Therefore, the footfall of 1,010,398 reduced to 275,722 individual customers/households using frequency of visits data reported during the surveys. See **APPENDIX F: Calculations of customer base** for calculations⁴.

The calculated customer base per site was calculated (not presented here).

This customer base data is depicted in **Figure 4-3** which represents size of the customer base served by circle diameter. The background colouration represents demographic population density.

⁴ We note that the usage estimates for customer surveys were generated from 3 small single facility historical surveys.

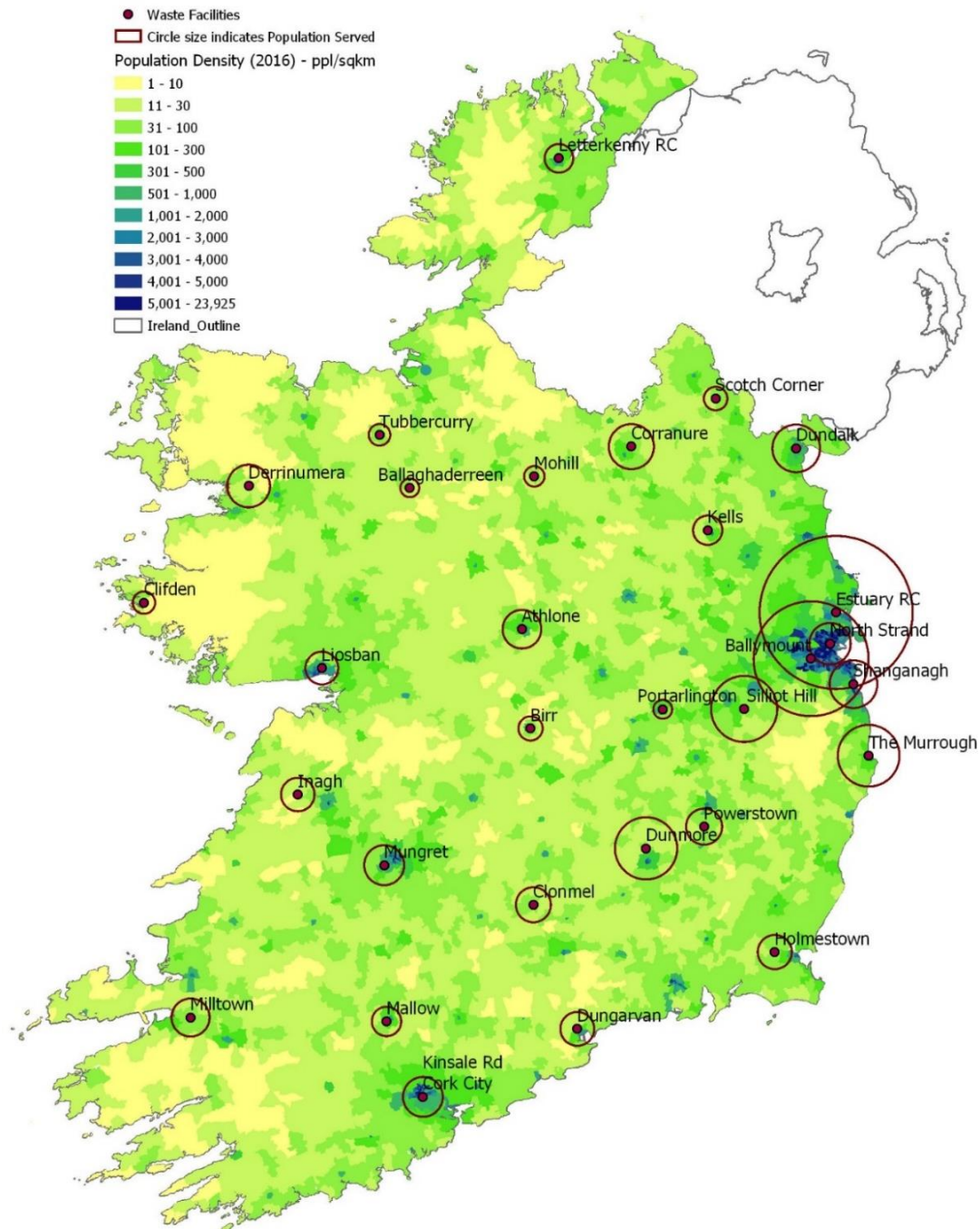


Figure 4-3: Customer base per site (circle size) and national population density (base colour)

The 67,023 tonnes of waste at the 30 survey CAS were delivered by our estimated customer base of 275,722 households, averaging 0.227 tonnes per household per year. Scaling this 0.227 tonnes to the 131,202 tonnes generated in the 96 sites nationally suggests that 595,233 households use the 96 sites nationally⁵. This represents 35% of the 1,702,289 national households. The survey data therefore suggests, subject to the specified assumptions, that 35% of national households use CAS.

⁵ This calculation assumes that the 96 sites are comparable to the 30 sites - rates of waste production and types of waste accepted etc the authors have not verified this assumption. Further, given the low numbers of commercial operators recorded, these have been treated as household customers for this calculation.

4.1.4 Householders Bringing Household Residual Waste for Disposal

During the customer survey, customers were asked if they were bringing household residual waste for disposal. **Figure 4.4** depicts the number of customers who reported bringing household residual waste (MRW) for disposal. Recall that 21 of 29 CAS report accepting residual waste.

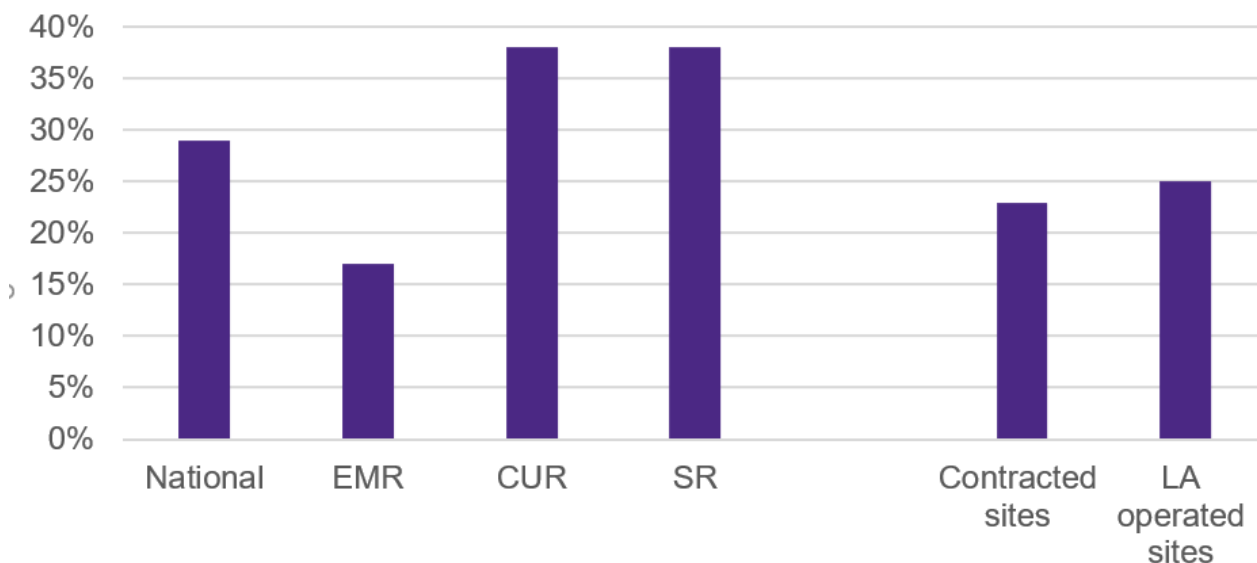


Figure 4-4: Customers reporting bringing MRW for disposal

4.1.5 Dedicated Trips

During the customer survey customers were asked whether they were:

- making a dedicated visit (meaning they made 1 stop at the CAS and then returning back home).
- making an in-passing visit (i.e. stopping at other places during the trip)

Figure following presents the findings of that survey.

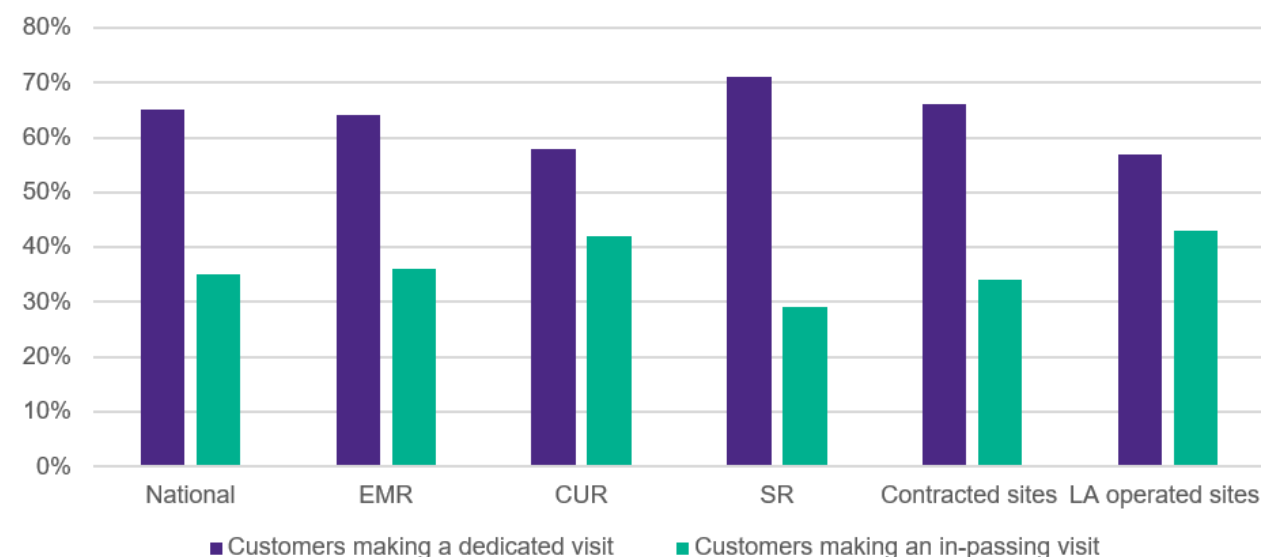


Figure 4-5: Customers surveyed - Nature of trip

4.1.6 Average Time and Distance

During the surveys, customers were asked to report their travel time and the distance travelled to get to the site for that visit. **Table 4-1** depicts the average reported travel time and distance travelled by the customers surveyed.

Table 4-1: Average travel time and distance of customers surveyed by region

	Average travel time (minutes)	Average distance travelled (km)
National	14	10
EMR	12	8
CUR	16	11
SR	14	12
Contracted CAS	14	10
LA operated CAS	14	10

The correlation between distances and time is visible in **Figure 4-6**. A relatively direct correlation would be expected, and deviation might be explainable by heavy traffic or small sample sizes skewing results.

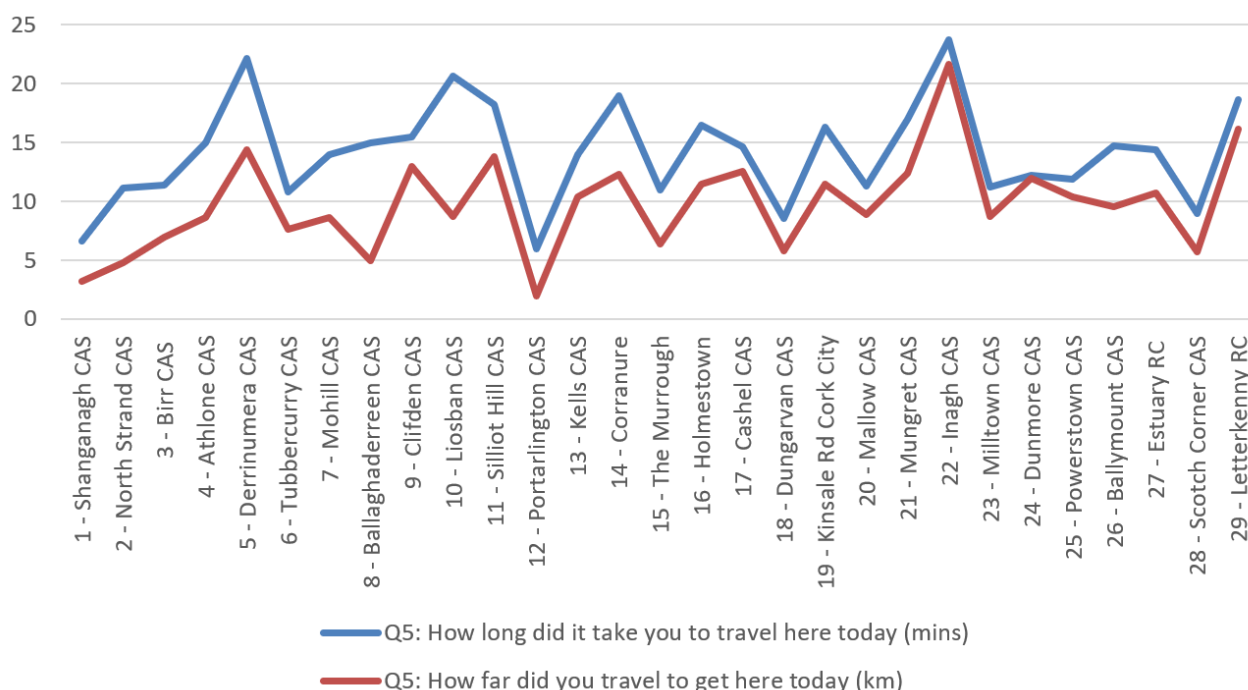


Figure 4-6: Reported travel time (minutes), and distance (km) to the CAS.

Figure 4-8 following maps reported average (straight line) distances travelled to the surveyed CAS locations. These average reported distances travelled are depicted in the figure following as green circles. The reported maximum distances travelled are depicted in the purple circle. This illustrates the average catchment for persons that each site was servicing on the day of the survey. There appears to be a slight correlation with urban CAS having smaller catchment areas, although people do report transporting materials relatively long distances.

People will travel to long distances to access CAS services, either as a dedicated trip or as part of another trip. The circle sizes for Inagh, Silliot Hill, Letterkenny, Derrinnumera, Kinsale Road and Clifden illustrate longer distances travelled.

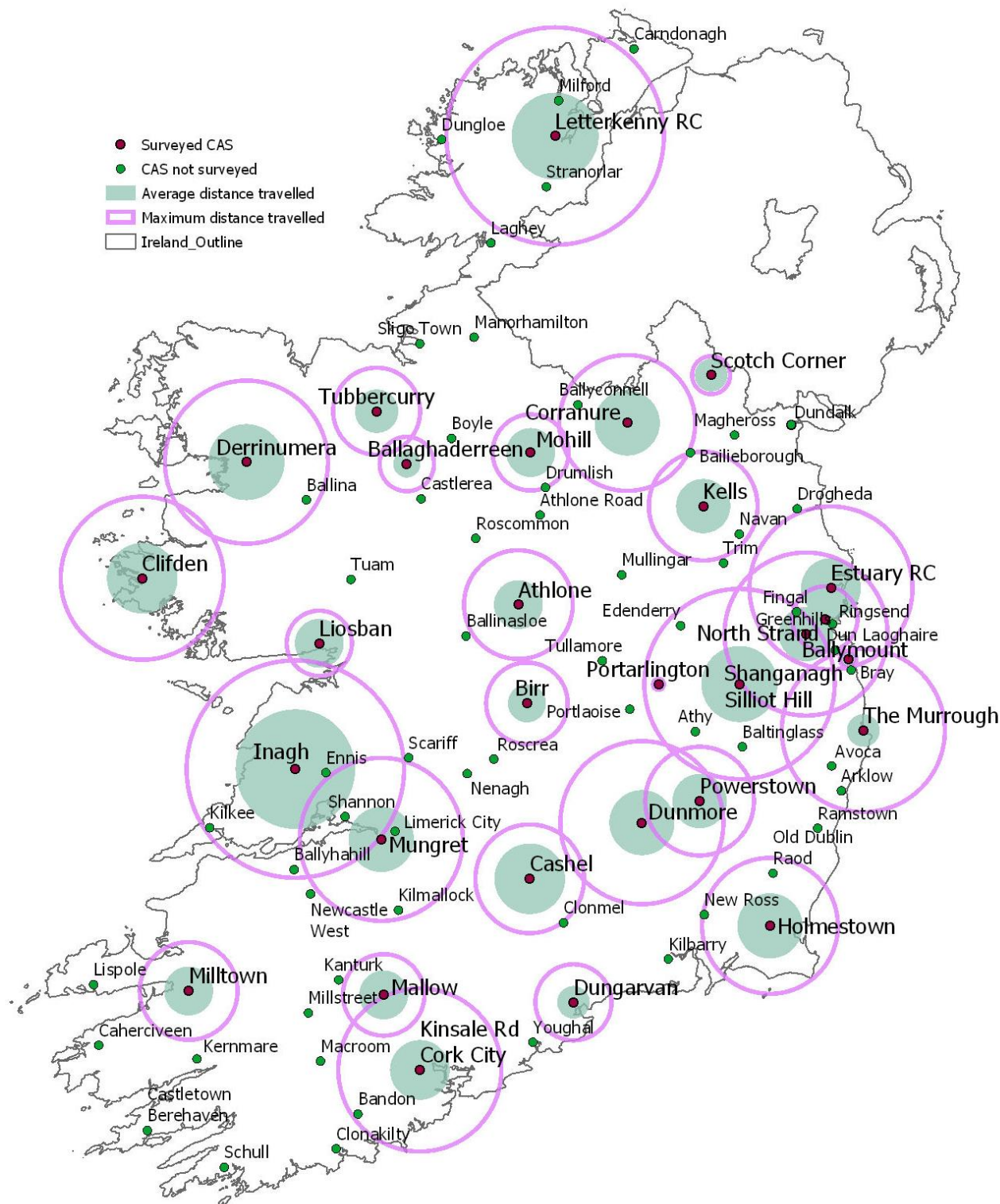


Figure 4.7: Reported distance travelled: green-average, purple-longest, all LA CAS shown

The data shows that the coverage provided by the CAS is significant, albeit with people travelling distances to use the CAS. Some rural CAS have quite large catchments, while the large urban CAS show smaller catchment areas as would be expected in densely populated areas. National coverage (by all CAS) is unclear but is not 100%. Some sectors of the community benefit more than others from CAS services.

4.1.7 Proximity and Take-Up of Collection Services

During the survey, customers were asked to report whether they have a Kerbside Waste Collection Service (KWCS) available to their gate. If they do have a KWCS to their gate, they were asked to report whether they were using it. Figure 4.7 depicts the customers surveyed reported having a KWCS available to their gate.



Figure 4-8: Customers reporting a KWCS Available to their gate

The data indicates that customers in many parts of the country, urban and rural, report either not having a KWCS available, or not using it if it is available.

Findings on availability include:

- Nationally, 339 of 384 of customers surveyed reported having a KWCS available to their gate.
- Take up of available kerbside services can be lower than would be expected, even in areas known to have high coverage. At 1 one busy urban Dublin CAS, for example, only 37 of 49 reported using a KWCS. The reasons for the poor reported service take-up are unclear.
- In Connaught Ulster, only 25 of 48 customers surveyed reported having a KWCS available to their gate, suggesting significant dependency on the CAS service for waste management. There are 2 rural CUR sites where numbers reported are notably low at 50% (albeit with small sample sizes).

Findings on KWCS service availability and service use include:

- Nationally (based on the 29 CAS surveyed), of the 339 who reported having a KWCS available to their gate, 226 reported using that service.
- Take up of KWCS is low in some sites, below 40% at 9 CAS: for example, just 14% and 27% and 20% use a KWCS at 2 CUR sites and 1 SR site respectively.

4.2 RWMSG Engagement

Stakeholder engagement was conducted with the 3 RWMSG. This was conducted to ensure that the study directly encompasses the views and/or input of these parties, which can make a meaningful contribution to the project objective of maximising the function and value of the CAS sites.

The primary points raised by the RWMSG were

- CAS require central Government support for infrastructure that is outdated and inefficient
- Delivery of PBW services and the need for provision of receipts and records of weight of waste delivered
- The need for interaction with producer responsibility initiatives
- LAs exposure to commodity pricing and its impact on budgets
- The 96 CAS should be considered as a whole and restructured if appropriate. An option considered is a network of “super CAS” providing the full range of services on smaller satellite CAS with a more limited offering - an approach that may not work in areas with large distances to travel.
- Consider enabling access for a social enterprise at a CAS. This has proved successful as the social enterprises brings in large volumes of materials that can be sold/reused. A charity shop, for example, can resupply materials to the public through its High Street shop - supporting preparation for reuse activity. This route also supports the CAS through rental income.
- PTU (‘pay-to-use’ are self-contained reverse vending machines that accept waste at a cost) could provide solutions for residual waste management that provide weighing and receipting services.
- CAS should focus on the primary streams of concern, which are hazardous waste, green waste and bulky waste.
- Site pricing should be set to discourage generation of mixed residual waste.
- CAS provides services that are not otherwise available
- CAS are preventive in nature by dealing with wastes that may otherwise be fly tipped
- CAS encourage the development of new enterprise

4.3 Third-party Stakeholder Engagement

The project team engaged with 10 groups of stakeholders. These stakeholders were selected from the groupings: PRI Schemes (3), Waste contractors operating CAS (3), Customer representative groups (3) and waste management sector representative organisation members (3). Details of the interview plan for engagement with stakeholders is presented in **APPENDIX G: Questions for stakeholders**.

In general, similar issues / discussion points arose repeatedly during stakeholder engagements including:

- The sites are performing a significant role in the Irish waste management sector and are generally performing well, delivering high quality materials. Scope for improvements were noted.
- Customer experience is critical - mentioned by all stakeholders in some way. Linked was the requirement for improved information provision via signage, literature, websites, 3rd party media
- Reuse
 - recognised as a growth area but requiring management attention to get right.
 - CAS may be a reuse collection depot, not reuse centre, (as with textiles) if space is limited.
 - Reuse materials attract thieves and are weather vulnerable - need safe storage.
 - CAS could be ‘Recovery Parks’ with ‘reuse cottages’
 - Waste licence issues constrain reuse

- Financial self-sustainability improvement possibilities pointed out:
 - opening hours are critical. Longer and weekend opening hours (definitely no reductions). EPA waste licence constrains hours expansions.
 - Shredding and secure recycling of office paper which has high value.
 - ‘Charge true cost for everything’. Ensures effective end-management.
 - Quality improved commodity prices paid.
 - Standardise services, including gate fees.
 - Doubts about viability of engaging with small scale authorised collectors.
 - Small scale authorised collectors could engage with retailers selling furniture to provide a removal-to-CAS service.
- Need for more CAS services. CAS provision in Ireland should be benchmarked against a European base - referenced by a number of stakeholders. This would deliver metrics against which to set targets.
- CAS can play multiple additional roles - repair café, man-shed, swap shop or event site
- PRIs indicated preference for increased engagement with LAs
- Health and safety in sites is a high priority on sites given the mix of the public with heavy machinery.
- Financial self-sustainability difficult to deliver without Government subvention or increased gate fees.
- Hub and spoke approach works for private sector.
- Contamination is a leading cause of low commodity process

5 FINANCIAL APPRAISAL AND IMPLICATIONS

The appraisal and assessment of the financial implications is provided in 3 key analyses.

1. Examine the overall approach to charging and identify differences between CAS operated by LA and those operated by contractors.
2. Assess the current financial performance of the CAS and
3. Assess the financial implications of potential and recommended future change.

While detailed revenue and expenditure breakdowns such as revenue or disposal expenditure by waste stream was sought, not all LAs could provide such data. The analysis is therefore limited in some respects.

5.1 Approaches to Charging/Revenue Generation

The analysis of the various approaches to charging is based on a survey of the published charge details for each of the study CAS.

The degree of “localisation”, i.e. adapting the system of charges to local needs across the 30 surveyed CAS is quite substantial. This “localisation” covers factor such as the scope and level of charges, how the charges are applied, and the range of waste materials listed as acceptable at each site.

For example, some CAS specify that they will accept tyres or mobile phones; many others are silent on these items. Some CAS limit the amount of certain types of hazardous waste that they will accept; others don't appear to. Seeking to accommodate these many variations in an analysis of this nature would be a substantial task and of limited value. Our focus therefore is on the most common approaches and practices that cover the greater portion of CAS activities.

A further observation is that all but 1 of the CAS advertise that they provide services to households only. However, in practice it is very difficult to differentiate between households and small commercial operators. Many site schedules show charges for two-axle trailers or vans, which are widely used by small businesses or tradespeople, such as painters, carpenters and gardeners/landscapers. The definition of “households” may be realistically treated as “households and small traders” and excludes medium and large traders/commercial operators.

Every site surveyed accepts WEEE and batteries at no charge to comply with the European Union (Waste Electrical and Electronic Equipment) Regulations 2014, as well as the European Union (Batteries and Accumulators) Regulations 2014, as amended.

5.1.1 Charge Strategy by Category of Waste

To analyse the general approaches to charges, the waste streams accepted at the CAS were considered under 5 categories as shown in **Table 5-1** below.

Table 5-1: Approaches to Charging by Category of Waste

All	Category	Do Not Accept / Restrictions	Accept with Charge	Accept with No Charge
Category 1	WEEE and batteries	0	0	30
Category 2	Dry Recyclables - paper, plastic containers, cans, clothes, glass bottles	0	22	8
Category 3	Green waste	6	23	1
Category 4	Bulky items, timber, waste oils, rubble, flat glass, steel, paints, aerosols,	7	23	0
Category 5	MSW	6	24	0

The points evident from this table are that:

- For customers bringing WEEE and batteries, some CAS specify that the standard gate fees for any other wastes brought in.
- Of the 30 CAS surveyed, 22 (73% of the sample) charge for disposal of a range of dry recyclables, while 8 have no charge. In this context, “dry recyclables” includes paper, cardboard, plastic containers, drinks cans, clothes and glass bottles.
- Of these 22 CAS that charge for disposing of a range of dry recyclables, the charges levied range from “€2 per car” to “€7 per car, depending on load”. In some CAS, charges for these types of recyclables are levied on bases such as “€5 per 3 bags”.
- Still referring to these 22 CAS that charge for disposing of a range of dry recyclables, 19 of them accept a wide range of other waste materials including green waste, bulky items and MSW. Just 3 of these 22 CAS limit the range of other materials that they accept. These 3 CAS do not accept green waste or MSW, and limit their reception of bulky items, hazardous and other wastes.
- As noted earlier, of the 30 CAS surveyed, 8 accept a range of dry recyclables with no charge being levied on users. 6 of these CAS accept a full range of other wastes, including green waste, bulky items and MSW. However, in general, charges are levied for these other wastes.

In summary, the current practice is that the majority of CAS levy a modest charge for all other wastes, while the remainder accept a range of dry recyclables at no charge but charge for other materials. The charging strategy in the context of financial performance is reviewed in **Section 5.2.1.1**.

In respect of Green Waste:

- In total, 6 CAS do not accept green waste. In the main, these CAS do not accept any other forms of waste other than dry recyclables and a small number of specified wastes alluded to previously.
- In total, 1 site accepts green waste free of charge; all others charge for reception. Some CAS provide charges for bags and small skip bags, but in the main, charges are based on the mode of transport - e.g. cars, trailers, etc.
- Finally, 6 sites do not accept MSW, while 7 do not accept a range of waste streams such as bulky items, rubble, timber and paints.

5.2 Income and Revenue Analysis

We appraised financial performance based on financial data presented by survey of the 30 CAS. Appraisals of 2 categories of CAS, i.e. LA operated CAS and contracted CAS were carried out separately and are shown later in this section.

5.2.1 LA Operated CAS

Table 5-2 shows the overall financial performance for the LA operated CAS in the survey sample. There are 16 LAs in this sample and **Table 5-2** includes the average income, cost and surplus/deficit for these.

Table 5-2: LA Operated CAS - Financial Overview

	Total, all 16	Average income, cost, surplus/deficit
	€	€
Income from User Charges	4,348,044	271,753
PRI Scheme Income	457,448	28,590
Total Income	4,805,491	300,343
Disposal Costs	4,103,486	256,468
Operating Costs	3,044,113	190,257
Total Expenditure	7,147,599	446,725
Surplus/Deficit	-2,342,107	-146,382

5.2.1.1 Income and Cost Recovery

Of the 16 LA operated CAS, one achieves a small surplus and the remaining 15 incur deficits. The combined deficit of those 15 CAS is €2.38 million or an average of just over €158,000 per site. Of the 14 contracted CAS, 3 provide a surplus to the LA; 3 are cost-neutral and 8 require LA subvention. The average subvention for contracted facilities is €159,000. The average surplus for contracted facilities is €70,000. Overall, 23 of the 30 CAS surveyed (77%) incur a deficit. The average deficit for contracted and LA-operated facilities is just under €159,000.

The overall rate of cost recovery is 67%. There are, however, substantial variations amongst the LAs as to the levels of cost recovery.

One CAS records a surplus of income over expenditure. This site has higher charges, uses PBW and higher throughput than most CAS. The lowest cost recovery is 2% for 1 site that does not charge for waste disposal and does not accept recyclable wastes that could be disposed of in the household bin collection service. This site therefore eschews PRI scheme subsidies.

The average cost recovery for the different types of CAS, based on their charging approach is as follows:

- | | |
|--|-------|
| 1. Cost Recovery for CAS that do not level any user charges | 16.2% |
| 2. Cost Recovery for CAS that do not charge for dry recyclables only | 61.3% |
| 3. Cost Recovery for CAS that charge all users an entry/disposal fee | 63.7% |

CAS that do not level any user charges at all generally accept a limited range of waste streams, mainly dry recyclables, and therefore their source of income is PRI subsidies.

The third group, i.e. CAS that charge all users for entry, typically have a nominal charge when the waste being deposited comprises dry recyclables only, but then levy higher charges for the other waste streams. In terms of the level of cost recovery achieved, the difference between this approach and that of the second group - i.e. no charge for dry recyclables, but charge for the other streams, is small. For CAS in general, cost recovery is more dependent on factors such as user numbers, the amounts of waste deposited and the level of charges, than on the structure of the charge schedule.

However, cost recovery rates vary greatly. 8 of the LA operated CAS, 50% of the sample, have cost recovery rates of 50% or more.

Over the sample, PRI scheme subsidies account for 9.5% of total income. The breakdown amongst CAS is:

PRI income for CAS that accept dry recyclables at no charge	10.4%
PRI income for CAS that charge for dry recyclables	8.0%

The differences again are small and are influenced more by factors such as the range of wastes accepted.

5.2.1.2 Waste Disposal and Operating Costs

On average, waste disposal costs are 57.4% of overall costs. As in the income analyses shown earlier, waste disposal costs as a percentage of overall costs vary across the CAS and are 59.7% for those CAS that accept dry recyclables at no charge and 53.2% for the other CAS. In overall terms, again, these differences do not appear to be significant and the level of costs varies according to volumes, the number of waste streams to be disposed of, the types of waste streams, etc.

Operating costs are 42.6% of overall costs. Salaries and wages account for 75.0% of operating costs. The balance includes compliance costs and overheads, such as energy.

5.2.1.3 Capital Costs and Investment Needs

The average capital cost of a CAS site, based on 8 responses is €3.53 million, towards which grants of €0.83 million have been received; giving a net investment by LAs of €2.70 million.

The cost required to implement pay-by-weight, again based on 8 responses, is an initial cost of €66,600 per site. This is split 55% on equipment and 45% on supporting IT system capability.

The additional annual operating costs are estimated at €70,625, of which salaries and wages account for 72%.

5.2.1.4 Operating Factors

Table 5-3 shows some operating factors for the LA operated group of CAS.

Table 5-3: LA Operated CAS (16) - Operations

	LA Operated CAS
Tonnes collected	25,601
Revenue per tonne	€188
Expenditure per tonne	€279
Footfall	584,643
Kg per visit	43.8
Revenue per visit	€8.22
Expenditure per visit	€12.23

In total, these 16 CAS accept 25,601 tonnes of waste. However, the tonnage collected varies substantially; 7 of the 16 CAS, collected less than 1,000 tonnes in 2018. The tonnage collected at these 7 CAS was 3,285 tonnes or 12.8% of the total collected by this group of CAS. The overall cost recovery of these smaller CAS was 39% - substantially below the average of the group of 16 CAS, which was 67%.

The footfall at the smaller CAS - 43% of the sample - was 168,868 visits - which is 29% of the footfall of the total sample of 16 CAS - and the average drop of waste was 19.5 Kg per visit, which is lower than the average for all the 16 CAS of 43.8 Kg.

The revenue per tonne for the smaller CAS is €199, higher than the average for the group of 16; but the operating cost was €512 per tonne, significantly higher than the group of 16.

This appraisal demonstrates that there are significant economies of scale in CAS operations.

In overall terms, the analysis shows that there is a wide range of operating factors that could explain operating differences between the CAS; but a key conclusion is that the scale of operations is a major determinant of financial performance.

5.2.2 Contractor Operated CAS

There are 14 CAS with outsourced operations. The financial performance and type of contract of these CAS vary as shown in **Table 5-4** following:

Table 5-4: Outsourced Operations

	Concession	Managed	Total
LA Surplus	2	1	3
Cost Neutral	1	2	3
LA Deficit	1	7	8

There were 3 CAS operating under a contract that provide net receipts to the relevant LA. 3 further CAS are “cost neutral”, while 8 contracted sites are subsidised to some extent by the contracting LA.

For the 3 LAs in receipt of moneys paid by the contractor, the average amount received is €70,000 per annum. 2 of these 3 CAS operate under concession type contracts wherein the contractor essentially pays the LA for access to the site and collects all revenues, including PRI scheme income. The third CAS showing a surplus is a managed site, which is currently on a short-term contract and it is the intention of the LA to proceed to a concession type contract.

There were 3 CAS “cost neutral” to the relevant LA; of which 1 is a concession type contract and the other 2 are managed CAS

There are 8 CAS where the LA has to in effect subsidise the operations of the CAS. 1 is a concession type contract and the remainder are management contracts.

For those authorities that incur a deficit under a contracted approach, the average cost is €111 per tonne of waste received at the contractor operated CAS. By way of contrast, for the LA operated CAS that also incur a deficit, the average net cost per tonne is €114, which is not a significant difference.

A management type contract is the most common type in use at present - there are 10 such contracts compared to 4 concession types. In the data collection returns, 3 managed contracts are shown as either a surplus or as cost neutral to the LA. In general, though, management contracts usually involve some payment by the LAs.

The types of analyses carried out for LA operated CAS are not applicable here as the detailed data on incomes and expenditures are not available. A full review of these CAS is shown later. A partial analysis relating to throughput in both LA operated and contracted CAS follows.

Table 5-5: Outsourced and LA CAS - Comparison

	LA Operated	Contractor Operated
Tonnes Collected	25,601	35,354
Customer	584,643	425,755
Kg per customer	43.79	83.04

Initially, we compare the LA and contractor operated CAS and this is shown in **Table 5-5**.

While there are 14 contracted CAS compared to the 16 LA CAS, it is evident that the contractors accept much more waste from a smaller number of users. In fact, the waste deposited per customer in contractor operate CAS is approaching twice the level of the drops in LA CAS. This is attributable to some extent to contractors generally accepting a wider range of waste streams, but a review of charges and materials accepted leads us to conclude that contractors accept waste from certain commercial operators to some extent; whereas LA CAS invariably advertise that they are for householder use only.

Table 5-6 shows a comparison for the Contractor CAS, differentiating between those that provide a surplus or are cost-neutral from an LA perspective and those where the LA incurs a cost or deficit.

Table 5-6: Outsourced CAS - Comparison, differentiating those providing surplus and deficit

Contracted CAS	Cost Surplus and Neutral CAS	Deficit CAS
Tonnes per annum	23,870	11,484
Footfall per annum	258,879	166,876
Kg per Visit	92.21	68.82

There were 6 CAS either cost neutral or providing a surplus to the relevant LA, while 8 operate at a deficit from the LA perspective. It is evident that the cost neutral and surplus CAS have a substantially greater volume of waste and accept drops that are 33% higher than those seen at the “deficit” CAS. Clearly, volume is a key factor in financial performance.

In summary, while at first sight it may appear that contractor operated CAS show a superior financial performance, the analysis suggest that this is a result of more intensive use rather than the operating methods and structures. The findings suggests that driving greater volumes of waste combined with appropriate levels charges, could reduce the financial costs of the current CAS, whether they are LA or contractor operations.

One consideration we are unable to analyse is the extent - if any - to which contractors are able to integrate the operations of CAS into their local kerbside collection operations. Such integration might provide some degree of economies of scale or some cases where operational efficiencies or effectiveness can be achieved.

5.3 Detailed Income and Revenue Analysis

There are 4 types of CAS in the sample. These are:

1. There are 3 LA-operated CAS that accept a limited range of streams and levy no charges on users;
2. There are 5 CAS that accept a limited range of materials, typically dry recyclables, for no charge; and accept other waste streams such as green waste, bulky items and hazardous waste, for which charges are levied. Of these CAS, 3 are LA-operated; 1 each operated by management and concession contract;
3. LA operated CAS that charge for all chargeable materials; and
4. Contractor operated CAS that charge for all materials.

5.3.1 Group 1 - Limited Range of Waste Streams and No Charge

In total, 3 CAS accept limited ranges of waste materials and levy no charges on users. All are operated directly by LAs and might be described as substantial “Bring Centres”. The 3 CAS specify that they accept waste from households only, and not from commercial users. However, in the sample analysed, we note some variation in the range of waste materials accepted at these CAS.

- One site specifies that it accepts “Only Clean Recyclables”, which, on further inspection, includes paper, cardboard, steel and aluminium cans and glass. However, this site also accepts light bulbs, polystyrene, textiles, printer cartridges and aerosols.
- The second site operates in a broadly similar manner to the first, though it also accepts a small number of other waste streams such as waste oils.
- The third site accepts a broader range of materials. It does not accept waste that should be disposed of by householders in KWCS. It could be seen as complementary to the KWCS rather than an alternative.

The summary financial performance for these 3 CAS is shown in Table 5-7.

Table 5-7: Financial Performance - CAS Accepting Limited Waste Streams and No Charge

	Total	Average per LA
	€	€
Total Income	76,430	25,477
Waste Disposal Costs	114,310	38,103
Operating Expenditure	481,042	160,347
Total Expenditure	595,352	198,451
Net Deficit	-518,922	-172,974

The income shown comprises refunds by PRI schemes, principally Repak, rather than sales of the materials. No charges are levied on users, and each CAS operates at a deficit, combined value c. €0.5 million. Some metrics for the 3 CAS are shown in table following.

Table 5-8: Operating Metrics - CAS with Limited Waste and No Charge

CAS site	A	B	C
Cost Recovery	24%	2%	17%
Revenue per tonne	€116	€13	€76
Expenditure per tonne	€491	€525	€458

CAS site	A	B	C
Kgs per visit	5.7	19.4	10.2
Revenue per visit	€0.65	€0.25	€0.77
Expenditure per visit	€2.78	€10.20	€4.65
Paper/Cardboard/ Glass as % of Waste	86%	2%	69%

It is difficult to draw detailed conclusions from the data for this small number of CAS. While none of the CAS recovers its operating costs, it is evident that the collection of dry recyclables, which attract PRI scheme subsidies, do provide some degree of cost recovery. Characteristics of the CAS - individually and collectively - are that:

1. The volumes of waste collected at the 3 totalled 1,224 tonnes - 226, 408 and 590 tonnes. Comparisons between the CAS and lessons learned must take account of this variation.
2. In the CAS specifying “dry recyclables only”, namely A and C, the preponderance of materials collected are paper/cardboard - including both packaging and non-packaging materials - and glass. These materials account for 69% and 86% respectively of the materials collected in these CAS; however, not all of these materials are eligible for PRI scheme subsidies. The mix of materials collected at these CAS has a bearing on the level of cost recovery attained.
3. In site B, which does not accept wastes suitable for the domestic dry recyclables bin service, such materials account for just 2% of the total waste collected. The major element of the materials collected here are Other Municipal Metals (non-packaging) which comprises 42% of the weight collected and Wood (non-packaging waste, municipal) at 36% of the weights collected.
4. The characteristics of the accepted wastes are reflected in the revenue per tonne of waste collected. As noted above, revenues are the refunds payable from PRI schemes, and for the CAS focusing on dry recyclables, the revenue per tonne collected averages at €87.20. The comparable revenue per tonne for the other site is €12.92, which reflects that much of the waste collected at this site is not eligible for similar subsidies.
5. The “dry recyclables” CAS generate some 157 visits per day on average, substantially greater than third site, where customer numbers are 67 per day on average.
6. The data provided suggest that customers to the “dry recyclables” CAS dispose of an average of 8.3 Kg of waste per visit, while for the third site; the average disposal per visit is 19.4 Kg. Given that the latter disposals comprises mainly wood and scrap metals, it is perhaps not surprising that these materials are brought by smaller numbers of people, but in greater volumes per visit.
7. Despite the mix variations and customer number differences, the total expenditure per tonne does not vary as significantly as other metrics.
8. In terms of cost recovery, the “dry recyclables” CAS incur a net cost per visit of €3.16 on average. This takes account of the total cost of operating the site, less the revenues gained from PRI schemes. For the third site, the average net operating cost per visit is €9.95.

In conclusion, the 3 CAS in the sample used for this study, which levy no charges on users and accept limited ranges of materials, all show an operating deficit. In the case of those CAS that focus on dry recyclables, operating cost (average) recovery is 19%, whereas in the third site it is just 2%. This is solely due to the nature of materials accepted and the absence of PRI subsidies in the case of the third site.

The average total operating cost per tonne for these CAS, i.e. including staff, overheads and waste removal/treatment is €467. All of the CAS are within 8% of this average, despite the differences in the ranges on materials accepted.

5.3.2 Group 2 - Full Range of Waste Streams Accepted and No Charge for Recyclables

There are 5 CAS in the sample that accept a fuller range of waste streams and have a user charging approach whereby certain dry recyclables can be disposed of at no charge, but all other materials attract a charge. 3 of these CAS are operated directly by the relevant LA. The other 2 are managed by external contractors, of which one is a management contract and the other is a concession contract.

The following is an analysis of the 3 locally operated CAS only. Detailed breakdowns of revenues and costs are not available for privately operated CAS.

Table 5-9: Financial Performance - 3 LA operated CAS Accepting All Waste Streams with No Charge for Recyclables

	Total	Average per LA
	€	€
Total Income	1,654,249	551,416
Waste Disposal Costs	1,231,134	410,378
Operating Costs	952,486	317,495
Total Expenditure	2,183,620	727,873
Net Surplus/Deficit	-529,371	-176,457

The CAS operated under a management contract has a cost to the LA, which represents an amount paid by the LA for management services. On the other hand, the CAS operated under a concession contract results in the LA receiving a payment from the operator.

Characteristics of the CAS - individually and collectively - are presented in table following.

Table 5-10: Operating Metrics - 5 CAS with No Charge for Recyclables

CAS site	D	E	F	G	H
LA Cost Recovery	64%	107%	75%	0%	100%
Footfall	175,000	27,693	22,699	32,071	126,170
Tonnes Deposited	6,054	1,784	1,655	1,805	16,727
Revenue per tonne	€126	€284	€234	€0	€6
Expenditure per tonne	€197	€265	€312	€79	€0
Kg per visit	34.6	64.4	72.9	56.3	132.6
Revenue per visit	€4.35	€18.27	€17.03	€0.00	€0.80
Expenditure per visit	€6.82	€17.07	€22.78	€4.46	€0.00
	LA operated	LA operated	LA operated	Management contract	Concession contract

1. The first point of note is that the average cost to an LA of operating this form of CAS site is quite similar to the average cost for operating the CAS with limited waste streams and no charges as shown in **Table 5.7** previously. However, there is a significant variability in the individual site performances.
2. The second point is that one LA operated CAS - site E - generates a modest surplus. Its income is 107% of its expenditure. Site H, the concession contract site, also provides a surplus for the relevant LA.

It is evident that site E is at the lower end of footfall numbers and tonnes deposited, but it achieves a high level of income per tonne that is greater than the overall cost per tonne. It is also at the higher end of the amount of Kg deposited per user visit.

To identify what other variables may affect performance, we analysed the charge structures for the CAS. This was carried out by way of a survey of the advertised rates shown on the relevant websites.

Table 5-11 shows the charge structures at each of these CAS in 2018. We understand that site E has increased its charges for 2019 and site F has also introduced a €2 entrance charge for all cars, except those carrying only WEEE.

Table 5-11: User Charges - CAS with No Charge for Recyclables

Site	Car	Estate car/SUV	Car & 1-axle trailer	Car & 2-axle trailer	Light Van	Household waste - 80 l bag
D	€8 (€4 for green waste)	€40 (€24 for green waste)	€40 (€24 for green waste)		€128.00	€4.00
E	€25.00	PBW @ €350 per tonne	PBW @ €350 per tonne	PBW @ €350 per tonne	PBW @ €350 per tonne	€4.50
F	€25.00	€65.00	€65 (€30 for green waste)	€100 (€50 for green waste)	€186.75 per tonne	€7.00
G	€15 (€2 per bag green waste)	€20 (€2 per bag green waste)	€40.00	€70.00	€70.00	€4.00
H	€15 (€9 for green waste)	€20 (€15 for green waste)	PBW @ varying rates	PBW @ varying rates	PBW @ varying rates	€5.00

The 2 CAS that operate on a PBW basis - CAS E and H - are the 2 CAS that generate surpluses for the relevant LA. Site E advertised a flat charge of €350 per tonne, irrespective of the material in question, while site H charges vary from €70 per tonne for clean rubble to €95 per tonne for green waste and €170 per tonne for general waste.

The sites charging €25 for a car will accept cars with MRW only at the relevant charge per bag (€7.50/€4.50) but impose a limit on the number of bags that can be carried. Footfall alone is not an important factor in the financial performance. Site D has the highest footfall, and the lowest cost recovery rate. It also has the lowest amount of waste deposited per visit, which implies that this site has a large proportion of small users who are possibly in cars, for which the admission fee at this site is lower than the other CAS. By way of contrast, site H has high user numbers and the highest level of waste deposited amongst this group. These factors, combined with PBW practice, are likely to be the key drivers of this site's cost recovery for the LA.

Site E has relatively low footfall and an average waste drop comparable to those at other CAS sites. However, its user charge per tonne deposited is significantly higher than other CAS sites. This may not explain its cost recovery performance fully. We therefore examined the profile of the waste deposited to see if any trends are identifiable.

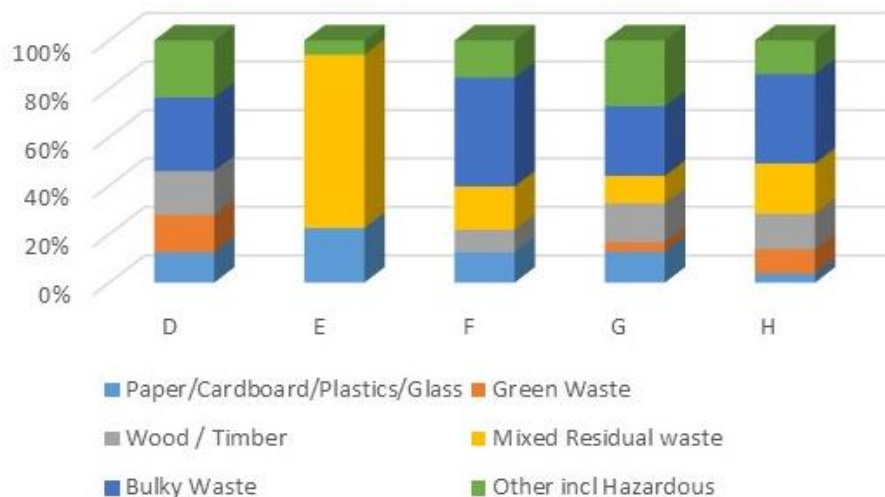


Figure 5-1: Waste Profile - CAS with no charge for recyclables - waste characteristics

The wastes deposited at Site E have a higher proportion of paper, cardboard, glass and plastics than other CAS, materials that attract PRI subsidies; but perhaps more significantly, it has a much higher proportion of MRW than the other CAS. Site H - a contracted site providing a surplus to the LA -has a broad spread of materials, including a higher level of residual waste than the other CAS, with the exception of site E.

In conclusion, two of the five CAS in this category - one LA operated site and one managed under a concession contract - show a full cost recovery or a modest surplus. A profile of these CAS is that they:

1. Have a footfall of over 25,000 visits per annum;
2. Receive at least 60 Kg of waste per user visit;
3. Operate on a PBW basis for any load over the contents of a car,
4. Suggest that they have higher charges than at other CAS sites, and
5. Manage a varied waste stream collection, including relatively higher volumes of mixed residual waste.

However, on an individual basis, each of these factors is not unique to these well-performing CAS. The basis for successful operation will be discussed when the analyses of the remaining CAS have been reviewed.

5.3.3 Group 3 - Full Range of Waste Streams Accepted and Charges Levied on All Streams - LA Operated

Ten LA operated CAS charge for all chargeable wastes deposited. The following is an analysis of these CAS similar to the analyses provided earlier.

Table 5-12: Financial Performance - 10 LA operated CAS Accepting All Waste Streams with Charges Levied on all Streams

	Total	Average per LA
	€	€
Total Income	3,054,812	305,481
Waste Disposal Costs	2,758,041	275,804
Operating Costs	1,944,777	194,478
Total Expenditure	4,702,818	470,282
Net Surplus/Deficit	-1,648,006	-164,801

Their operating metrics are presented in table following.

Table 5-12: Operating Metrics - LA operated CAS with Charges for All Materials

CAS	I	J	K	L	M	N	O	P	Q	R
Cost Recovery	71%	49%	86%	30%	83%	25%	74%	35%	78%	44%
Footfall	25,178	21,948	30,000	16,588	58,672	5,000	33,641	3,032	23,818	22,304
Tonnes Deposited	875	1,790	2,494	662	3,957	284	2,130	240	1,304	1,148
Revenue / t	€464	€177	€176	€134	€159	€101	€219	€141	€291	€230
Expenditure / t	€657	€360	€204	€454	€191	€402	€295	€399	€372	€517
Kg per visit	34.8	81.6	83.1	39.9	67.4	56.8	63.3	79.2	54.7	51.5
Revenue / visit	€16.12	€14.46	€14.67	€5.36	€10.73	€5.72	€13.89	€11.13	€15.95	€11.83
Expenditure / visit	€22.85	€29.40	€16.97	€18.12	€12.89	€22.84	€18.67	€31.61	€20.37	€26.61

In broad terms, the average deficit for these 10 sites is not substantially to the average for the previous groups, but there are significant variations across the individual CAS in a range of factors, such as:

- Cost recovery varies from 25% to 86%;
- Footfall varies from 3,032 to 58,672;
- Tonnes deposited vary from 240 to 2,494;
- Kg deposited per visit vary from 34.8 to 83.1;
- Revenue per tonne varies from €101 to €464; and
- Expenditure per tonne varies €191 to €657.

To identify the factor(s) that lead to better financial performance within this group, we selected the 3 CAS with the highest cost recovery rates and compared these with the average for all CAS in this group. The analysis is shown in table following.

Table 5-13: Comparative performance - all LA operated CAS charging for all materials versus high performers

	All CAS in Sample	High Performers
Tonnes Deposited p.a.	14,884	7,755
Revenue per tonne	€205	€187
Expenditure per tonne	€316	€226
Kg per visit	62.0	68.9
Revenue per visit	€12.72	€12.88
Expenditure per visit	€19.58	€15.56

Of the 10 CAS in this group, the 3 best performers in terms of cost recovery:

- Collected 52% of the total waste gathered by this group of CAS sites;
- Have a lower revenue per tonne but have a significantly lower expenditure per tonne. The net cost per tonne (expenditure less revenue per tonne) for the high performers is €39 per tonne compared to €111 for the group as a whole.
- The amounts of waste deposited are reasonably comparable, as is the revenue per visit; but the expenditure per visit is lower for the high performers.

This suggests to us that amongst this group, cost control coupled with a somewhat higher volume of waste is the key to better financial performance. However, we should also review the waste mixes, and these are shown in **Table 5-14**.

Table 5-14: Waste Mixes - LA operated CAS with Charges for All Materials

Waste Mix	I	J	K	L	M	N	O	P	Q	R
Paper/Cardboard/ Plastics/Glass	29.8%	9.4%	12.9%	9.1%	9.5%	28.6%	17.2%	39.2%	23.1%	17.6%
Green Waste	30.0%	10.6%	12.8%	5.3%	8.4%	2.7%	1.4%	0.0%	6.7%	33.1%
Wood / Timber	19.5%	10.6%	11.5%	15.4%	3.9%	0.0%	12.8%	10.1%	21.4%	19.0%
Mixed Residual waste	0.0%	52.8%	27.8%	17.4%	64.4%	0.0%	55.7%	31.3%	21.4%	11.0%
Bulky Waste	0.0%	0.0%	20.9%	24.4%	8.8%	57.1%	0.0%	0.0%	2.2%	5.2%
Other including Hazardous	20.7%	16.6%	14.2%	28.4%	4.9%	11.6%	12.8%	19.4%	25.3%	14.1%

This analysis shows that the mix of waste collected at the CAS varies considerably and is of such variation that it suggests that the waste mix does not influence the financial performance to any great extent. This is illustrated in **Figure 5.2**, which shows the waste mixes for the 5 CAS that show a cost recovery in excess of 70%

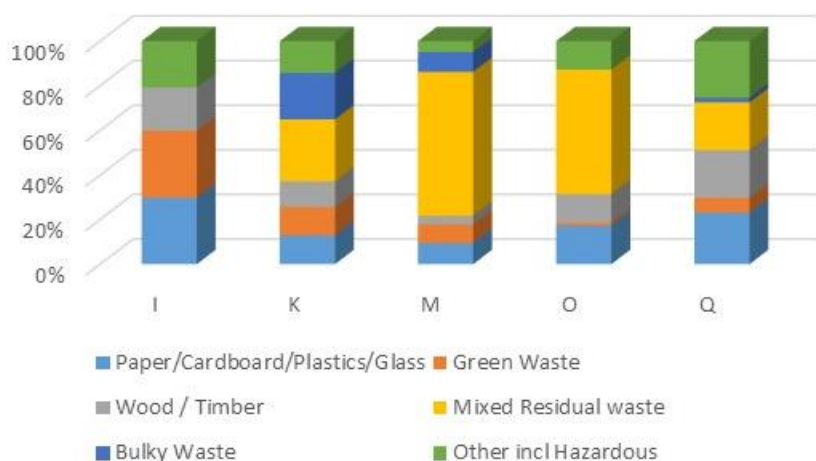


Figure 5-2: Waste mixes at 5 high performing LA operated CAS

Clearly, there is no definitive mix that can be matched, or attributed, to good cost recovery. M and O have a high volume of mixed residual waste; I has no such waste, while K and Q are in the 20 & 25% range. Site I has 30% green waste while O has 1.4%. Substantial variations can be seen elsewhere.

The Financial Appendix shows the charges at each of the 10 CAS in 2018. It is noteworthy that 4 of the 5 high cost recovery CAS - I, M, O and Q - operate on a PBW basis for larger loads. The fifth site - K - has a substantially higher charge for cars and other vehicles than other CAS, though in this case the charge for up to 4 bags of green waste is €5.00.

In conclusion 5 of the 10 LA operated CAS in this category show a cost recovery >70%, though none show a full cost recovery.

A profile of 5 well-performing CAS shows that they:

1. Have footfall near or exceeding 25,000 visits
2. Receive ≥ 50 Kg of waste per user visit (35 Kg for one site);
3. Operate PBW for loads greater than a car (one exception), and
4. With one exception, manage a reasonable volume of mixed residual waste.

5.3.4 Group 4 - Full Range of Waste Streams Accepted and Charges Levied on All Streams - Outsourced Operations

In total, there are 14 CAS with outsourced operations. The financial performance and type of contract of these CAS vary to a substantial extent as shown in **Table 5-15** following:

Table 5-15: Outsourced Operations

	Concession	Managed
LA Surplus	2	1
Cost Neutral	1	2
LA Deficit	1	7

In total, 3 CAS show that the relevant LA is in receipt of moneys paid by the contractor. 2 are concession type contracts wherein the contractor essentially pays for access to the site and collects all revenues, including PRI scheme income. The third is a managed site, currently on a short-term contract and it is the intention of the LA to proceed to a concession type contract. One concession type contract is at a cost to the relevant LA.

A management type contract is the most common type in operation at present. In the data collection returns, 2 are shown as cost neutral to the LA. In general, though, these contracts usually involve some payment by the LAs.

The analyses carried out for LA operated CAS are not applicable here as the detailed data on incomes and expenditures are not available. However, a partial analysis shown in table following indicates that the scale of waste deposited per user visit is a good indicator of financial performance. Cost Status is shown as “S” for a surplus on the part of the LA; “N” signifies cost neutrality and “D” is a case of a deficit.

Table 5-16: Outsourced Operations - Performance

	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
	Conc	Conc	Conc	Conc	Man	Man	Man	Man	Man	Man	Man	Man	Man	Man
Cost Status	N	D	S	S	S	N	N	D	D	D	D	D	D	D
Kg per visit	48.50	126.35	101.78	132.57	65.56	8.08	18.25	56.25	41.24	40.42	57.13	46.28	59.54	40.32

The table shows that the 2 highest CAS in terms of Kg per user visit, i.e. U and V, are in surplus. One managed site - Y - is also in surplus, though its Kg per user visit is not as high as the other CAS that are in surplus. However, it is higher in these terms than the average of all the other CAS that are either cost neutral or in deficit. An analysis shows that for CAS in surplus, the average drop per user visit is 109.7 Kg, while for the CAS that are cost neutral or in deficit, the average drop is 59.7 Kg. It seems reasonable to us to conclude that average drop size is a factor in financial performance.

An appraisal of the waste streams for these CAS shows that there is no identifiable pattern that underpins financial performance. **Figure 5-3** shows the waste stream mixes for outsourced operated CAS.

It can be seen that CAS U, V and W, the CAS providing a surplus to the LAs, have no discernible or particular waste stream mix that identifies a pattern that justifies the financial performance. Indeed, it is difficult to discern any relationship between waste streams and financial performance.

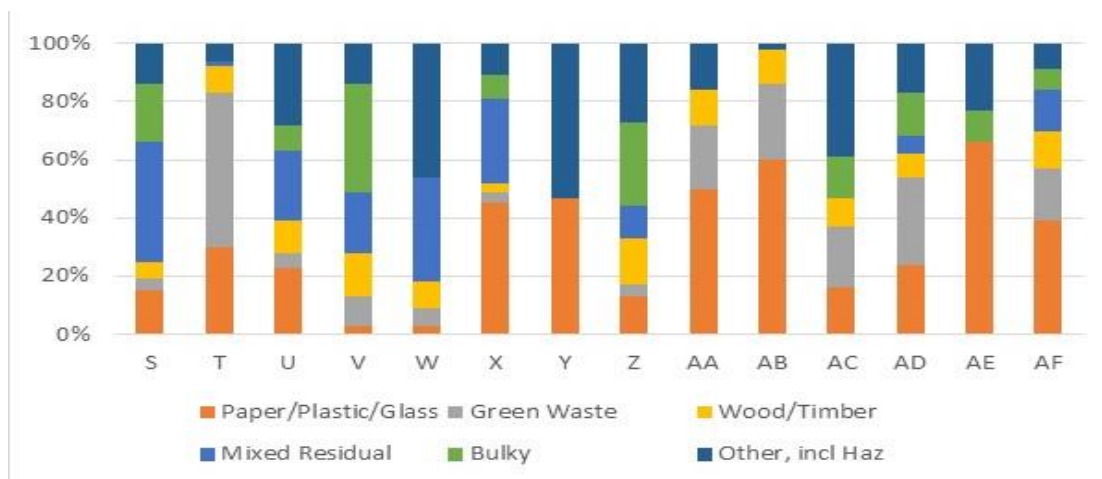


Figure 5-3: Waste Mixes - Outsourced CAS

The 3 CAS generating surpluses to the LAs all operate PBW for some, if not all loads, and these are the only CAS in this group operating such a system. Many of the CAS operate on a “cost plus” basis where there are additional charges for bulky items, wood and scrap metal.

In conclusion, 8 of the 14 CAS operated under contracts either show a surplus or are cost neutral. A profile of the well performing CAS is that they:

1. Tend to be operated under concession type contracts;
2. Receive relatively high volumes of waste;
3. Achieve relatively low operating costs - these are more important than revenue yield; and
4. Have an incentivised system of charging.

5.4 Characteristics of Best Financial Performers

5.4.1 Analysis

The analyses shown previously demonstrate that there is a significant variation in practice and performance across the CAS in the sample, and by inference, across the entirety of the CAS in Ireland. Factors providing a basis for good financial performance have been evident; and are instructive in identifying the fundamental factors driving success at the better performing CAS.

Table following shows the key performance factors for 6 CAS. The basis for selecting these is that:

1. They are outsourced operations and provide a surplus to the relevant LA; or
2. They are operated by the LA and show a cost recovery of 80% or more.

Table 5-20: Best Financial Performers

CAS	1	2	3	4	5	6
Tonnes Deposited	1,784	2,494	3,957	921	16,726	4,176
Footfall	27,693	30,000	58,672	9,049	126,170	63,700
Revenue per tonne	€284	€176	€159	n/a	n/a	n/a
Expenditure per tonne	€265	€204	€191	n/a	n/a	n/a
Kg per visit	64.4	83.1	67.4	101.8	132.6	65.6
Revenue per visit	€18.27	€14.67	€10.73	n/a	n/a	n/a
Expenditure per visit	€17.07	€16.97	€12.89	n/a	n/a	n/a

In total, 3 of the CAS in this group are LA operated sites and 3 are operated under contracted. The average number of user visits per site in the total sample of 30 sites is 33,680 visits per annum. 3 of the successful CAS shown above are below this level, by a modest margin in the case of 2 of them.

However, a key factor is the amount of waste deposited per visit. The average in the 6 best financial performers is 95.3 Kg., whereas the average for all other CAS is 44.2 Kg.

In many cases, outsourced CAS advertise that they accept some commercial wastes. The term “Commercial” is not defined, but it may be inferred that it includes tradesmen and small builders who perhaps are willing to use local CAS to manage wastes and who can pass on the costs to clients. In other words, many of these may not be as cost conscious as householders as waste disposal costs may be a small proportion of any works they are carrying out.

An appraisal of the waste streams shown in **Figure 5-4** shows no identifiable pattern that suggests a basis for better financial performance.

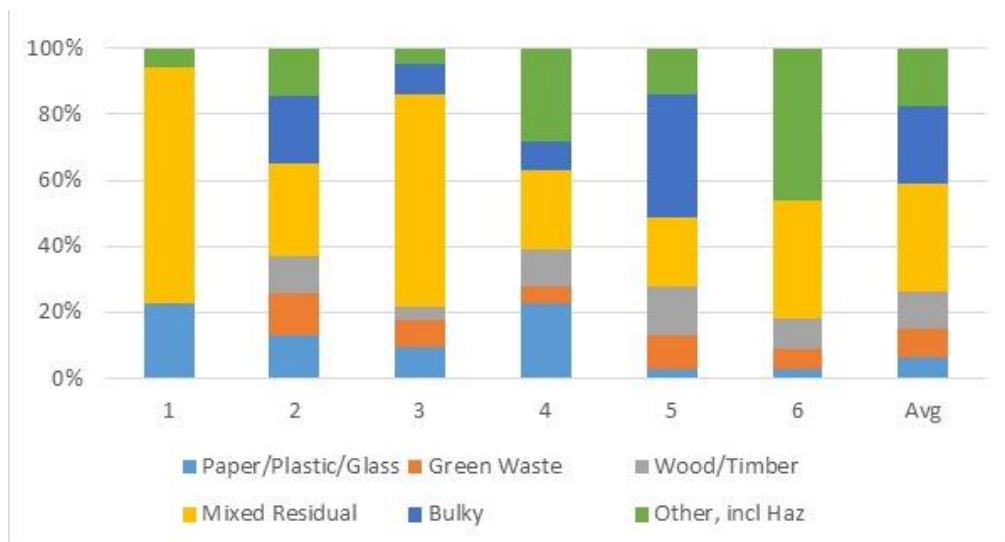


Figure 5-4: Waste Mixes - Best Financial Performers

In this figure, we have added an “average” column. 3 streams, the standard recyclables, green waste and wood/timber account for just 26% of all of the waste collected at these 6 CAS; with the balance of 74% by weight being made up from mixed residual wastes; bulky items and other wastes, including hazardous. However, this breakdown is not very dissimilar from the average for all CAS in this review, where the standard recyclables, green waste and wood/timber account for 30% of the waste collected.

We are able to make a comparison between the LA operated CAS in terms of the revenues and expenditures per visit. The analysis shows:

Table 5-21: Revenues and Expenditures per Visit at LA CAS.

	Good Performers	Others
Revenue per visit	€13.54	€6.90
Expenditure per visit	€14.93	€12.27

The more successful CAS from a financial perspective generate twice as much revenue per visit as the other CAS in the sample. While they have a higher expenditure per visit, it should be noted that the average drop per visit is also much higher, which implies that operating costs are more efficient in the larger CAS. These 6 CAS sites account for 49.4% of the total waste collected at the CAS in the sample.

Finally, we note that 5 of these 6 successful CAS operate on a PBW basis; while the sixth levies charges that are highest or equally high for the various means of transport - cars, vans etc.

(Note: This finding might appear to contradict the findings shown in table 5-14. That table referred to a subset of LA operated CAS and not the entire sample. The difference in those findings only show how variable the overall performances are.)

To summarise, the financially successful CAS:

- Do not require specific or abundant footfall, but tend to have high volumes of waste dropped per site customer;
- Use PBW to generate substantial revenues per visit and charge for most or all materials;
- Have an efficient cost structure for operations and waste removal/disposal possibly via economy of scale; and

- Develop a cost structure to attract an appropriate mix of waste streams, including commercial, while generating a good degree of cost recovery.

5.4.2 Use of Pay-by-Weight

A small number of LAs operating their own CAS provided estimates of the cost of implementing PBW infrastructure. The estimated average cost per site was given as:

Weighing / measuring requirements	€36,350
Other Capex required; e.g. IT systems	€30,250

This infers a total expenditure of €66,600 per site, which appears modest. The estimated additional annual operating costs were provided at €70,625.

Assuming depreciation over 5 years, these would equate to average annual costs of €83,945. This in turn equates to an average uplift in operating costs of 18%. Recovery of these costs would require an average income uplift of 28% of current revenues.

Amongst the contractor operated CAS, the average cost of implementing PBW was estimated at:

Weighing / measuring requirements	€136,000
Other Capex required; e.g. IT systems	€ 40,286

This infers a total expenditure of €176,286. Additional operating costs were estimated at €98,000. On the same basis as above, this would equate to average annual costs of €133,257. It is not possible to relate this to current revenues or operating costs of such CAS.

It is unclear why the costs for weighing / measuring and associated capex is significantly higher for the contractor operated CAS.

6 CONCLUDING STATEMENTS AND RECOMMENDATIONS

6.1 Vision for a CAS network

“To develop an integrated, consolidated and coordinated public waste infrastructure network that responds sustainably to consumer needs, regulatory and policy challenges and the circular economy”.

This study evaluated the current operations of Irish local authority CAS facilities. It examined data collected during site visits, stakeholder, and customer interactions plus financial and operational data. The study considered the future role, function and financing of CAS, particularly in context of anticipated circular economy requirements.

Issues identified can be attributed to the evolution of the range of services provided combined with the failure to recover costs and the diminution in support from the central government. Each facility individually endeavours to provide the widest range of services to the maximum number of users at most times incurring significant costs and not utilising the combined strengths of the network of 96 facilities.

The study has produced recommendations, fundamentally based on realising and releasing the collective potential of the CAS network to provide sustainable public waste infrastructure, which responds to the needs of consumer and policy challenges.

The recommendations, together, provide a roadmap to build an integrated, consolidated, and coordinated network to optimise services while reducing costs to the local authority sector. New positions, of Regional Public Waste Infrastructure Managers, are proposed, as a key resource to initiate, implement, and drive the programme for change.

The implementation of the recommendations will enable the development of a truly integrated network of CAS during the lifetime of the national Waste Action Plan for a Circular Economy 2020-2025 and reposition the network to the forefront of the delivery of the circular economy in Ireland.

These actions will also enable local authorities to develop the CAS network as a key piece of sustainable infrastructure in the implementation of waste policy and the circular economy plan for Ireland.

The key emphasis of the recommendations is to integrate the existing network of facilities, consolidate arrangements and practices and coordinate the provision of services.

The following sections consider these challenges, under headings of integration, consolidation, and co-ordination; they provide responses and outline specific recommendations to meet the challenges including the systematic challenges in a post-COVID-19 recovery.

6.2 Integration - Combining in an Effective Way

Operating in isolation is not sustainable in the context of the policy and financial challenges faced by the local authority sector. The provision of public waste services as an alternative and complementary to, private waste services is a statutory obligation for the sector and should be delivered with the maximum efficiency incurring the least cost. Better integration of existing facilities is central to a unified approach to the challenges ahead.

This section looks at how the CAS currently interact, align and work together, and how better integration of the network will improve performance.

6.2.1 Integration Issues

The study identified a range of issues that could be resolved through improved integration of the existing network of CAS:

- Significant resources are employed in the management and delivery of activities; publicity, data management, procurement, and tendering at each CAS.
- Resources are not used to maximum efficiency as opportunities to share information and learning are limited by a lack of integration.
- There is little integration of activities across local authority boundaries, even over short distances, with inconsistencies in types of waste accepted, charging, receipting, opening times, and marketing.
- Higher-order waste policy activities such as reuse and preparation for reuse and associated training/educational activities are inconsistent and unintegrated, with only a limited number of CAS active in this area.

Potential benefits from the integration of activities through information sharing, collaboration regionally, or nationally is not accruing. Learnings are not systematically shared or disseminated for mutual benefit. Duplication of effort, not taking the benefits of scale, and not sharing best practice learnings are inefficient and costly.

Inconsistencies hinder easy and simple use of different sites as familiarity with one CAS does not translate to another. Customers do not see CAS as a network. Diverse activities produce diverse messaging with the benefits of nationwide messaging diminished. Standardised activities, including unified branding, would benefit the network and customers by simplifying the messaging and understanding of how the network functions.

The existing approach means that network responses to national and regional policies are not unified, limiting the effectiveness of their impact. This is critical, as a powerful response to the resource focused policies of the Circular Economy Package will be central to delivering policy and challenging targets.

The potential “*strength in numbers*” of an integrated network is not being harnessed, a deficit that comes at a cost.

6.2.2 Integration Responses

CAS cannot continue to act individually, in isolation from one another, if they are to deliver maximum value and benefit. Local authorities must develop an integrated approach to the management of CAS and other waste infrastructure. The integration will support the creation of structures to enable local authorities to address issues identified.

- Integration between CAS will enable the network to deliver a unified response to consumer needs and policy challenges.
- The CAS network can be a key part of the transformation to a circular economy, a source of revenue, employment, social cohesion, and inspiration.
- Consolidation of marketing and branding nationally offers potential for cost efficiency and effectiveness.
- Successful collaborations can be improved and replicated across the network - the collaborations with high street charity retail outlets, for example, show strong promise.
- Some CAS reported successful reuse partnerships with social enterprises, charities, or businesses. Third-party partnerships can bring nationally aligned benefits as their organisational goals align, in many cases, with CAS goals.

Integration is a complex task requiring action within, and between, regions for the 96 CAS. Dedicated regional resources are required to deliver integration and subsequent actions. To deliver this integrated network, and subsequent collaboration and coordination, new posts of Regional Public Waste Infrastructure Managers (RPWIM) are required within the existing local authority structures. The RPWIM will be responsible for all aspects of integration including management, administration, procurement, policy delivery. The RPWIM will be responsible for developing and implementing an efficient, effective, and transparent funding model, as well as developing a standard approach to gate fee charges.

Integration recommendations are set out below. These recommendations are fundamental to the successful creation of an integrated consolidated and coordinated public waste network. The provision of the recommended resources will enable the integration of the network, the consolidation of arrangements, and practices and the coordination of activities.

INTEGRATION RECOMMENDATIONS

1. New Regional Public Waste Infrastructure Manager (RPWIM) posts to be established to oversee the integration of public waste infrastructure.
2. Each RPWIM will be responsible for all aspects of integration including emergency management, administration, procurement, policy delivery, and developing the funding model.
3. The RPWIM's will be responsible for the development of a national gate fee protocol, and to deliver national branding for the network.

6.3 Consolidation - Making Stronger

The duplication of effort across 96 CAS is not sustainable. Consolidation of systems, procedures, and practices will improve this situation. A consolidated and collective approach to revenue and expenditure together with a clear protocol on the continued financial support of the local authority sector will enable partnerships with Government and others on policies and initiatives.

This section looks at the potential for the consolidation of systems procedures and practices based on issues identified in the study.

6.3.1 Consolidation Issues

The study identified a range of issues that could be resolved through improved consolidation of systems procedures and practices.

- There is no collective approach to the optimisation of income from gate fees, from compliance schemes, commodities markets or subventions.
- Cost recovery rates vary significantly – average annual subventions per local authority site are €447k.
- Pricing structures are inconsistent, ranging from no fees to weight-based fees to volume-based fees for the same materials at different CAS.
- Revenue from subvention is not analysed to ensure that it supports priority waste streams and that it does not support the management of waste streams that could achieve cost recovery.
- There is no collective approach to minimisation of costs, which vary substantially across sites with significant differences between directly operated sites and contracted sites.
- There are no collective agreements with extended producer responsibility (EPR) schemes.

Following on from the integration of the public waste infrastructure network the consolidation of systems, procedures and practices can potentially deliver significant savings for the sector.

6.3.2 Consolidation Responses

The consolidation of systems procedures and practices will focus on closing the gap between revenue and expenditure with loss-making waste streams identified for action and potential revenue-generating streams promoted. Commercial waste in particular offers the potential for revenue growth.

- The CAS approach to accepting commercial waste is inconsistent with less than half of the sites surveyed accepting commercial.
- Inconsistencies may be influenced by a lack of clarity with grant aid being previously directed to assist the management of household waste only. Further, a legislative definition of CAS does not address commercial waste.⁶
- Commercial waste generated by small operators and tradesmen, similar to household waste, is a potential source of revenue not requiring significant changes to CAS infrastructure or operations.
- The network needs a strategic, collective approach to agreements with EPR schemes, waste collectors and other service providers. Individual local authority agreements are inefficient and unsustainable. Consolidated approaches, including standardised contract development, contract bundling, and collective negotiation, can be captured by framework agreements.
- Based on the study findings contract-operated CAS can deliver improved performance. The option of contracting CAS operations should be assessed, case-by-case, to identify the potential for efficiency improvements.
- The impact and implications of income must be analysed to ensure that subventions are directed to appropriate waste streams, promoting good practices and policies.
- The relative merits of the current model of local subvention versus collective national subvention or a combination of both will be evaluated to determine optimal outcomes for the integrated, consolidated, coordinated CAS network, and a recommendation will be made.

A strategy to promote the circular economy package will be developed, including a resource, cost, and implementation plan (RCIP). This will address education, reuse schemes, learnings from CAS best practices, the pursuit of commercial opportunities, including CAS linkages with high street charity shops, and other activities to set out what is required to implement the strategy. A proportion of local authority subvention should be designated to the promotion of the circular economy package with matching funding from the Government.

The financial position of the CAS can be strengthened through a consolidated approach to finance, including the optimisation of income, the minimisation of costs and consistency on gate fees, domestic and commercial. A framework for a collective approach will be developed.

Consolidation recommendations are set out below. These recommendations are fundamental to the successful financial management of CAS and to attract support from the Government, and others, to deliver on policy challenges.

⁶ E.g. S.I. No. 290/2005 defines “civic amenity facility” as “a purpose-designed facility operated by or on behalf of a local authority or a private sector operator which is provided for the efficient reception and temporary storage of recyclable and non-recyclable waste materials, including segregated waste electrical and electronic equipment arising from private households”.

CONSOLIDATION RECOMMENDATIONS

4. Develop a framework for a collective approach to the optimisation of income, the minimisation of costs, and consistency on gate fees, domestic and commercial.
5. Determine the relative benefits of the collective LA subvention of the network versus continued local subvention or a combination of both.
6. Develop a framework agreement to consolidate the approach to compliance schemes and service providers.
7. Develop a consolidated strategy for the promotion of general and specific CAS services.
8. Devise a strategy for the promotion of the CEP by the LA sector with the support of the Government.

6.4 Coordination - working together in an organised way

As a public service, it is essential that there is a coordinated approach to the provision of waste services including standards for sites and the designation of site types appropriate to consumer demand.

This section looks at the potential for improved coordination in the delivery of services at CAS.

6.4.1 Coordination Issues

The study identified a range of issues that could be resolved through the improved coordination of activities.

- Every CAS cannot provide all services, at all times, to all customers. This is too challenging, in particular for CAS with smaller catchments and budgets. The 96 CAS are not equivalent.
- The CAS are not aligned with the needs of consumers in terms of types or timing of those services provided. Many CAS open relatively limited hours with only half of those surveyed open >40 hours per week.
- There are no agreed national standards for CAS, or CAS types. This is a primary factor explaining the disparities in operations between facilities. Standardisation is an essential first step in delivering coordination.

Following on from the integration of the public waste infrastructure network and the consolidation of systems, procedures and practices improved coordination can deliver better services to the customer.

6.4.2 Coordination Responses

The primary issue identified is inconsistency and lack of coordination between CAS. A selection of responses include:

- Opening hours vary widely.
- Customer-friendly opening hours attract most footfall.
- Study findings show customer preference to access CAS on Saturdays.
- It is reasonable to expect demand for services at 'off-peak' times such as weekends, weekday lunchtimes, evenings, and public holidays, times when many CAS close.

- While CAS cannot service all of these timings, coordination can ensure proximate CAS provide staggered service hours,
- Receipting is not uniformly given to customers: recent byelaws now place a need on CAS to provide receipts.

Standards for CAS

An integrated, consolidated, coordinated network requires that CAS eliminate problematic inconsistencies across the network. This requires that CAS deliver services to standardised parameters.

Standards will specify parameters for activities, e.g. opening hours, materials accepted, a requirement for a customer charter, approach to commercial customers, gate fees, receipting and financial data management, staffing, alignment to national branding, and reuse and circular economy activities. These standardised parameters will ensure that CAS operations coordinate and operate as a network.

The standard sets requirements that may be met by CAS acting individually or in collaboration with another CAS or through services in the locality.

Standards will be developed by the Regional Public Waste Infrastructure Managers (RPWIM) for consultation with the local authorities.

A customer charter committing to providing the highest standards in waste management services to customers will be required to demonstrate that customer experience is being maximised.

Even with standardisation, each CAS cannot provide all services to all customers, at all times. Costs, sizes of facilities and catchment populations make this unfeasible. All CAS will provide a baseline of services - opening core hours, accepting a core list of waste materials, accepting materials for reuse activities etc.

CAS will be designated a position within the hierarchy, and an associated standard to meet. The designated position will ensure that customers in an area have local access to the baseline range of services and the full range of services at reasonable distances. CAS will be designated at appropriate⁷ distances or travel times, reflective of the CAS catchment, urban or rural, ensuring national coverage of services. This will ensure that CAS respond efficiently to specific needs, and in a coordinated manner.

The reach of the CAS network will be further enhanced through coordination with private sector CAS. These CAS will be invited to meet the appropriate standards and to participate in the CAS network, and to benefit from the 'strength in numbers' effect of coordination with the network.

Ensuring national coverage will require a complete analysis of the reach of the CAS network nationally. Where the density of the CAS network is inadequate to service demand, additional CAS may be required.

The standard, hierarchy, and designations will be developed by the RPWIM. The RPWIM will consult with local authorities about the proposed standard, hierarchy, and designations to ensure that optimal solutions are developed for all areas.

The RPWIM will develop a multiannual implementation programme setting out resources and costs required to implement the standardised waste hierarchy network.

Some CAS may service local needs additional to their assigned standard e.g. green waste management or holiday homes facilitation or KWCS unavailability or one-off needs.

The recommendations for coordination of the CAS are set out below. These centre on the development and application of a standard and hierarchy to drive coordination.

⁷ Customer reported travel averaged to 14 minutes and 10 km nationally. When analysed separately as urban (7) and regional (22), travel time remained at 14 minutes and distance at 10 km for the rural but dropped to 8.7 km for urban. Customers further than 14 minutes and 10 km away (8.7 km in cities) may be increasingly less likely to travel to CAS.

COORDINATION RECOMMENDATIONS

9. Complete the national hierarchy of sites and associated standards.
10. Designate sites in accordance with the site hierarchy and standards to ensure appropriate national coverage of service.
11. Consult with local authorities based on proposed site designations.
12. Complete the analysis of the reach of the designated and private sites nationally.
13. The Regional Public Waste Infrastructure Managers are to develop a multiannual programme for the implementation of the revised public waste network.

COVID-19 and CAS

The COVID-19 emergency started during the study period. Most local authority CAS facilities and bring banks remained operational throughout the COVID-19 emergency. Some changes to operational arrangements were decided on a localised basis in response to localised need and the extraordinary situation. In particular, changes to CAS operations were made to address fly tipping when access to usual outlets were restricted.

www.mywaste.ie generated a COVID-19 webpage informing readers how to handle contaminated waste and how to use CAS. Customers are encouraged to use CAS in accordance with HSE guidelines on social distancing, and to use CAS only for essential requirements to ensure that sites remain open and functioning effectively.

The COVID-19 experience indicates:

- Emergency or unusual circumstances can significantly alter public waste management patterns.
- Public health, environmental protection, and national targets remain in force during emergency situations. CAS can respond rapidly and flexibly to waste management in emergency situations, and should be given a mandated, standardised response procedure to implement.
- Constraints driven by emergency-linked health and safety issues can limit responses.
- Customers monitor CAS services provided and go to lengths to use promoted services.
- www.mywaste.ie can generate messaging rapidly and circulate it widely, allowing CAS operations to focus on waste management.
- Opportunistic fly-tipping is a feature. Carefully timed and coordinated CAS campaigns can assist in addressing this.
- The local responses led to initial inconsistency in the provision of some services.

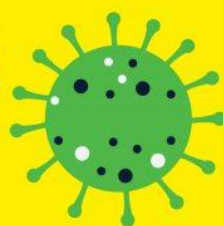
The overall learnings from the COVID-19 situation point to the need for a more strategic response, which would be greatly enhanced by an integrated, consolidated and coordinated network. (Recommendation 2 refers).

USING CIVIC AMENITY SITES

Civic Amenity Sites are a key component of household waste management in Ireland.

Customers are encouraged to use Civic Amenity Sites in accordance with HSE guidelines on social distancing. Customers should only use Civic Amenity Sites for essential requirements at this time to ensure that the sites can remain open and functioning effectively.

Coronavirus
COVID-19



mywaste.ie



Appendix A: Financial Data Requested

The following sets out the financial information that was requested for each of the 30 CAS surveyed.

Appendix A Table 1 shows the data request format for CAS operated by local authorities, and Appendix A Table 2 shows the data request format for CAS operated by contractors, on behalf of local authorities. Both questionnaires were answered by local authority staff.

Appendix A Table 1: Financial data questionnaire for CAS operated by LAs

Financial Data Collection	
1. Income:	€
1a. User-facing Charges by Waste Stream 2018:	
General & Household Waste	
Green Waste	
Dry Recyclables	
Bulk Waste - Furniture	
Hazardous Waste - paint, oil	
Sub-total	0
Add as many extra rows as required to capture the data.	
1a. Income from User-facing Charges by Waste Stream 2018:	
General & Household Waste	
Green Waste	
Dry Recyclables	
Bulk Waste - Furniture	
Hazardous Waste - paint, oil	
Sub-total	0
Add as many extra rows as required to capture the data.	
1a. PRI Scheme Income 2018:	
REPAK	
WEEE Ireland / ERP	
Other (if applicable)	
Sub-total	0
Any Other grants, subsidies 2018	
Total Income 2018	0
2. Expenditure by Waste Stream 2018:	€
General & Household Waste	
Green Waste	
Dry Recyclables	
Bulk Waste - Furniture	
Hazardous Waste - paint, oil	
Total Disposal Expenditure	0
Add as many extra rows as required to capture the data.	
3. Other Operating Expenditure 2018:	€
Salaries & Wages	
Compliance, Licencing	
Other Operating Costs and Overheads	
Total of Other Operating Expenditures 2018	0
Total Expenditure 2018	0
4. Asset Value:	€
Capital expenditure on CAS to date, excl. land	
Value of any capital grants received	
Asset value, Capital Expenditure to date excl. grants	0
5. Capex Reserve Fund	
Is there a Reserve Fund for Capex?	Yes/No

If yes, is there a defined contribution structure? Please describe on separate sheet.	Yes/No
6. Capex required to introduce incentivised charging:	€
Weighing/measuring requirements	
Other capital expenditure requirements, e.g. IT systems	
Total Capex required to introduce incentivised charging	0
7. Expenditure required to operate incentivised charging:	€
Additional staff costs	
Other additional operating costs	
Total Capex required to meet incentivised charging	0

Appendix A Table 2: Financial data questionnaire for CAS operated by contractors

Contractor data	RESPONSE
Type of contract (include if Concession contract)	
Name of Contracting organisation	
Name of Contracting organisation central office contact, if Contracted	
Duration of contract (in months)	
Contract start date	
Contract finish date	
Cost to LA (annual) for the contract	
Charging structure (prices, not income)	
Is PRI (Repak, WEEE, any other) included in contract or does the LA deal with this directly	
Asset Value:	€
Capital expenditure on CAS to date, excl. land	
If site was purchased, show purchase price here	
Value of any capital grants received	
Asset value, Capital Expenditure to date excl. grants	0
Capex Reserve Fund	
Is there a Reserve Fund for Capex?	Yes/No
If yes, is there a defined contribution structure? Describe on separate sheet.	Yes/No
Capex required to introduce incentivised charging:	€
Weighing/measuring requirements	
Other capital expenditure requirements, e.g. IT systems	
Total Capex required to introduce incentivised charging	0
Expenditure required to operate incentivised charging:	€
Additional staff costs	
Other additional operating costs	
Total Capex required to meet incentivised charging	0

Appendix B: Operational and Site Information

Appendix B Table 1 provides the template table listing the operational information collected.

The following steps describe the general approach that was taken to conducting the operational site surveys.

- Surveyor (Dara Peyton for 28/29 CAS) set up surveys by prior arrangement with the site management.
- Surveyor liaised with Site Manager for induction, discussion, site tour, photograph and literature collection and operational questionnaire completion.
- Surveyor completed a standardised report for each site on the day of the survey in format that facilitated spreadsheet manipulation - standardised answers, minimal free text. Information was collected in hard format during site visit - data described in sections following - and transferred into soft format immediately following visit.
- Surveyor photographed as much infrastructure as possible, including: Vehicles; Buildings; Containers; IT equipment; Equipment - e.g. balers, compactors, etc; Site literature; Site signage.
- Surveyor gathered copies of all literature available and photographed this literature.
- Surveyor conducted the customer survey as described
- Surveyor emailed the standardised reports to RPS project manager on same day of site visit along with all photographs.
- Surveyor filed literature collected on return to office.

Appendix B Table 1: General Information - Template Data Collection

GENERAL DETAILS		
Date of site visit		
Name of RPS data collector		
Region - EMR, CUR or SR		
Local Authority		
CAS Name		
Authorisation number		
Eircode and/or GPS co-ordinates		
CAS Address (write as single sentence)		
Site is operated by LA or Contracted?		
Name of primary site contact met on the day		
TYPE OF WASTE ACCEPTED		
Household only		
Household and commercial		
Does your organisation collect the Repak rebate, if Contracted		
How many staff (total) employed onsite? FTE (equivalent to one employee working full-time)		
How many staff (managerial/clerical) employed onsite? FTE		
How many staff (operative) employed onsite? FTE		
OPENING AND CLOSING TIMES		24H TIME- E.G. 14:45
Opening	Monday	
Closing	Monday	
Opening	Tuesday	
Closing	Tuesday	
Opening	Wednesday	

Closing	Wednesday	
Opening	Thursday	
Closing	Thursday	
Opening	Friday	
Closing	Friday	
Opening	Saturday	
Closing	Saturday	
Opening	Sunday	
Closing	Sunday	
Opening	Public holidays	
Closing	Public holidays	
Landfill proximity		Yes/No answers
Is the site collocated on or adjacent to a landfill /closed landfill site?		
Site promotion on services and how to use site		Yes/No answers
Site promotion - is signage visible onsite giving clear directions?		
Site promotion - is written literature (leaflets type) available onsite?		
Hardcopy Brochure/leaflet taken for filing?		
Site promotion - is information online		
Back office systems (Hardware/software)		
Is there a central server for site, either onsite or offsite?		
Is there specialised waste software or is it a non-specialised (e.g. Excel) type?		
Name of specialised software onsite - e.g. WIMS, SAP, Oracle, Blue etc		
Can customers be supplied with a receipt for waste delivered to site?		
Are customers routinely supplied with a receipt for waste delivered to site?		
Are receipts for waste printed-automated or handwritten?		
Is cash handled by a cashier or by ticket-machine?		
How is customer identified for receipting? Name? Car reg? Eircode? Not identified?		
Is a monitored security alarm system provided?		
Is site-CCTV system installed and used?		
Infrastructure - Weighbridge and Buildings		Numerical or yes/no answer
Vehicle Weighbridge present?		
Other method of weighing incoming customer waste?		
Weighbridge system automated?		
No. of portacabin buildings on site		
No. of permanent buildings on site		
Estimated total floor area of portacabin buildings on site (m2)		
Estimated total floor area of permanent buildings on site (m2)		
How many vehicle gateways into the site?		
INFRASTRUCTURE ON SITE		YES/NO ANSWERS
Mains water availability piped onsite?		
Mains water restrictions or limitations? If yes, describe on separate sheet		
Wastewater Treatment onsite or piped and connected to sewer?		
Wastewater restrictions or limitations - e.g. if has to be transported offsite for treatment? If yes, describe on separate sheet		
Electricity mains availability?		

Electricity restrictions or limitations - e.g. does power availability limit site operations? If yes, describe on separate sheet	
SITE VEHICLES	
How many dedicated site vehicles - forklift etc.?	
Who owns the dedicated site vehicles - LA or contractor?	
List the dedicated site vehicles by type e.g. 2 fork-lifts, 1 hook-lift, 1 skip-truck	
MATERIALS HANDLING/PROCESSING	YES/NO ANSWERS
Is any unprocessed residual waste going directly from the site to landfill?	
Is any unprocessed residual waste going directly from the site to incineration?	

HOW MANY CATEGORIES OF MATERIALS ARE CONSIGNED OFFSITE?	NUMERICAL ANSWER
How many categories of materials are consigned offsite? e.g. may collect 10 material types - card, paper, plastics - but these may be consigned offsite in one category as mixed dry recyclables.	
PHOTOGRAPHS TO BE TAKEN ACROSS THE SITE, OF SITE LAYOUT, RECEPTACLES, WEIGHBRIDGE, ANY PROCESSING ETC	YES/NO ANSWERS
Photographs taken of each dedicated site vehicle?	
Photographs taken of all Site promotional materials - hardcopy Brochure/leaflet?	
Photographs taken of all site buildings?	
Photographs taken of all significant site equipment?	

Appendix C: Survey: Materials Accepted

Table following is the list of materials which the CAS surveyed were asked to complete. It captures the 'bulked up' stream (if any) into which the materials are gathered for transport offsite.

Appendix C Table 1: List of materials accepted onsite

Column A: Receptacle ownership *Local authority, Contractor or both*

Column B: No. Receptacles *Numerical answer*

Column C: Handling /processing Footnote⁸

Column D: Weighed entering site? *Yes / no*

Column E: Weighed exiting site? *Yes / no*

Waste type Footnote ⁹	A	B	C	D	E
1. Mixed residual waste					
2. Mixed dry recyclables					
3. Food waste					
4. Garden (green) waste					
5. Cardboard & paper (segregated packaging waste only) e.g. Cardboard boxes					
6. Cardboard & paper (non-packaging waste only) e.g. News & pamphlets					
7. Other cardboard & paper (please describe)					
8. Glass (segregated packaging waste only) e.g. Glass bottles					
9. Glass (non-packaging waste only, municipal sources) e.g. Glass vases, crystal or other drinking glasses					
10. Other glass waste (please describe) - e.g. Window glass, windscreen glass					
11. Aluminium cans (segregated packaging waste)					
12. Steel cans (segregated packaging waste)					
13. Aluminium and steel cans (mixed) (segregated packaging waste)					
14. Other municipal metals (non-packaging)					
15. Other metals (e.g. CDW metals such as cables, copper)					
16. Plastic (segregated packaging waste only) e.g. Pet bottles					
17. Plastic (non-packaging waste, municipal source) e.g. Hard plastics such as buckets					
18. Other plastics (e.g. Farm film plastics)					
19. Composite packaging (e.g. Beverage cartons)					

⁸ Surveyor was instructed "Important to capture if a waste is mixed with another waste type or types before transferring offsite. Capture the processing/handling: e.g. - bulked, - bulked/mixed with other waste type(s) - state which, -baled, -direct transfer (no bulking), - direct transfer to landfill, - sorted (e.g. magnet for ferrous), - shredding (e.g. timber), - composting, - compacted, -other"

⁹ Surveyor was instructed to "List each waste type accepted so that the subsequent data re receptacles, processing, weighing, can be captured for each one. Important to capture all of the individual waste types being accepted. adding new lines if necessary, as per the waste names CAS uses."

Appendix D: Operational Longhand Notes

Appendix D Table 1 following captures descriptive data.

Appendix D Table 1: Longhand notes were recorded in separate MS-Word sheet

LONGHAND NOTES	CAPTURED? YES/NO
1. Neighbouring Land Use - in NSEW directions. And describe ownership, if apparent or advised by operator. E.g. private dwelling, private commercial, public park, public land in agricultural use,	
2. Site promotion - online. Capture details of extent of this, if any	
<ul style="list-style-type: none"> • Social media - FB, twitter etc. • Dedicated website? • Who updates the on-line information? • How often is information updated? • Any innovative features? • Anything else of note? 	
3. Describe any restrictions on site infrastructure - electricity, water or wastewater - e.g. leachate having to be transported offsite or inadequate electrical power to support desired activities private water supply if mains water not available.	
4. Are there any reuse activities onsite? E.g.	
<ul style="list-style-type: none"> • drop-and-pick book/CD/DVD exchange etc. • materials swap events • repair workshops 	
5. If there any reuse activities onsite, the following specific details should be included, in order to compare CAS with reuse activities	
<ul style="list-style-type: none"> • Types of material accepted • Are records maintained of the materials accepted? If "yes" how • Are there records maintained of the materials reused? If "yes" how • Where is the material stored? • Is the material stored under cover? • Is any material given to charity? Is this a possibility? • Issues, if any • Suggestions to improve reuse activities 	
6. Describe site IT Hardware briefly. Site IT Hardware numbers - how many PC systems used in daily operations, receipt printers, ANPR (Automatic Number Plate readers), automated weighbridge. Include hardware in non-public areas at 'back-of-house'.	
7. Any other relevant detail	

Appendix E: CUSTOMER SURVEY METHODOLOGY

The Surveyor conducted a customer questionnaire with arriving customers across paid and free of charge areas at each site (and any other site divisions or entrances).

Survey Questions

Questions were verbally presented, and responses recorded in hard format on a paper printout.

In developing the questionnaire, consideration was given to:

- Getting responses to the following information:
 - Customer Profile (average visits / day, week, month)
 - Customer Frequency (Repeat, once off, intermittent)
 - Alternative Options (Proximity of collection routes)
 - Commercial Customer Profile
- Minimising the amount of time that customers would be detained. Target is to extract as much information as possible in 5 minutes or less.
- Trying to select busy weekdays, as advised by the site management
- Targeting an equal share of customers at a site where customers divide into streams
- Minimising fears about the use made of the information provided.

Time of day for visit

Consideration was given to timing of day for customer surveys. Timing of paid and free transactions are given in the data for one site (large urban) for which data was available for January 2018-March 2019. This 15-month data for 65,530 transactions has been analysed to identify peak periods of customer use.

The 65,530 transactions were allocated to 20 consecutive 39-minute blocks of time between 07:06 and 20:06 - the earliest and latest times that transactions were recorded. The results illustrate the busiest times of day during that 15 months.

This data suggests that there is peak activity between 10:20 to 12:20 and from 14:15 to 16:12, with 23% of daily activity happening in each of those two-hour periods.

Accordingly, surveyors targeted these times for customer surveys on busy CAS, where possible. Interactions on site happened either side of these times as required.

Sample size

It is important to ensure that the number of customers surveyed is statistically appropriate. An analysis has been made using the following steps:

- Assign a 2018 footfall number to each site, based on measured footfall data collected for each of the 30 CAS. Where no 2018 data is available, use previous years (n=3) or estimate footfall (n=5).
- Footfall data provided is on an annual basis. Much of that footfall comprises regular customers that visit the site repeatedly. To allow for this, the footfall is reduced to a customer base using frequency of customer visits.
- Estimate frequency of customer visits using available measured customer data from three sites (one large urban and two smaller provincial) for which data was available. Combined, and making reasonable assumptions, and allowing for urban rural split, this indicates a frequency of visits per annum. This distribution is applied to all 30 CAS, without adjustment as it accounts for a city and two rural CAS.

- This split is applied to the footfall data, in effect reducing each footfall number by 84% to give the customer base size that is using the 30 CAS. The footfall number changes from 987,317 to give a customer base of 153,173 active customers.
- To get a Confidence interval (margin of error) of 5% and Confidence Level of 95%, for a customer base of 153,173, a sample size of 383 is required¹⁰.
- The sample size of 383 is distributed across all 30 CAS on the basis of their customer base size. This sets the minimum number of surveys to be conducted at each site.

The number of customers reached during a visit depends on factors including; length of customer questionnaire, day chosen, time of day, number of customers available, customer willingness to participate etc.

Assuming a questionnaire takes approximately 5 mins to complete for one customer and to start the next, including time taken to engage with customers and their willingness to take part. It was estimated that approximately 12 (60 mins/5 mins = 12) customers per hour could be surveyed, depending on CAS footfall.

The intention was that the surveyor would try to complete the targeted number of surveys for the site. If this was not possible - e.g. if weather, traffic or other reasons kept customers away during visit - the surveyor would request site management to have the remaining questionnaires completed and surveyor would retrieve data when complete. This did not transpire, as the surveyor was able to achieve the targeted number of customer surveys at each site.

Customer survey - customer survey questionnaire data recording sheet Appendix E Table 1, on the following page, illustrates the format used for the hardcopy questionnaire data recording sheet, showing:

- The questions to ask during the customer survey.
- The format for recording answers.
- The format of the end-of-day summary data for the CAS in question

¹⁰ Using www.surveysystem.com/sscalc.htm for guidance

Appendix E Table 1: Format of site questionnaire spreadsheet - customer survey

Customer survey spreadsheet	1	2	3	4	5	6	7	8	9	10	...	Total	% total customers surveyed
Survey date													
Surveyor name													
Name of CAS													
Time of first survey													
Time of last survey													
Number of customers surveyed													X
Survey @ paid entrance	✓		✓	✓		✓	✓		✓	✓	...	7	7/X%
Survey @ shared entrance											...	0	0%
Survey @ free entrance		✓			✓			✓			...	5	%
Survey @ [describe, if any]											...		%
Q1. Customer Type													
Q1: Customer is: Household paid	✓		✓	✓		✓	✓		✓	✓	...	8	%
Q1: Customer is: Household Free		✓			✓			✓			...	4	%
Q1: Customer is: Commercial paid ¹¹											...	1	%
Question 2 - household waste brought													
Q2: If Household, are you bringing household residual refuse for disposal? I.e. non-one-off, non-clearance waste.	✓		✓	✓		✓	✓		✓	✓	...	7	%
Question 3													
Q3: Customer is: making a dedicated visit?		✓	✓		✓	✓		✓	✓		...	8	%
Q3: Customer is: making an in-passing visit?	✓			✓			✓			✓	...	4	%
Q4: How often have you visited this CAS in the past?	1	2	3	4	5	6	7	8	9	10	...	Total	✓
Q4: At least once weekly	✓	✓	✓								...	4	%
Q4: At least once Monthly				✓	✓	✓					...	3	%

¹¹ All commercial customers should be paid.

Customer survey spreadsheet	1	2	3	4	5	6	7	8	9	10	...	Total	% total customers surveyed
Q4: At least once Quarterly							✓	✓	✓		...	3	%
Q4: At least once Yearly											...	0	%
Q4: Less than once Yearly										✓	...	2	%
Q4: First time visit											...	1	%
Q5: Travel - How long/far did it take you to travel here today	1	2	3	4	5	6	7	8	9	10	...	(Averaged)	
Q5: How long did it take you to travel here today (mins)	5	15	10	10	20	25	38	10	5	5	...	14.0	-
Q5: How far did you travel to get here today (km)	10	5	5	15	10	5	15	10	10	20	...	14.0	-
Q6: (Household customers only) Is a Household Waste Collection Service Available and do you use it?	1	2	3	4	5	6	7	8	9	10	...	Total ✓	
Q6: Is a Kerbside Waste Collection Service Available to your gate?	✓		✓	✓		✓	✓		✓	✓	...	8	%
Q6: If yes, do you use it?			✓			✓			✓		...	4	%
Q7: Commercial customers only	1	2	3	4	5	6	7	8	9	10	...	Total ✓	
Q7: Are you disposing self-generated commercial waste												0	%
Q7: Are you disposing waste for others - i.e. providing a service for others commercial waste?									✓			1	%

Customer Survey - Format of Final Spreadsheet

Appendix E Table 2 shows the format of the consolidated answers for all CAS, with aggregated totals for the 30 CAS. The percentages reported in the table for each site are all % of the total customers surveyed per site. The percentage under the total column are a separately generated weighted average.

Appendix E Table 2: Format of final spreadsheet - customer survey

Format of final spreadsheet	1	2	3	4	5	6	7	8	9	10	...	30	Total
Q1. Customer Type													
Number of customers surveyed	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10	...	n30	n Total (>383)
Household paid	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
Household Free of Charge	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
Commercial	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
Q 2 - household waste brought													
Q2: If Household, are you bringing household residual refuse for disposal? I.e. non-one-off, non-clearance waste.											...		% WEIGHTED AVERAGE
	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10		%30	
Q 3 - type of visit													
Q3: Customer is: making a dedicated visit?	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
Q3: Customer is: making an in-passing visit?	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
Q4. How often do you visit this CAS?													
At least once weekly	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
At least once Monthly	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
At least once Quarterly	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
At least once Yearly	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
Less than once Yearly	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
First time visit	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
Q5: Travel - How long/far did it take you to travel here today													Averaged answers
How long did it take you to travel here (mins)	Avg n1	Avg n2	Avg n3	Avg n4	Avg n5	Avg n6	Avg n7	Avg n8	Avg n9	Avg n10	...	Avg n30	Average (avg n1-avg n30)

Format of final spreadsheet	1	2	3	4	5	6	7	8	9	10	...	30	Total
How far did you travel to get here today (km)	Avg n1	Avg n2	Avg n3	Avg n4	Avg n5	Avg n6	Avg n7	Avg n8	Avg n9	Avg n10	...	Avg n30	Average (avg n1-avg n30)
Q6: (Household customers only) Is a Kerbside Waste Collection Service Available & do you use it?													Total yes
% Yes answers	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
If yes, do you use it?													Total yes
% Yes answers	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10	...	%30	% WEIGHTED AVERAGE
Q7: Commercial customers only													Total yes
Are you disposing self-generated commercial waste?											...		% WEIGHTED AVERAGE
% Yes answers	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10		%30	
Are you disposing waste for others - i.e. providing a service for others commercial waste?											...		% WEIGHTED AVERAGE
% Yes answers	%1	%2	%3	%4	%5	%6	%7	%8	%9	%10		%30	

Appendix F: CALCULATIONS OF CUSTOMER BASE

Table following is a calculation of customer base size generated at project start, used to calculate sample size. This calculation uses frequency of visits data gathered at a small number of CAS prior to 2019.

Appendix F Table 1: Calculation of customer base, generated using older data

Region	Local Authority	Name of CAS	Footfall 2018 Yellow - est.	Footfall 2017	Footfall 2016	> 24 visits / year	12-24 visits / year	2-12 visits / year	1 visit / year	Customer Base
EMR	Dublin CiCo	2 North Strand	32,071			25%	34%	35%	6%	4,976
EMR	DLR CoCo	1 Shanganagh	40,000			25%	34%	35%	6%	6,206
EMR	Fingal CoCo	27 Estuary RC	175,000	160,000	141,000	25%	34%	35%	6%	27,150
EMR	Kildare CoCo	11 Silliot Hill CAS	63,700	52,000		25%	34%	35%	6%	9,882
EMR	Laois CoCo	12 Portarlinton CAS	3,167			25%	34%	35%	6%	491
EMR	Louth CoCo	30 Dundalk CAS	40,000			25%	34%	35%	6%	6,206
EMR	Meath CoCo	13 Kells CAS	16,464	15,825		25%	34%	35%	6%	2,554
EMR	Offaly CoCo	3 Birr CAS	9,960			25%	34%	35%	6%	1,545
EMR	South Dublin CoCo	26 Ballymount CAS	126,170			25%	34%	35%	6%	19,574
EMR	Westmeath CoCo	4 Athlone CAS	28,474	25,779		25%	34%	35%	6%	4,417
EMR	Wicklow CoCo	15 Murrough RC		58,070		25%	34%	35%	6%	9,009
SR	Carlow	25 Powerstown	25,178	25,178		25%	34%	35%	6%	3,906
SR	Clare	22 Inagh	21,948			25%	34%	35%	6%	3,405
SR	Cork City	19 Kinsale Road			30,000	25%	34%	35%	6%	4,654
SR	Cork County	20 Mallow	16,588	11,978		25%	34%	35%	6%	2,573
SR	Kerry	23 Milltown	27,693	27,657	30,516	25%	34%	35%	6%	4,296
SR	Kilkenny	24 Dunmore	58,672	54,723	34,542	25%	34%	35%	6%	9,102
SR	Limerick	21 Mungret		30,193	30,760	25%	34%	35%	6%	4,684
SR	Tipperary	17 Cashel	23,818	23,354	19,632	25%	34%	35%	6%	3,695
SR	Waterford	18 Dungarvan	22,304			25%	34%	35%	6%	3,460
SR	Wexford	16 Holmestown	22,699	24,519		25%	34%	35%	6%	3,522
CUR	Cavan CoCo	14 Corranure CAS	36,742			25%	34%	35%	6%	5,700
CUR	Donegal CoCo	29 Letterkenny CAS	15,601			25%	34%	35%	6%	2,420
CUR	Galway CiCo	10 Liosban, Galway	21,000			25%	34%	35%	6%	3,258
CUR	Galway CoCo	9 Clifden RC	7,617			25%	34%	35%	6%	1,182
CUR	Leitrim CoCo	7 Mohill CAS	5,000			25%	34%	35%	6%	776
CUR	Mayo CoCo	5 Derrinure	33,641	32,316	31,403	25%	34%	35%	6%	5,219
CUR	Monaghan CoCo	28 Scotch Corner	9,049			25%	34%	35%	6%	1,404
CUR	Roscommon CoCo	8 Ballaghaderreen	3,032	2,926		25%	34%	35%	6%	470
CUR	Sligo CoCo	6 Tubbercurry CAS	6,547			25%	34%	35%	6%	1,016
The combined footfall for the 30 facilities =			1,010,398			The 'Customer Base' for 30 facilities =				156,754

Uncertainties associated with this calculation include:

- Footfall data was dated or estimated in some instances
- No account was taken of regional, urban/rural or other differences in allocating visit splits.

Table following is a calculation of customer base size based on frequency of visits data collected during the 2019 surveys.

Appendix F Table 2: Calculation of customer base, generated using 2019 data

Region	Local Authority	Name of CAS	Footfall 2018 Yellow - est.	Footfall 2017	Footfall 2016	> 52 visits / year	>12 visits / year	>4 visits / year	>1 visits / year	<1 visit / year & first time	Customer Base
EMR	Dublin CiCo	2 North Strand	32,071			15%	42%	26%	13%	4%	8,752
EMR	DLR CoCo	1 Shanganagh	40,000			15%	42%	26%	13%	4%	10,915
EMR	Fingal CoCo	27 Estuary RC	175,000	160,000	141,000	15%	42%	26%	13%	4%	47,755
EMR	Kildare CoCo	11 Silliot Hill CAS	63,700	52,000		15%	42%	26%	13%	4%	17,383
EMR	Laois CoCo	12 Portarlinton CAS	3,167			15%	42%	26%	13%	4%	864
EMR	Louth CoCo	30 Dundalk CAS	40,000			15%	42%	26%	13%	4%	10,915
EMR	Meath CoCo	13 Kells CAS	16,464	15,825		15%	42%	26%	13%	4%	4,493
EMR	Offaly CoCo	3 Birr CAS	9,960			15%	42%	26%	13%	4%	2,718
EMR	South Dublin CoCo	26 Ballymount CAS	126,170			15%	42%	26%	13%	4%	34,430
EMR	Westmeath CoCo	4 Athlone CAS	28,474	25,779		15%	42%	26%	13%	4%	7,770
EMR	Wicklow CoCo	15 Murrrough RC		58,070		15%	42%	26%	13%	4%	15,846
SR	Carlow	25 Powerstown	25,178	25,178		15%	42%	26%	13%	4%	6,871
SR	Clare	22 Inagh	21,948			15%	42%	26%	13%	4%	5,989
SR	Cork City	19 Kinsale Road			30,000	15%	42%	26%	13%	4%	8,187
SR	Cork County	20 Mallow	16,588	11,978		15%	42%	26%	13%	4%	4,527
SR	Kerry	23 Milltown	27,693	27,657	30,516	15%	42%	26%	13%	4%	7,557
SR	Kilkenny	24 Dunmore	58,672	54,723	34,542	15%	42%	26%	13%	4%	16,011
SR	Limerick	21 Mungret		30,193	30,760	15%	42%	26%	13%	4%	8,239
SR	Tipperary	17 Cashel	23,818	23,354	19,632	15%	42%	26%	13%	4%	6,500
SR	Waterford	18 Dungarvan	22,304			15%	42%	26%	13%	4%	6,086
SR	Wexford	16 Holmestown	22,699	24,519		15%	42%	26%	13%	4%	6,194
CUR	Cavan CoCo	14 Corranure CAS	36,742			15%	42%	26%	13%	4%	10,026
CUR	Donegal CoCo	29 Letterkenny CAS	15,601			15%	42%	26%	13%	4%	4,257
CUR	Galway CiCo	10 Liosban, Galway	21,000			15%	42%	26%	13%	4%	5,731
CUR	Galway CoCo	9 Clifden RC	7,617			15%	42%	26%	13%	4%	2,079
CUR	Leitrim CoCo	7 Mohill CAS	5,000			15%	42%	26%	13%	4%	1,364
CUR	Mayo CoCo	5 Derrinnumera	33,641	32,316	31,403	15%	42%	26%	13%	4%	9,180
CUR	Monaghan CoCo	28 Scotch Corner	9,049			15%	42%	26%	13%	4%	2,469
CUR	Roscommon CoCo	8 Ballaghaderreen	3,032	2,926		15%	42%	26%	13%	4%	827
CUR	Sligo CoCo	6 Tubbercurry CAS	6,547			15%	42%	26%	13%	4%	1,787
The combined footfall for the 30 facilities =			1,010,398			The 'Customer Base' for 30 facilities =					275,722

Uncertainties associated with this calculation include:

- Footfall data was dated or estimated in some instances
- No account was taken of regional, urban/rural or other differences in allocating visit splits.
- Data on visit frequency collected from survey was not designed with this calculation in mind

Appendix G: QUESTIONS FOR STAKEHOLDERS

The set of questions following were posed to the stakeholders. Emphasis was placed on ensuring that the discussion allowed stakeholders to expand the discussion to address other areas of concern to them.

Appendix G Table 1: Questions for stakeholders, by organisation type/sector

Organisation type/sector	Questions for stakeholders
PRI Schemes for CAS-specific materials	<ul style="list-style-type: none"> • Do you have any issues (quality / finance / operational / record keeping and documentation) with the operation of CAS collecting 'your' materials? How do you propose that these issues should be addressed? • Does the process of issuing/receiving payments/receipts for materials work well? What could be improved in this process?
Waste contractors operating CAS	<ul style="list-style-type: none"> • Which measures that you know of / see implemented at CAS are the most successful and should be implemented nationally? • Which measures do you know of / see implemented at CAS are unsuccessful and should be changed/stopped? • What offsite measures affecting CAS should be implemented or should be stopped? • Which materials present the best return on investment (effort/resources/time/finance/impact on customers) and for what reasons. • Which materials present the worst return on investment and for what reasons. Which materials would you prefer not to have to deal with? • Are there any CAS health and safety issues arising that need to be addressed? • Reuse offers potential for diversion of materials. How could reuse be implemented at CAS?
Customer representative groups and sector representative organisations	<ul style="list-style-type: none"> • How could CAS service customers more/better? • Which past/existing / new reuse operations have been most successful at CAS and should be implemented more widely? Will mention the LA-operated CAS leasing of space to charity shop collection points as a successful initiative. • How could the CAS improve the management of the materials collected that you process? What specifically should / could be done to improve quality/value and volume collected?

Appendix H: SURROUNDING AREA LAND USES

Appendix H Table 1: Surrounding Area Land Uses

Land uses on all sides of the CAS visited	
Shanganagh Recycling Centre, Co. Dublin	Holmestown Waste Management Site, Wexford
<ul style="list-style-type: none"> North - Car Park & Shankill FC East - Green Space and Cemetery South - Cemetery & Work Sheds West Cemetery, Cuala GAA & R119 	<ul style="list-style-type: none"> North - Former Landfill South - Agricultural land West - Agricultural land East - Forestry
Tubbercurry CAS, Co. Sligo	Wallers Lot Recycling Centre, Cashel, Co. Tipperary
<ul style="list-style-type: none"> North - Residential Properties South - Residential Properties East - Tubbercurry Fire Station and Residential West - Residential Properties and Agricultural 	<ul style="list-style-type: none"> North - Waste Transfer Shed and Agri-land South - Commercial, Green, Residential, R692 West - Cemetery East - Agricultural land
North Strand Recycling Centre Co. Dublin	Dungarvan CAS, Waterford.
<ul style="list-style-type: none"> North - Residential and commercial South - Railway line East - Railway line & Royal canal West - School 	<ul style="list-style-type: none"> North - Colligan River South - Agricultural land West - Former Landfill East - Agricultural land
Birr Recycling Centre Co. Offaly	Cork City CAS, Co. Cork
<ul style="list-style-type: none"> North - Green Space South - Green Space/ industrial / R440 road West - Commercial business/shed East - Green Space 	<ul style="list-style-type: none"> North - Former Landfill South - N27 Road and Commercial West - Site Offices and Landfill site East - Landfill site and N40 Further East
Athlone CAS Co. Westmeath	Mallow CAS, Co. Cork
<ul style="list-style-type: none"> North - Golden Island Shopping Centre South - Construction ground East - Green area West - Burgess Park 	<ul style="list-style-type: none"> North - Commercial Business South - Agricultural Land West - Industrial Estate East - Agricultural Land
Derrinmera Landfill and Recycling Centre	Mungret Civic Amenity Centre, Co. Limerick
<ul style="list-style-type: none"> North - Former Landfill South - Forestry East - Forestry West - Forestry 	<ul style="list-style-type: none"> North - N69 Road and Forestry South - Agricultural Land West - Agricultural Land East - Agricultural Land
Mohill CAS Co. Leitrim	Inagh Central Waste Management Site, Co. Clare
<ul style="list-style-type: none"> North - Former landfill Ground South - Agricultural Land East - Storage yard and Agricultural land West - Residential Properties 	<ul style="list-style-type: none"> North - Former landfill South - Entrance to site and N85 Road West - Forestry East - Forestry
Ballaghaderreen CAS, Co. Roscommon	Milltown Recycling Centre, Co. Kerry
<ul style="list-style-type: none"> North - Former Landfill East - Marginal land South - local road, Marginal agricultural land West - Marginal land 	<ul style="list-style-type: none"> North - Agricultural land South - Remediated former landfill West - Agricultural land East - Remediated former landfill
Clifden CAS, Co. Galway	Dunmore recycling and waste disposal, Co. Kilkenny
<ul style="list-style-type: none"> North - N59 Road East - Marginal land South - Marginal and agricultural land West - Local Road 	<ul style="list-style-type: none"> North - Agricultural land and the N72 Road South - Remediated former landfill West - Agricultural land East - Remediated landfill and GAA pitches
Galway City Council Recycling Centre	Powerstown Landfill and Recycling Centre, Kilkenny
<ul style="list-style-type: none"> North - Commercial business South - County Council Work Yard East - Commercial business West - County Council Work Yard 	<ul style="list-style-type: none"> North - landfill undergoing remediation South - Agricultural land and Quarry West - landfill undergoing remediation East - Agricultural land
Silliot Hill CAS, Co. Kildare	Ballymount CAS, Co. Dublin
<ul style="list-style-type: none"> North- R448 Road and Agricultural Land South - Former Landfill 	<ul style="list-style-type: none"> North - Industrial estate/Commercial South - Tymon Park and Industrial

Land uses on all sides of the CAS visited

<ul style="list-style-type: none"> • East - Former landfill & Agricultural Land • West - Site space, local road and agri land 	<ul style="list-style-type: none"> • West - Industrial estate/Commercial • East - Residential Properties
Portarlington Recycling Centre, Co. Laois	Estuary Recycling Centre, Co. Dublin
<ul style="list-style-type: none"> • North - Agricultural Land • South - Commercial and R420 • West - Agricultural land • East - Residential property 	<ul style="list-style-type: none"> • North - Seatown Rd • South - Land • West - M1 Motorway • East - Agricultural Land
Kells Recycling Centre, Co. Meath	Scotch Corner Recycling Centre, Co. Monaghan
<ul style="list-style-type: none"> • North - River Blackwater and Agri Land • South - Commercial business shed and Land • West - Land and local road • East - Commercial business shed 	<ul style="list-style-type: none"> • North - Former Landfill • South - Agricultural Land • West - Former Landfill • East - Forestry
Corranure recycling centre, Corranure, Co. Cavan	Letterkenny Recycling Centre, Co. Donegal
<ul style="list-style-type: none"> • North - Commercial Business • South - Agricultural Land • West - Former landfill ground • East - Agricultural Land 	<ul style="list-style-type: none"> • North - Agricultural Land • South - Electrical Substation & Industrial Unit • East - Agricultural Land • West - Agricultural Land
Wicklow Recycling Centre, Wicklow	
<ul style="list-style-type: none"> • North - Commercial Business • South - Commercial Business • West - Commercial Business and River • East - Coastline 	

Appendix I: CAS management of streams

Appendix I Table 1: Management of material streams by 29 CAS as reported by interviewees

Material	CAS capturing this stream	Contractor owns container	LA owns container	Average No. Container per site	Weighted Exiting Site?
1. Mixed residual waste	21	15	5	1.5	21
2. Mixed dry recyclables	7	5	2	1.4	4
3. Food waste	11	10	1	3.6	8
4. Garden (green) waste	24	11	5	1.0	16
5. Cardboard & paper (segregated packaging waste only) e.g. cardboard boxes	2	0	2	2.0	0
6. Cardboard & paper (non-packaging waste only) e.g. news & pamphlets	0	0	0	0	0
7. Other cardboard & paper	1	1	0	1.0	0
8. Glass (segregated packaging waste only) e.g. glass bottles	29	21	5	8.4	16
9. Glass (non-packaging waste, municipal sources) e.g. glass vases, crystal or other drinking	4	5	0	2.5	2
10. Other glass waste- e.g. window, windscreen	14	12	1	0.9	10
11. Aluminium cans (segregated packaging waste)	19	15	8	2.7	12
12. Steel cans (segregated packaging waste)	13	11	3	1.7	5
13. Aluminium and steel cans (mixed) (segregated packaging waste)	10	7	1	1.4	2
14. Other municipal metals (non-packaging)	29	20	7	1.0	18
15. Other metals (e.g. C&D metals such as cables, copper)	0	0	0	0	0
16. Plastic (segregated packaging waste only) e.g. PET bottles	23	19	5	2.0	14
17. Plastic (non-packaging waste, municipal source) e.g. hard plastics such as buckets	8	7	0	0.9	7
18. Other plastics (e.g. farm film plastics) Packaging	7	6	2	1.6	5
19. Composite packaging (e.g. beverage cartons) Tetra	15	12	3	1.7	7
20. Clothes/textiles for recovery or disposal	29	29	1	2.4	15
21. Wood (segregated packaging waste) e.g. pallets, crates	24	18	4	1.0	20
22. Wood (non-packaging waste, municipal)	0	0	0	0.0	0
23. Other wood	0	0	0	0.0	0
24. Batteries and accumulators	29	27	3	2.3	16
25. WEEE taken off-site by charities (e.g. mobile phones)	29	23	2	7.9	15
26. Bulky waste municipal	18	12	5	1.5	17
27. Edible oil and fat	28	21	4	1.5	13

Material	CAS capturing this stream	Contractor owns container	LA owns container	Average No. Container per site	Weighed Exiting Site?
28. Paint, inks, adhesives and resins containing dangerous substances	31	21	2	6.5	17
29. Paint, inks, adhesives and resins (non-haz)	4	3	0	2.8	3
30. Medicines (non-haz)	2	4	0	2.5	2
31. Pesticides (hazardous)	9	8	2	1.2	6
32. Oil filters (vehicle)	16	11	3	1.6	12
33. Waste hydraulic or engine, gear and lubricating oils	29	18	10	1.2	16
34. Waste tyres	7	3	0	0.4	3
35. Filament bulbs (non-WEEE)	23	20	5	1.0	14
36. Mixed CDW (non-haz)	17	11	2	0.7	11
37. Mixture of concrete, bricks, tiles and ceramics (non-haz)	3	4	0	1.7	4
38. Gypsum based CDW (non-haz)	8	6	3	0.8	7
39. Waste concrete	0	0	0	0	0
40. Soil & stones CDW	0	0	0	0	0
41. Aerosols	21	21	1	3.0	14
42. Printer cartridges	18	14	1	1.1	9
43. Detergents from municipal sources containing hazardous	1	1	0	4.0	0
44. Detergents from municipal sources (non-haz)	0	0	0	0.0	0
45. Solvents from municipal	0	0	0	0.0	0
46. Fluorescent Tubes	25	22	5	1.9	14
47. Polystyrene (White)	15	11	6	2.0	9
48. Cardboard only	19	15	3	1.2	14
49. Light Card, Paper + Tetra	3	3	0	0.7	2
50. Paper Only	2	2	0	1.0	2
51. Mixed Paper (Paper, Newspaper + Mags etc.)	2	2	0	1.0	3
52. Paper, Mags + Tetra	1	1	0	1.0	1
53. Newspaper + Mags Only	1	1	1	3.0	0
54. Gas Cylinders	9	8	1	1.1	6
55. Mobile Phones	4	3	1	1.0	1
56. Mattresses only	7	4	3	1.4	4
57. Smoke Alarms	2	2	0	1.0	2
58. Video Tapes	10	4	6	0.8	6
59. Gaming controllers	15	9	6	0.9	12
60. Fluorescent & household bulbs	3	3	0	1.0	1
61. Bikes Only	1	1	0	1.0	0
62. Books CD Games	1	1	1	1.0	1
63. Cardboard and Tetra	3	2	0	2.0	2
64. Spectacles	3	1	2	1.0	3
65. Paper, Mags + Light Card	8	5	2	0.8	3
66. Helium Canisters	1	0	1	1.0	1
67. Fire Extinguishers	18	9	3	0.6	9

Appendix J: FINANCIAL APPENDIX

Table following shows the charges at each of the 10 LA operated CAS in 2018.

Appendix J Table 1: User Charges - LA operated CAS with Charges for All Materials

	Car	Estate car/SUV	Car & 1-axle trailer	Car & 2-axle trailer	Light Van	Household waste - bag	Other Charges
I	€4.00	€4.00	PBW @ varying rates	PBW @ varying rates	PBW @ varying rates	€8.00	
J	€4.00	€9.00	PBW @ varying rates	PBW @ varying rates	PBW @ varying rates		€10 to €30 per bulky item
K	€20.00	€30.00	€40.00	€70.00	€40.00	€5.00	€10 to €25 per bulky item
L	€3.00	€20.00	€40.00			€4.00	€10 to €20 per bulky item
M	€5.00	PBW @ €130 /t	PBW @ €130 /t	PBW @ €130 /t	PBW @ €130 /t	€5.50	
N	€6.00	€12.00	€24.00	€36.00	€12.00		
O	€3.40	PBW @ varying rates	PBW @ varying rates	PBW @ varying rates	PBW @ varying rates	€6.50	
P	€3.50	€7.00	€7.00	€7.00	€7.00		
Q	€3 to €7		€18.00	PBW @ varying rates	PBW @ varying rates	€5.00	
R	€20.00	€20.00	€40.00	€80.00	€20.00	€5.00	

The charge structures for the outsourced CAS are shown in table following.

Appendix J Table 2: Outsourced Operations - Charge structures

	Car	Estate car/SUV	Car & 1-axle trailer	Car & 2-axle trailer	Light Van	Large Van	Household waste - bag	Other Charges
S	€4.00	€4 + / item	€4 + / item	€4 + / item	€4 + / item	€4 + / item	€5.00	€0.00
T	€4.00	€4.00	€4 +	€4 +	€4 +	€4 +	€6.00	€0.00
U	€4.00	€4.00	€15 / PBW	€25 / PBW	€15 / PBW	€25 / PBW	€6.50	€0.00
V	€9/€15	€15/€20	PBW	PBW	€15/€20	PBW	€5.00	€0.00
W	PBW	PBW	PBW	PBW	PBW	PBW	€0.00	€0.00
X	€4.00	€8 + / item	€8 + / item	€8 + / item	Pay / item	Pay / item	€4.00	€0.00
Y	€3.50	€5.00	€5.00	€5.00	€5.00		€0.00	Extra for paint
Z	Free/€15	€20.00	€40.00	€70.00	€70.00		€4.00	€0.00
AA	€4.00	€4.00	€7.00	€7.00	€7.00	€15.00	€0.00	Discretion for Irregular loads
AB	€4.00	€4.00	€15.00	€30.00	€10.00	€60.00	€0.00	€2.50 for paint
AC	€5.00	€12.00	€12.00	€12.00	€12.00		€0.00	Range of charges for bulky items
AD	€2.00 plus	€2.00 + for green waste	€2.00 + for green	€2.00 + for green	€2.00 + for green	€2.00 + for green	€2.00 + for green	€0.00
AE	€3.00	€10.00	€10.00	€20.00	€20.00		€4.00	€0.00
AF	€3.00	€10.00	€20.00	€20.00			€4.00	Range of charges for bulky items