

New Zealand Waste Data Framework

VOLUME ONE:

Definitions and Protocols for
Waste to Disposal Facilities

VOLUME TWO:

Definitions and Protocols for
Information about
Waste Services and Facilities

Prepared for
Waste Management Institute New Zealand
By Eunomia Research & Consulting Ltd and
Waste Not Consulting Ltd

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1 Introduction

1.1 Overview

This document presents two volumes of definitions and protocols for gathering and presenting information within a National Waste Data Framework.

Volume One sets out protocols for gathering and reporting data on solid waste that is ultimately disposed of at disposal facilities. The roles and responsibilities of waste industry sectors in gathering and presenting this information are also outlined.

It should be noted that the protocols in Volume One of this document relate only to the collection, transport, and disposal of solid waste to disposal facilities (as defined by the Waste Minimisation Act 2008 (WMA)). These protocols do not cover diverted materials or materials that are disposed of at non-levied sites, such as cleanfills.

Volume Two provides a set of protocols that cover gathering and presenting information on waste and diverted material services and facilities. These protocols are intended primarily for use by territorial authorities (TAs) for the preparation of waste assessments under section 51 of the WMA.

The intent of the Framework is to standardise data collection. The protocols are not prescriptive or rigid. They are designed to be practical and easy to use so as to encourage adoption by local government and the waste industry. Where possible, they are aligned with existing practices in order to minimise the burden on key parties and facilitate uptake - while still delivering a useful advance in data quality.

The project has involved extensive consultation with key stakeholders from all sectors of the solid waste and resource recovery sector to help ensure that it is fit for purpose and has widespread buy-in.

1.2 Background to the National Waste Data Framework Project

In New Zealand, there are few standards as to how waste data and information should be recorded, reported, and compiled or by whom. To date, there have been no accepted standards on, for example, how waste is characterised by activity source, how data is gathered on the location where waste is generated, or how waste is managed. There are also no accepted data-gathering methods for material that is diverted (recycled, composted etc.) or sent to non-levied disposal facilities.

This lack of standardisation has meant it is, at the least, time-consuming and difficult to meaningfully collate and share data, at any level, or to accurately monitor the impacts of interventions on waste flows. This has long been recognised as preventing both the public and private sectors from effectively planning, monitoring, and reporting on waste issues and developing and prioritising solutions.

In response to these issues, WasteMINZ, in consultation with industry and with support from central, regional, and local government, developed the National Waste Data Framework project. The first stage of the project was to establish the data needs of key stakeholders and develop draft definitions, protocols, and roles for gathering the most important types of data

as identified by stakeholders. When this was completed, consultation on the draft outputs was carried out, the protocols, roles, and definitions were finalised, and an implementation plan developed.

The project set out to develop a “flat pack” implementation plan that contains all the elements required to establish a national waste data framework. The plan establishes the standardised definitions, protocols, and responsibilities that are required to make the Framework operative and progress over time.

1.2.1 The Central Role of Territorial Authorities in the National Waste Data Framework

The project team assessed a number of drivers, both regulatory and voluntary, that had the potential to facilitate a rapid, widespread adoption and implementation of the Framework.

Mandatory reporting of waste data to central government was found to be the most effective potential driver for the Framework, and was favoured by many during the consultation process. Mandatory reporting, however, would require development and implementation of regulations under section 86 of the WMA. As the project progressed, the Ministry for the Environment (MfE) indicated that there would need to be a very strong case to justify regulation and that MfE’s clear preference was for voluntary methods, in the first instance.

In the absence of new regulations, the only mandatory driver for the collection and reporting of waste data was determined to be the WMA’s requirement under section 51 for territorial authorities (TAs) to produce waste assessments as part of the waste management and minimisation plan review process.

Most TAs structure their waste assessments based on the MfE’s 2009 *Waste management and minimisation planning: Guidance for territorial authorities*. During the course of the project, MfE was reviewing this document and indicated to the project team MfE’s intention to recommend use of the Framework protocols as one option for the purposes of data gathering for waste assessments.

On this basis, TAs have been given the central role in the National Waste Data Framework. In the Framework, TAs are the primary agent for collating and analysing waste data, with the TAs’ waste assessments being the fundamental channel for the data entering the public arena.

The Framework acknowledges, however, that roles and responsibilities may evolve over time. The underlying structure for how the protocols organise and compile data are therefore designed to be applicable under a wide range of implementation scenarios.

1.3 The Staged Development of the National Waste Data Framework Project

These protocols represent the first stage in a planned staged development of a full National Waste Data Framework. This plan has at its core the logic of starting with the simplest and most needed data and progressively, over time, developing protocols for the more complex and less essential data.

Keeping it simple at the beginning, and creating a structure that can be developed further at a later date, has enabled a Framework to be put in place relatively quickly and cost-effectively.

The three proposed stages in the development of the Framework, and the accompanying rationale for this approach, are outlined below.

- **Stage 1 - Waste to Disposal Facilities and Information about Waste and Diverted Material Services and Facilities**

This document represents the outputs of Stage 1 of the National Waste Data Framework. Data on waste to disposal facilities (as defined by the WMA) is generally well-recorded and readily-available. This information is fundamental to the waste planning process of all sectors of the waste industry. However, there is no standardisation in terms of how this data is compiled and reported, the activity source of the waste, or the tracking of cross-border movements of waste.

Data on waste and diverted materials services and facilities is required for the purposes of TA waste assessments and waste management and minimisation plans but, again, there is no standardisation of how this information is categorised or the detail that is gathered.

Protocols for gathering data on waste to disposal facilities and information about waste and diverted material services and facilities were included in Stage 1 because of the availability of the information and the high priority given to this information by stakeholders during the data needs assessment. In addition, TAs are, through waste bylaw licensing conditions, able to require that this information about waste be provided by waste collectors and waste facilities.

- **Stage 2 - Waste to Non-levied Disposal Sites**

Data on material to non-levied disposal sites is inherently difficult to obtain and any measurement can be difficult. There is a wide variety of rules around which disposal operations are a permitted activity and which must be consented under the Resource Management Act 1992. There is also a variety of practices in terms of what information is reported and compiled as a condition of resource consents. There are, therefore, a range of issues that need to be addressed before data-gathering protocols could be sensibly applied. As a result, this waste stream was not addressed in Stage 1.

- **Stage 3 - Diverted Materials**

To a greater extent than “waste”, there is no general consensus about what comprises “diverted material” or how it might be measured. International experience has shown the complexity of adequately addressing these issues should not be underestimated. This complexity, combined with diverted materials being excluded from the regulatory reach of the WMA, resulted in data on diverted materials being given a low priority in the development of the Framework.

1.4 Implementation of the Framework

As the Framework is not, at the time of writing, mandated, its adoption is not expected, initially, to be immediate or comprehensive. The success of the Framework will be dependent on a number of factors that have been taken into account in its design:

- Clear articulation and acceptance of the roles and responsibilities of key parties – in particular local government and the private waste industry
- Clarity and ease of use
- That the protocols actually work – and produce good quality, useable and useful data
- That there is trust between the parties – in particular that data that is supplied to TAs is well-managed and that commercially-sensitive data is appropriately protected

- The creation of a 'critical mass' of TAs and waste operators using the protocols so that use of the Framework becomes the default, standard way to manage and share waste information
- Ongoing stewardship of the Framework to address issues and barriers as they arise and to progress further development of the subsequent stages.

2 Data Confidentiality

The National Waste Data Framework, as described by the protocols in Volumes One and Two of this document, is structured around three sectors of the waste industry (transfer stations, disposal facilities, and waste collectors) providing information to territorial authorities (or a nominated data collection agent). The TA collects and processes the data to meet the WMA's requirements that it "must promote effective and efficient waste management and minimisation within its district."

For a TA to be able to effectively perform this function, there needs to be a suitable information management system in place that will allow the TA to acquire the data from multiple sources, control its custodianship, and distribute the data as required. An indicative overview of information management system requirements is provided in section 8.

Of the different elements of information management systems, it is data confidentiality that is of utmost importance to the three waste sectors that provide data to TAs.

Although there is regional variation, private operators manage a large proportion of waste sent to landfill through their ownership of landfills, transfer stations, and collection services. For the private waste operators in all three sectors, providing their business data to TAs has the potential, as it is put in the Official Information Act 1993, to "prejudice the commercial position of the person who supplied ... the information".

For the Framework to function effectively and gain widespread acceptance it is vital that, first, the TA has the necessary checks and balances in place to protect the confidentiality of the data that is provided and, second, that the private waste operators have a well-informed understanding of the measures that are in place. These measures should be taken by TAs regardless of whether the data is provided to them on a voluntary basis or through a regulatory measure such as a waste bylaw.

The size and internal structures of TAs that will be using the Framework vary enormously, from small councils that own all of the waste infrastructure and have a single waste officer in a part-time role, to large councils that own little infrastructure and have large waste teams. As such, it is not possible for the Framework to include a detailed, prescriptive code of practice for ensuring data confidentiality that would be suitable for all TAs.

2.1 Principles for TAs Gathering Waste Data from Private Waste Operators

Rather than a detailed code of practice, a set of principles has been developed to guide the interaction between TAs and private waste operators with regards to commercially-sensitive data gathered under the Framework. The use of such principles, particularly for matters relating to the privacy of personal information, is widespread. The principles offered in this section have been adapted, in part, from those published by the UK's Information Commissioner's Office and included in New Zealand's Privacy Act 1993.

These principles could be used in several ways. They could become the agreed basis for a TA's interactions with a private waste operator, or be provided by the TA for the private waste operator's reference, or form part of a data-sharing agreement between the parties.

1. Unless specified otherwise at the time, TAs should obtain waste data directly from private waste operators solely for the purpose of fulfilling the TA's obligations under the WMA, namely to "promote effective and efficient waste management and minimisation within its district." Data obtained by a TA for this purpose should not be used or processed in any manner that is not compatible with this purpose.
2. The data collected by TAs from private waste operators should be adequate, relevant, and not excessive in relation to the purpose for which it is being collected.
3. When a private waste collector provides data to a TA, the TA should consider that an obligation of confidence has arisen by implication. A breach of this obligation will be considered to have been made if there is either unauthorised disclosure or use of the data.
4. When a TA requests data directly from a private waste operator, the TA will take reasonable steps to ensure that the private waste operator is aware of:
 - the purpose for which the information is being collected;
 - what processing of the data will take place;
 - the intended use of the data, including the form and manner in which the data may enter the public domain;
 - whether the supply of the information is voluntary or mandatory and, if mandatory, the particular law under which collection of the data is authorised;
 - the consequences (if any) if all or any part of the requested data is not provided.
5. Appropriate technical and organisational data security measures will be taken by the TA to ensure the confidentiality of data provided by private waste operators. The aim of these measures is to ensure that the data can solely be viewed by people with the appropriate authorisation and cannot be accessed by people who are not authorised to access it.
6. Release into the public domain of data provided by private waste operators will be, where possible and appropriate, in an aggregated form that will prevent the identification of individual operator data. It is acknowledged that preventing the identification of individual operator data may not be possible in all instances.
7. A TA may be requested under either the Local Government Official Information and Meetings Act 1987 or the Official Information Act 1982 to make available data supplied to it (the TA) by a private waste operator under the protocols of the National Waste Data Framework. In such a case, a TA will consider, in the first instance, that the provision of the data by the private waste operator created an obligation of confidence by implication and that release of the data could prejudice the commercial position of the private waste operator. Both of these are reasons for withholding information under the Acts.

3 Volume One - Waste to Disposal Facilities

The following Protocols are presented in Volume One of the National Waste Data Framework:

A TRANSFER STATION

B DISPOSAL FACILITY

C WASTE COLLECTOR

D TERRITORIAL AUTHORITY

3.1 The Getting Started Guide to Volume One

The National Waste Data Framework does the following:

- Establishes a set of definitions to act as a common language for collecting and reporting waste data
- Determines *what* data is gathered
- Determines *who* gathers this data
- Specifies *how* the target data is gathered
- Directs *who* data is reported to
- Sets out *how* the data that is collected is collated and presented

Under the Framework, territorial authorities (TAs) nation-wide have the central role in the collation and presentation of waste data. TAs were given this role as the sole entities that were currently mandated to collect comprehensive waste data and release it into the public domain, through section 51 of the WMA.

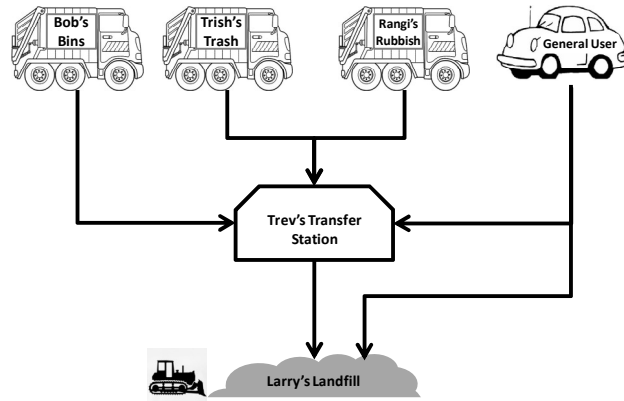
The overall aim of the protocols has therefore been structured to provide TAs with a framework for collecting data from other parties and collating that data in a standardised fashion. By using the protocols in this document, every TA should be able to produce comparable information equivalent to the sample data in the template below. Ideally, this is the format that would be used for presenting waste data in a TA's waste assessment. TAs are free to gather more detailed information if they wish, but it should always be able to be aggregated into the format shown in the table.

SOLID WASTE TO ALL DISPOSAL FACILITIES FROM TERRITORIAL AUTHORITY AREA		
ACTIVITY SOURCE	Tonnes per annum (TPA)	% of total
Construction and demolition	6,000 TPA	12%
Domestic kerbside	10,000 TPA	20%
Industrial/commercial/institutional	13,500 TPA	27%
Landscaping	1,500 TPA	3%
Residential	3,000 TPA	6%
Special	5,000 TPA	10%
Virgin excavated natural material	11,000 TPA ⁽¹⁾	22%
TOTAL	50,000 TPA	100%

⁽¹⁾ In this example, 11,000 tonnes of virgin excavated natural material has not been recorded as “diverted material” by the disposal facility through the Online Waste Levy System. Had it been so reported, it would not have been included in the analysis.

The protocols are structured around three sectors of the waste industry reporting waste data to TAs. The three sectors are disposal facilities (as defined by the WMA), transfer stations, and waste collectors (as defined by each TA for their district). Anyone other than a waste collector who disposes of waste is classified as a “general user”. In most areas, waste collectors transport a much higher proportion of waste than general users.

At the simplest, waste flows within a district look like the diagram below. All of the waste from within this district is delivered to a transfer station from where it is taken to a disposal facility. No waste from the district is taken out of the district and no waste from outside the district is brought into it.



In this simple case, the TA could get a complete picture of the waste from its district by being supplied with the basic data in the table below.

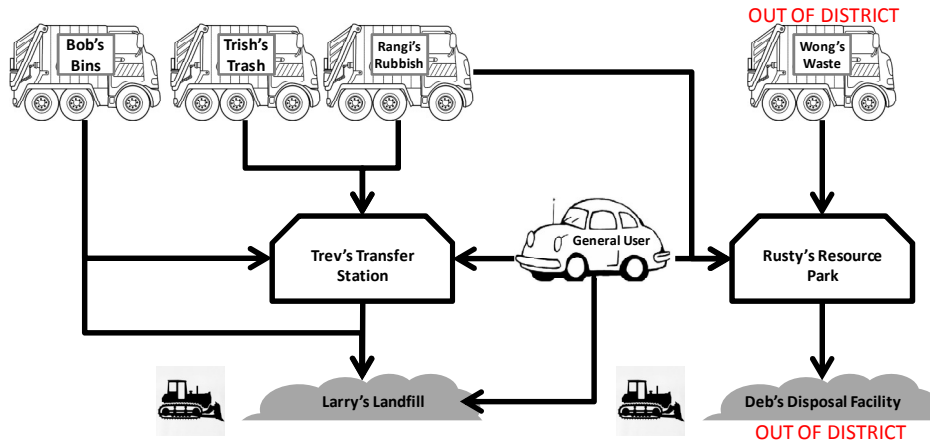
BASIC DATA NEEDED BY TERRITORIAL AUTHORITY	
Waste collectors	<ul style="list-style-type: none"> Tonnage from district, broken down by activity source
Transfer stations	<ul style="list-style-type: none"> General user tonnage from district, broken down by activity source
Disposal facilities	<ul style="list-style-type: none"> General user tonnage from district, broken down by activity source

However, with only this data available to it, the TA would not be able to cross-check or verify the accuracy of the tonnage data that it had been given. To do so requires that all three sectors provide another layer of data, as shown in red in the table below.

BASIC DATA NEEDED BY TERRITORIAL AUTHORITY THAT GIVES ABILITY TO CROSS-CHECK DATA	
Waste collectors	<ul style="list-style-type: none"> Tonnage from district, broken down by activity source Tonnages to individual transfer stations and disposal facilities
Transfer stations	<ul style="list-style-type: none"> General user tonnage from district, broken down by activity source Aggregated tonnage from waste collectors Tonnages out to individual disposal facilities
Disposal facilities	<ul style="list-style-type: none"> General user tonnage from district, broken down by activity source Aggregated tonnage from waste collectors Tonnages in from individual transfer stations

With this additional data, the TA will be able to assess, in general terms, whether the data it has been given is accurate and reliable.

In many parts of New Zealand, however, waste is transported across district borders, as shown in the diagram below.



To be able to account for this cross-boundary movement of waste, TAs require that an additional layer of data be provided. This additional layer of data is shown in **blue** in the table below.

The final layer of data required by TAs is information on diverted materials from disposal facilities, shown in **green** below. Disposal facilities already report a tonnage for 'diverted material' to the Online Waste Levy System. When this same tonnage (broken down by activity source) is reported to TAs, the tonnage subsequently recorded by the TA for that facility should match that reported to central government through the Online Waste Levy System.

BASIC DATA NEEDED BY TERRITORIAL AUTHORITY THAT GIVES ABILITY TO CROSS-CHECK DATA AND ACCOUNT FOR OUT-OF-DISTRICT WASTE	
Waste collectors	<ul style="list-style-type: none"> • Tonnage from district, broken down by activity source • Tonnage from outside of district disposed of in district, broken down by activity source • Tonnages to individual transfer stations and disposal facilities, both within and outside of the district
Transfer stations	<ul style="list-style-type: none"> • General user tonnage from district, broken down by activity source • Out-of-district general user tonnages (if significant) • Aggregated tonnage from waste collectors • Tonnages out to individual disposal facilities
Disposal facilities	<ul style="list-style-type: none"> • General user tonnage from district, broken down by activity source • Out-of-district general user tonnages (if significant) • Aggregated tonnage from waste collectors • Aggregated tonnage from waste collectors, broken down by geographic source • Tonnages from individual transfer stations • Diverted materials, broken down by activity source

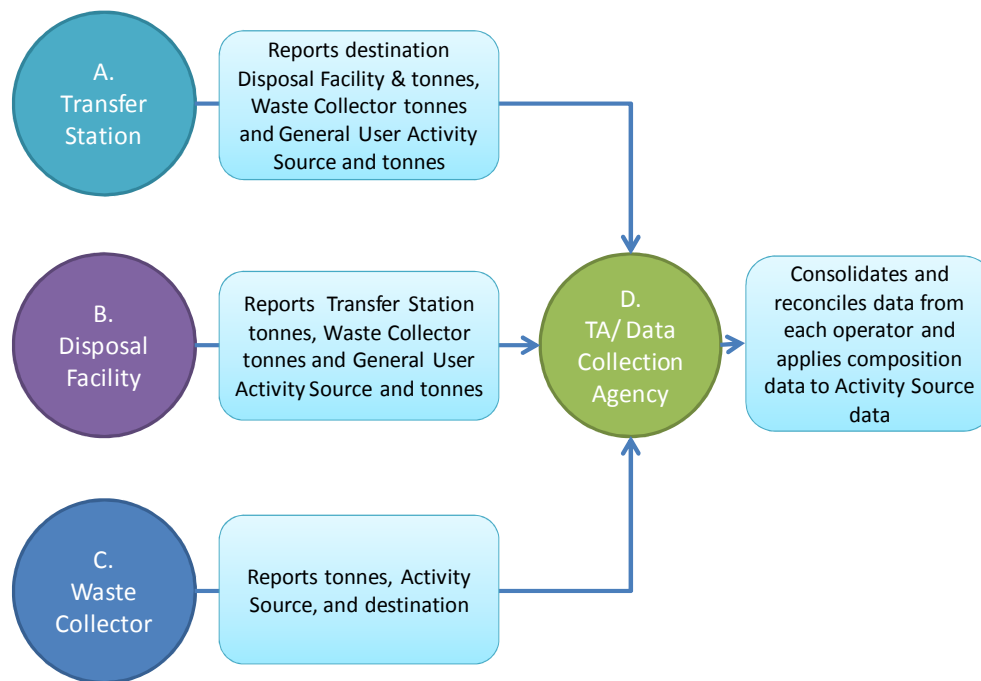
3.2 The Waste Flow Model Underpinning the Protocols

The set of four protocols contained in Volume One of this document is focused solely on waste that is collected and sent to disposal facilities (as defined in the WMA). Under the Framework, TAs (or a nominated agent) are responsible for collating information from three sources:

1. **Transfer Stations**
2. **Disposal Facilities**
3. **Waste Collectors**

The protocols outline the types of data that are to be collected and reported to the TA by each of the participants in the data collection process and recommends ways in which this data can be collected.

The diagram below presents a simplified data flow model on which these protocols are based. To simplify the diagram, the reporting of the geographic source of waste has been omitted.



It is recognised that, in some instances, the same entity could fulfil more than one (and potentially all) of the above roles. Although this may facilitate data transfer and reconciliation, the protocols set out in this document should be applied for each role the entity undertakes.

3.3 Waste Characteristics Included in Framework

There are a number of broad characteristics relating to waste and waste data which are necessary to provide a functional dataset for solid waste that is ultimately deposited at disposal facilities. These are:

- **Quantity** – generally measured by weight in the first instance, but which may, in some instances, initially be measured by volume

- **Composition** – the type of material(s) included in the waste (e.g. wood, paper, greenwaste) or a specific characteristic of the waste (e.g. organic, hazardous). The gathering of data on waste composition is not dealt with directly in these protocols.
- **Activity Source** – the nature of the activity that resulted in the generation of the waste (e.g. construction, industry) or other relevant descriptor, such as special waste or virgin excavated natural material
- **Geographic Source** – the TA area in which the waste was originally generated or collected
- **Destination** – the specific disposal facility or transfer station where a load of waste is discharged
- **Time periods** – the period of time in which the waste was collected, transported, or disposed of to a disposal facility.

The set of protocols outlined in this volume are designed to enable consistent information to be gathered and compiled on these characteristics of waste, other than its composition.

3.4 Measurement of Waste

Essentially the same protocols are stipulated for the measurement of waste by all three sectors involved in the process. Protocols for the measurement of waste are provided in section 5.

3.5 Which Protocol Solution to Use

Each of the four protocols presented in this document provide three different methods for gathering data: a **preferred** solution, which usually involves directly obtaining information from all users; an **acceptable** solution, which generally involves surveying or sampling and extrapolating the results; and a **default** solution, which typically will entail applying default values or making informed estimates.

The principle that should be applied is to use the highest-level solution that is practical in the particular circumstances. For example, it may not be practical for a very busy transfer station to request activity source data from general users due to the time that would be added to each transaction. In such a case, a bi-annual survey may be more appropriate. On the other hand, transfer stations or disposal facilities with a small number of general users could readily collect this information during each transaction, which is the highest-level solution.

The three levels of solutions are meant to provide guidance for a wide range of users in a wide range of circumstances, but the solutions set out are not exhaustive. It is recognised that specific solutions may be available in particular circumstances.

It is the intent of the Framework that it not be overly prescriptive. The objective of the Framework is to provide every TA with the tools and procedures to gather a basic dataset of information about waste to disposal facilities from its district. Alternative solutions for data-gathering should always be considered in this light. If an alternative solution is considered to be as effective and reliable as those included in the protocols, its use should be seriously considered. In such an instance, the TA would need to ensure that the proposed solution will provide reliable data and is adequately documented for future reference.

3.6 Roles and Responsibilities

In the following sections, the roles and responsibilities in the Framework of Waste Collectors, Transfer Station Operators, and Disposal Facility Operators for collecting and reporting data on waste to disposal facilities to TAs are outlined.

3.6.1 Territorial Authorities/Data Collection Agent

At the time of writing there is only one mandated national waste data-reporting system that can be used as a foundation for the National Waste Data Framework. This is the TA waste assessment process.

Section 51 of the WMA requires every TA to prepare a waste assessment as part of the mandatory six-yearly review of their waste management and minimisation plan. Section 51 does not specifically require that quantitative information be collected and reported, but most TAs do so to meet the requirement that a waste assessment provide “a forecast of future demands for collection, recycling, recovery, treatment, and disposal services within the district”.

In 2009, MfE released *Waste Management and Minimisation Planning: Guidance for Territorial Authorities*.¹ This document was being reviewed by MfE at the time the Framework was being developed and MfE indicated that the updated version would reference the outputs of the National Waste Data Framework project as the preferred means for TAs to report waste data in their waste assessments.

In this model, the roles and responsibilities of TAs are central to the establishment and continued operation of the National Waste Data Framework.

While many city and district councils play multiple roles in the waste industry (waste collector, transfer station operators, and/or disposal facility operators), this section addresses solely the roles and responsibilities of councils acting in their roles as territorial authorities. TAs’ responsibilities when acting as waste collectors, transfer station operators, and/or disposal facility operators are covered in the relevant sections.

Section 56 of the WMA gives TAs the power to enact bylaws regulating the collection and transportation of waste. The WMA permits the use of a bylaw to license waste collectors and requires “reports setting out the quantity, composition, and destination of waste collected and transported by the licensee”.

While bylaws are considered the more rigorous, and preferred, method for TAs to collect waste data, it is recognised that not all TAs will be enacting bylaws in the near future, if at all. TAs that do not enact bylaws will be reliant upon the voluntary reporting of waste data by non-associated parties involved in the collection and disposal of waste.

Regardless of whether data is provided on a voluntary or mandated basis, the roles and responsibilities of a TA under the Framework are the same. These are enumerated as follows:

1. TAs will take a central role in their district for the collection, collation, assessment, presentation, and dissemination of waste data.

¹ Ministry for the Environment. 2009. *Waste Management and Minimisation Planning: Guidance for Territorial Authorities*. Wellington: Ministry for the Environment.

2. In the first instance, TAs will develop (and maintain) a waste flow model for their district. This model will include the identification of Waste Collectors, Transfer Stations, and Disposal Facilities in the district. As far as is possible, waste flows both in and out of the district will need to be identified. The waste flow model should, where necessary, be aligned with those of neighbouring districts.
3. In consultation with waste collectors, transfer stations, and disposal facilities, a system is established for the regular reporting to the TA of waste data, based on the relevant protocols in this Framework.
4. The relevant transfer stations and disposal facilities (both in and out of district) are to be kept informed of the waste collectors that have been identified as such by the TA. These facilities will collect different datasets on waste collectors and general users.
5. On a regular basis, the collected data is collated, assessed, and reported into the public domain. The reporting could, for example, be in the form of reporting to council committee, posting on the council website, or inclusion in the waste assessment.
6. In the handling and reporting of data, it is the TA's responsibility to exercise appropriate internal data security practices and to ensure that any commercially sensitive-information is not released in a form that could compromise the confidentiality of the data. These procedures are outlined in section 2 of this document.
7. The TAs will receive data from waste collectors, transfer stations, and disposal facilities that will allow all waste flows to be broken down by activity source. It is the responsibility of the TA to apply composition data to the individual activity source data to calculate the composition of the overall waste stream disposed of from their district.
8. All elements of the data collection and reporting system are to be updated as required.

In some instances, a TA or group of TAs may choose to engage an external data collection agent to fulfil their waste data collection and reporting responsibilities. If this occurs, the combined roles and responsibilities of the TA(s) and the agent will need to be equivalent to those listed.

3.6.2 Transfer Stations

The participation of transfer stations is important to the National Waste Data Framework because of their role in diverting waste from landfill disposal and in receiving waste from General Users. Data from transfer stations will also provide TAs with the ability to assess the accuracy reliability of data provided by waste collectors and disposal facilities.

The roles and responsibilities of transfer stations are to:

1. Collect and report data, using the protocols described in this Framework, to the appropriate TA(s) on a regular basis.
2. Establish and maintain systems to identify and record the tonnage and geographic source of waste received from other transfer stations (if any).
3. Establish and maintain systems to categorise the tonnage and activity source of waste received from general users.
4. If the quantity of out-of-district waste is considered more than negligible, establish and maintain systems to identify the geographic source of waste received from general users.

5. Establish and maintain systems to identify and record the tonnage and transfer station or disposal facility to which waste is transferred for disposal.

3.6.3 Disposal Facilities

The participation of disposal facilities is important to the National Waste Data Framework because of their role in receiving waste from transfer stations, waste collectors, and general users. Data from disposal facilities will provide TAs with the ability to assess the consistency of data provided by waste collectors and transfer stations.

The roles and responsibilities of disposal facilities are to:

1. Collect and report data, using the protocols described in this Framework, to the appropriate TA(s) on a regular basis.
2. Establish and maintain systems to identify and record the tonnage and geographic source of waste received from transfer stations.
3. Establish and maintain systems to identify and record the tonnage and geographic source of waste received from waste collectors.
4. Establish and maintain systems to record the tonnage and categorise the activity source of waste received from general users.
5. If the quantity of out-of-district waste is considered significant, establish and maintain systems to identify the geographic source of waste received from general users.

3.6.4 Waste Collectors

The participation of waste collectors is critical to the National Waste Data Framework. Waste collectors handle a majority of the waste generated in New Zealand and, as most of this waste is collected directly from the generator, waste collectors are in a unique position to identify important characteristics about the waste they handle.

The roles and responsibilities of waste collectors are to:

1. Collect and report data, using the protocols described in this Framework, to the appropriate TA(s) on a regular basis.
2. Establish and maintain systems to record and report the geographic source of waste that is collected.
3. Establish and maintain systems to categorise and report the activity source of waste that is collected.
4. Establish and maintain systems to categorise and record the tonnage and facility to which waste is transported for disposal

3.6.5 Ministry for the Environment

The Ministry for the Environment has no specific role in this protocol.

3.6.6 Other Organisations

There are no specific roles and responsibilities identified for other organisations in these protocols.

PROTOCOL
A

Transfer Station

Definition of Transfer Station: An appropriately-consented waste management facility for the receipt of refuse for consolidation prior to transportation to Disposal Facilities or another Transfer Station.²

A.1 Aim of Protocol:

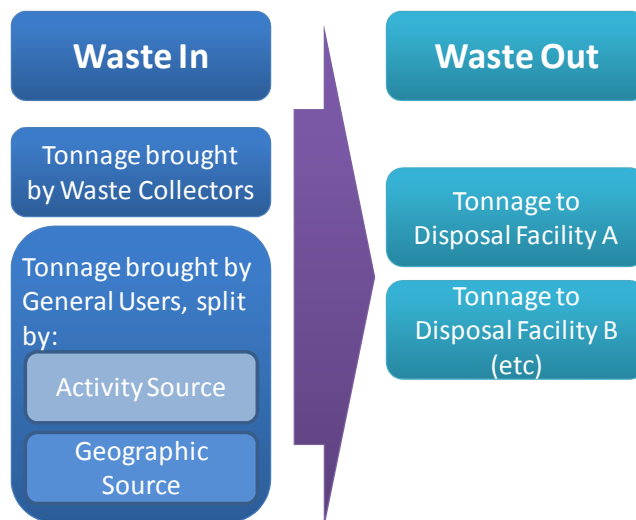
This protocol sets out the data that **Transfer Station** operators are to report to TAs and the solutions for gathering and reporting that data.

A.2 What Transfer Stations Report

Under the protocol, **Transfer Stations** report the following:

- total tonnage of waste received, broken down into tonnages from **Waste Collectors** and **General Users** (see Section 5 for measuring tonnages and A.3 for differentiating between **Waste Collectors** and **General Users**)
 - **General User** tonnages are further split by **Activity Source** (see A.4), and, if required, **Geographic Source** (see A.6)
- total tonnage of material sent to **Disposal Facilities**, split out by facility (see A.5)

Summary Chart:



² For clarity, if a facility that performs these functions adjoins a Disposal Facility and disposes of its waste at that Disposal Facility, it may, at the discretion of the operator, be considered part of the Disposal Facility and not a Transfer Station. In such instances, data for the Transfer Station need not be recorded separately.

A.3 Splitting Waste Collectors and General Users

Definition of Waste Collectors: Consistent with section 56 (4) of the WMA 2008. A Waste Collector:

(a) includes commercial and non-commercial collectors and transporters of waste (for example community groups and not-for-profit organisations); but

(b) does not include individuals who collect or transport waste for personal reasons (for example a person taking household garden waste to a landfill)

Tonnages for **Waste Collectors** are to be compiled and reported separately from **General Users**. A combined monthly total for all **Waste Collectors**, not for individual collectors, is to be reported at whatever frequency is requested by the TA.

Identifying Waste Collectors:

*Territorial Authorities are expected to determine the most appropriate method for identifying **Waste Collectors** in their jurisdiction and provide this information to **Transfer Station** and **Disposal Facility** operators. Operators identified by TAs as **Waste Collectors** under Protocol E should be considered for inclusion in this protocol. Appropriate methods, under Protocol E, include identifying organisations that meet the definition for ANZIC Code D291100 Solid Waste Collection Services, or organisations that meet minimum waste tonnage collection levels.*

General Users are all those users of **Transfer Stations** and **Disposal Facilities** who do not meet the definition of **Waste Collectors**. Aggregated monthly data for all **General Users** is to be reported at whatever frequency is requested by the relevant TA.

A.4 Splitting Tonnages for General Users by Activity Source

Transfer Stations should report **General User** data split into **Activity Source**. **Activity Source** is related to the type of activity that generates the waste being recorded.

The following Activity Source categories are to be used.

- **Domestic Kerbside**
- **Residential**
- **Industrial/commercial/institutional (ICI)**
- **Landscape**
- **Construction and demolition (C&D)**
- **Special**
- **Virgin excavated natural material (VENM)**

Three solutions for **Transfer Stations** to gather this data are shown in the following table. The **Transfer Station** operator can choose whichever solution, or combination of solutions, is most practical for its particular circumstances.

It is the intent of the Framework that the solutions it provides not be overly prescriptive. The objective of the Framework is to provide every TA with the tools and procedures to gather a basic dataset of information about waste to **Disposal Facilities** from its district. Alternative solutions for data-gathering should always be considered in this context. It is the quality of the outputs, rather than the way this is achieved, that is most important.

Particularly with regards to **Transfer Stations** collecting data on the **Activity Source** of waste, there are likely to be alternative solutions that are not described in this table. For example, an existing weighbridge product code may be directly analogous to one of the **Activity Sources**, which means the **Activity Source** data is already being gathered on this product code. If an alternative solution, or combination of solutions, has the potential to be as effective and reliable as those included in the protocols, their use should only be considered following consultation with WasteMINZ.

	Preferred solution	Acceptable solution	Default solution
How Activity Source is calculated	Each load coded to Activity Source based on observation by the weighbridge operator or customer reporting at weighbridge	Activity Source split based on regular Transfer Station surveys and/or default classifications are applied to account customers.	Activity Source is split based on existing SWAP data
Protocol	When the weighbridge operator cannot readily identify the Activity Source of a load, the General User is asked to state the Activity Source of their load according to the above classifications. This is recorded in an appropriate field in the weighbridge records	<p>Activity Source surveys are conducted by weighbridge attendant at least twice per annum, (April & October). Each survey should be one week long (including weekends) and record the proportion or tonnages of loads according to the above classifications.</p> <p>AND/OR</p> <p>Where appropriate, the Activity Source of waste from an account customer is recorded automatically by the weighbridge software according to the type of activity undertaken by the account holder. Waste from a construction company, for example, would always be recorded as C&D waste.</p>	SWAP data is used to provide a default mix of Activity Source for the facility or for a facility regarded as being sufficiently similar.

A.5 Destination Disposal Facilities & Tonnages

In addition to reporting waste entering the facility, **Transfer Stations** are to report the quantity of waste that is sent for disposal within the given period. Waste sent to other **Transfer Stations** and to **Disposal Facilities** is to be included. Reporting this data is necessary as it is recognised tonnages sent for disposal may vary from tonnages entering the **Transfer Station** due to recovery operations on the site and the long-term stockpiling of materials.

Where waste from a **Transfer Station** is disposed of at more than one **Disposal Facility**, tonnages to each receiving facility should be reported as separate figures.

Three solutions for **Transfer Stations** to gather this data are shown in the following table. The **Transfer Station** operator can choose whichever solution, or combination of solutions, is most practical for its particular circumstances.

	Preferred solution	Acceptable solution	Default solution
How Quantity is calculated	Total quantity of waste based on either Transfer Station or Disposal Facility weighbridge tonnage data	For Transfer Stations without a weighbridge, total quantity of waste based on weighbridge tonnage data from a receiving Transfer Station (where it is bulked for onward transport to disposal)	Total quantity calculated based on volume or vehicle type averages using weight to volume /vehicle type ratios.
Protocol	Weight of transfer vehicles in minus weight of transfer vehicles out. It is expected that the tonnage figure used will be based on or can be reconciled with Disposal Facility weighbridge records.	Weight of transfer vehicles in minus weight of transfer vehicles out. It is expected that the tonnage figure used will be based on or able to be reconciled with receiving Transfer Station weigh-bridge records.	Number of vehicles of each type x the assumed weight for that vehicle type <i>Or</i> Volume of waste x the assumed density for that waste type

A.6 Geographic Source (Cross-Boundary Movements)

In situations where **Cross-Boundary** movements of **General User** waste are likely to make up a significant proportion of inputs into a Transfer Station (e.g. where a facility is located close to a boundary, or is located in an urban area surrounded by a different rural district) the **Geographic Source** of waste should be accounted for.

Three solutions for **Transfer Stations** to gather this data are shown in the following table. The **Transfer Station** operator can choose whichever solution, or combination of solutions, is most practical for its particular circumstances.

This protocol for **Transfer Station** waste applies only to waste delivered by **General Users**. Cross-Boundary protocols for waste delivered by **Waste Collectors** are set out in Protocol C (Waste Collectors).

	Preferred solution	Acceptable solution	Default solution
How Geographic Source of waste is calculated	Source of each load coded to district based on customer reporting at weighbridge	District split based on regular Transfer Station surveys	District split based on informed estimate
Protocol	Each General User is asked to state the Geographic Source of their load. This is recorded in an appropriate field in the weighbridge records	Geographic Source surveys are conducted by weighbridge attendant at least twice per annum, (April & October). Each survey should be one week long (including weekends) and record the proportion or tonnages of General User loads by district	Estimate based on geographic split of the number of households in Transfer Station catchment area

A.7 Reporting

Data compiled under this Protocol is to be reported to the TA (or delegated **Data Collection Agent**) under whose jurisdiction the facility operates.

The following data is to be reported in a format compatible with the example on the next page, as specified and agreed with the TA (or delegated **Data Collection Agent**). Monthly data is to be supplied at a frequency requested by the TA.

A.8 Timing

Data is to be compiled on a monthly basis and reported annually, or as required under any relevant local solid waste bylaw, or as requested by the TA.

Facility Name & Location		Tonnes month 1	Tonnes month 2	Tonnes month 3 etc.	
Quantity In	Waste Collectors Total				
	General Users Total				
	<i>Estimate of tonnage of General User waste from Territorial Authority 1</i>				
	<i>Estimate of tonnage of General User waste from Territorial Authority 2 etc.</i>				
	General Users Split	<i>Residential</i>			
		<i>ICI</i>			
		<i>Landscape</i>			
		<i>C&D</i>			
<i>Special</i>					
	<i>VENM</i>				
Quantity out	Tonnes sent to Disposal Facility A				
	Tonnes sent to Disposal Facility B				

PROTOCOL **B** Disposal Facility

Definition of Disposal Facility: As defined by Section 7 of the WMA 2008:

(a) a facility, including a landfill,—

(i) at which waste is disposed of; and

(ii) at which the waste disposed of includes household waste; and

(iii) that operates, at least in part, as a business to dispose of waste; and

(b) any other facility or class of facility at which waste is disposed of that is prescribed as a disposal facility.

B.1 Aim of Protocol

This protocol sets out the data that **Disposal Facilities** are to report to TAs as part of this Framework and the methods for gathering and reporting the data.

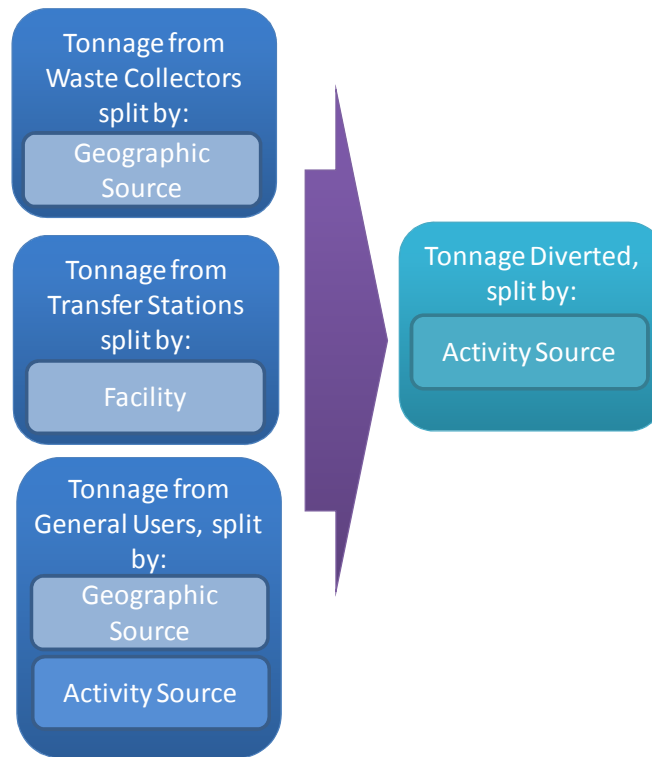
B.2 What Disposal Facilities Report

Under the protocol **Disposal Facilities** report the following:

- total tonnage of waste received, broken down into tonnages from **Transfer Stations**, **Waste Collectors**, and **General Users** (see Section 5 for measuring tonnages)
 - **Transfer Station** tonnages are further split by **Facility** (See B.3)
 - **Waste Collector** tonnages are further split by **Geographic Source** (See B.4)
 - **General User** tonnages are further split by **Activity Source** and **Geographic Source** (see B.5)
- total tonnage of **Diverted Material** split by **Activity Source** (see B.6)

In all instances, the quantity of waste and diverted materials should be the same as reported to MfE using the Online Waste Levy System (OWLS) for the relevant time period.

Summary Chart:



B.3 Reporting Waste from Transfer Stations

Tonnages for waste from **Transfer Stations** is to be compiled and reported separately from **Waste Collector** and **General User** tonnages. Monthly tonnage data for waste is to be split by the **Transfer Stations** from which it originates and reported at the frequency requested by the TA.

B.4 Reporting Waste from Waste Collectors

Identifying Waste Collectors:

Territorial Authorities are expected to determine the most appropriate method for identifying Waste Collectors in their jurisdiction and provide this information to Transfer Station and Disposal Facility operators. Appropriate methods may include identifying organisations that meet the definition for ANZIC Code D291100 Solid Waste Collection Services, or organisations that meet minimum waste tonnage collection levels.

Tonnages for waste from **Waste Collectors** is to be reported separately from **Transfer Stations** and **General User** tonnages. Monthly aggregated data for all **Waste Collectors** is to be reported split by **Geographic Source**.

It is assumed that **Disposal Facilities** are able to identify **Waste Collectors**, and determine the tonnages associated with each, directly from existing weighbridge records. Three solutions for **Disposal Facilities** to gather **Geographic Source** data for **Waste Collectors** are shown in

the following table. The **Disposal Facility** operator can choose whichever solution, or combination of solutions, is most practical for its particular circumstances.

	Preferred solution	Acceptable solution	Default solution
How Geographic Source of waste is calculated	Each load coded to district based on customer reporting at weighbridge	District split based on regular weighbridge kiosk surveys	District split based on informed estimate
Protocol	Each Waste Collector is asked to state the Geographic Source of their load. This is recorded in an appropriate field in the weighbridge records. Alternatively, weighbridge software may be able to automatically assign a Geographic Source of a load based on the vehicle registration number, billing code, or similar identifier.	Geographic Source surveys are conducted by weighbridge attendant at least twice per annum, (April & October). Each survey should be one week long (including weekends) and record the tonnage of Waste Collector loads by district	Estimate based on Waste Collectors estimates of the Geographic Source split of their activity

B.5 Reporting Tonnages for General Users

General Users are all those who do not meet the definition of **Waste Collectors**. Aggregated monthly data for all **General Users** is to be reported at a frequency requested by the TA. This protocol only applies where **General Users** are disposing of waste directly to the **Disposal Facility**.

Disposal Facilities should report **General User** data split into **Geographic Source** and **Activity Source**.

Three solutions for **Disposal Facilities** to gather **Geographic Source** data for **General Users** are shown in the following table. The **Disposal Facility** operator can choose whichever solution, or combination of solutions, is most practical for its particular circumstances.

	Preferred solution	Acceptable solution	Default solution
How Geographic Source of waste is calculated	Each load coded to district based on customer reporting at weighbridge	District split based on regular weighbridge kiosk surveys	District split based on informed estimate
Protocol	Each General User is asked to state the Geographic Source of their load. This is recorded in an appropriate field in the weighbridge records. Alternatively, weighbridge software may be able to automatically assign a Geographic Source to a load based on the vehicle registration number, or similar identifier.	Geographic Source surveys are conducted by weighbridge attendant at least twice per annum, (April & October). Each survey should be one week long (including weekends) and record the tonnage of General User loads by district	Estimate based on geographic split of the number of households in the Disposal Facility catchment area

In addition, **General User** tonnages are to be split by **Activity Source**. **Activity Source** is related to the type of activity that generates the waste being recorded.

The following Activity Source categories are to be used.

- **Domestic Kerbside**
- **Residential**
- **ICI**
- **Landscape**
- **C&D**
- **Special**
- **VENM**

Three solutions for **Disposal Facilities** to gather **Activity Source** data for **General Users** are shown in the following table. The **Disposal Facility** operator can choose whichever solution, or combination of solutions, is most practical for its particular circumstances.

It is the intent of the Framework that the solutions it provides not be overly prescriptive. The objective of the Framework is to provide every TA with the tools and procedures to gather a basic dataset of information about waste to **Disposal Facilities** from its district. Alternative solutions for data-gathering should always be considered in this context. It is the quality of the outputs, rather than the way this is achieved, that is most important.

Particularly with regards to **Disposal Facilities** collecting data on the **Activity Source** of waste, there are likely to be alternative solutions that are not described in this table. For example, an existing weighbridge product code may be directly analogous to one of the **Activity Sources**, which means the **Activity Source** data is already being gathered on this product code. If an alternative solution, or combination of solutions, has the potential to be as

effective and reliable as those included in the protocols, their use should only be considered following consultation with WasteMINZ.

	Preferred solution	Acceptable solution	Default solution
How Activity Source is calculated	Each load coded to Activity Source based on observation by the weighbridge operator or customer reporting at weighbridge	Activity Source split based on regular weighbridge kiosk surveys	Activity Source split is based on existing SWAP data
Protocol	When the weighbridge operator cannot readily identify the Activity Source of a load, each General User is asked to state the Activity Source of their load according to the above classifications. This is recorded in an appropriate field in the weighbridge records. Alternatively, weighbridge software may be able to automatically assign an Activity Source to a load based on the vehicle registration number, or similar identifier.	Activity Source surveys are conducted by weighbridge attendant at least twice per annum, (April & October). Each survey should be one week long (including weekends) and record the tonnage of loads according to the above classifications. AND/OR Where appropriate, the Activity Source of waste from an account customer is recorded automatically by the weighbridge software according to the type of activity undertaken by the account holder. Waste from a construction company, for example, would always be recorded as C&D waste.	Existing SWAP data for the facility, or for a facility regarded as being sufficiently similar, is used to provide a default mix of Activity Source for the facility.

B.6 Reporting Disposal Facility Diverted Materials

In addition to reporting waste entering the facility, **Disposal Facilities** are to report the quantity of **Diverted Material** associated with the facility's operations within the given period. This protocol is included to account for the fact that tonnages entering the facility may not reflect the final quantity disposed of on-site due to recovery operations.

The quantity of **Diverted Materials** should be consistent with that reported to MfE using OWLs for the relevant time period.

B.6.1 Splitting Diverted Materials by Activity Source

Disposal Facilities should report **Diverted Materials** split into **Activity Source**. **Activity Source** is related to the type of activity that generates the waste being recorded.

The following Activity Source categories are to be used.

- **Special**
- **VENM** (Virgin Excavated Natural Material)
- **All other** (including Domestic Kerbside, Residential, ICI, Landscape, and C&D)

The tonnage of **Diverted Materials** reported by **Disposal Facilities** under this protocol should be the same quantity as the tonnage reported to OWLs. Each **Disposal Facility** will already have an established system for identifying **Diverted Materials**. Based on existing systems, **Disposal Facilities** are to estimate what tonnages of **Diverted Materials** should be included in each **Activity Source**. It is expected that existing weighbridge records will have an adequate number of product codes to identify the tonnage of each **Activity Source**.

It may be necessary, in some instances, for the **Disposal Facility** to break down the tonnage of **Diverted Materials** by **Geographic Source**. This may be required when the Disposal Facility receives waste from more than one district that is reported to OWLs as Diverted Material.

B.7 Reporting

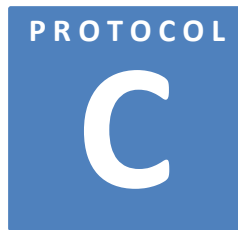
Data compiled under this protocol is to be reported to the TA (or delegated **Data Collection Agent**) under whose jurisdiction the facility operates and to other TAs from which waste is received.

The data is to be reported in a format compatible with the example on the next page, as specified and agreed with the TA (or delegated Data Collection Agent). Monthly data is to be supplied at the frequency requested by the TA.

B.8 Timing

Data is to be compiled on a monthly basis and reported annually, or as required under any relevant local solid waste bylaw, or as requested by the TA.

Facility Name & Location		Tonnes month 1	Tonnes month 2	Tonnes month 3 etc.	
Quantity In	Transfer Station Total				
	Transfer Station Split	<i>Transfer Station A</i>			
		<i>Transfer Station B</i>			
		<i>Transfer Station C etc.</i>			
	Waste Collectors Total				
	Waste Collectors Split	<i>Tonnage from TA 1</i>			
		<i>Tonnage from TA 2</i>			
		<i>Tonnage from TA 3 etc.</i>			
	General Users Total				
	<i>Estimate of tonnage of General User waste from Territorial Authority 1</i>				
	<i>Estimate of tonnage of General User waste from Territorial Authority 2 etc.</i>				
	General Users Split	<i>Residential</i>			
		<i>ICI</i>			
<i>Landscape</i>					
<i>C&D</i>					
<i>Special</i>					
<i>VENM</i>					
Quantity Diverted Materials	Diverted Material Total Tonnes				
	Activity Source Split	<i>Special</i>			
		<i>VENM</i>			
		<i>All Other</i>			



Waste Collector

Definition of Waste Collector: Consistent with Section 56 (4) of the WMA 2008: A Waste Collector:

(a) includes commercial and non-commercial collectors and transporters of waste (for example community groups and not for profit organisations); but

(b) does not include individuals who collect or transport waste for personal reasons (for example a person taking household garden waste to a landfill)

C.1 Aim of Protocol

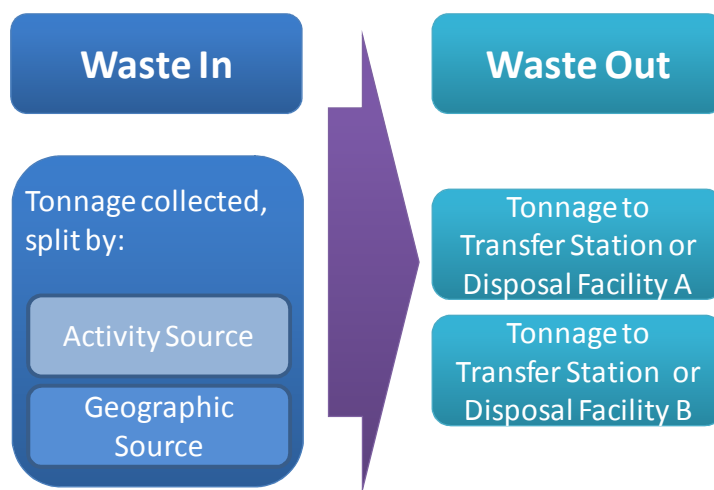
This protocol sets out the data that **Waste Collectors** are to report and the methods for gathering and reporting it.

C.2 What Waste Collectors Report

Under the protocol, **Waste Collectors** report the following to the relevant TAs:

- total tonnage of waste collected split by **Geographic Source** (see C.3)
- total tonnage of waste collected split by **Activity Source** (see C.4)
- total tonnage of waste collected split by disposal point (**Disposal Facility** or **Transfer Station**) (see C.5)

Summary Chart:



C.3 Geographic Source (Cross-Boundary Movements)

Geographic Source should be recorded and tracked where loads or partial loads collected in one TA area are regularly disposed of or bulked in a different TA area. In general, this protocol should be applied where cross-boundary movements of waste make up a noticeable proportion of collected material. In these instances, an estimate of the proportion of waste originating in each TA area should be made, by whatever means considered appropriate, and the calculated tonnages, broken down by **Activity Source**, reported to both the TA from which the waste has been collected and the TA where the waste is being disposed of or bulked.

C.4 Splitting Tonnages by Activity Source

Waste Collectors should report tonnage data split by **Activity Source**. **Activity Source** is related to the type of activity that generates the waste being recorded.

The following **Activity Source** categories are to be used.

- **Domestic Kerbside**
- **Residential**
- **ICI**
- **Landscape**
- **C&D**
- **Special**
- **VENM**

Three solutions for **Waste Collectors** to gather **Activity Source** data are shown in the table on the next page. The **Waste Collector** can choose whichever solution, or combination of solutions, is most practical for its particular circumstances.

It is the intent of the Framework that the solutions it provides not be overly prescriptive. The objective of the Framework is to provide every TA with the tools and procedures to gather a basic dataset of information about waste to **Disposal Facilities** from its district. Alternative solutions for data-gathering should always be considered in this context. It is the quality of the outputs, rather than the way this is achieved, that is most important.

	Preferred solution	Acceptable solution	Default solution
How Activity Source is calculated	Each load coded to Activity Source based on classifications of customers in a customer database or similar	Activity Source split based on split of vehicle types and level of activity	Activity Source is split based on estimate of proportion of business activity. (This is likely to be appropriate where most of a Waste Collector's tonnage comes from a single Activity Source , e.g. ICI.)
Protocol	<p>1. Classify all customers into one of the Activity Source categories,</p> <p>2. Aggregate tonnages actually billed to each customer type.</p> <p>This will not be possible in those instances where vehicles collect from multiple customers for each load.</p>	<p>Use collection vehicle type as an initial proxy for Activity Source. For example: front-end load vehicles will usually collect ICI waste; side load vehicles generally collect Domestic Kerbside waste; rear load vehicles collect Domestic Kerbside or ICI; gantry vehicles collect a mixture of Landscape, C&D, Residential, and ICI.</p> <p>Where a mix of Activity Sources applies, the proportion of loads should be estimated based on historical records, customer numbers or similar.</p> <p>OR</p> <p>For vehicle types that carry loads from different Activity Sources (e.g. gantry vehicles, hook vehicles), drivers can record data on Activity Source of every load for a one week period at least twice per year.</p>	Estimate proportion of Waste Collector activity attributable to each Activity Source .

C.5 Destination Facilities & Tonnages

For all waste from a specific **Geographic Source** (i.e. TA area), **Waste Collectors** are to report to the relevant TA the quantity of waste that is deposited at each **Transfer Station** or **Disposal Facility**, within the given period. **Waste Collectors** are to report data to both the TA where the waste is collected **and** the TA where the waste is deposited. In most cases this will be the same. However, if waste is transported across TA boundaries, data is to be reported to all relevant TAs.

Three solutions for **Waste Collectors** to gather **Destination Facility** tonnage data are shown in the following table. The **Waste Collector** can choose whichever solution, or combination of solutions, is most practical for its particular circumstances.

	Preferred solution	Acceptable solution	Default solution
How Quantity is calculated	Total quantity of waste based on either Transfer Station or Disposal Facility weighbridge tonnage data	Total quantity of waste based on weighbridge tonnage data from a receiving Transfer Station (where it is bulked for onward transport to disposal)	Total quantity calculated based on volume or vehicle type averages using weight to volume /vehicle type ratios.
Protocol	Weight of vehicles in minus weight of vehicles out. It is expected that the tonnage figure used will be based on or able to be reconciled with weigh-bridge records.	Weight of vehicles in minus weight of vehicles out. It is expected that the tonnage figure used will be based on or able to be reconciled with weigh-bridge records.	Number of vehicles of each type x the assumed weight for that vehicle type <i>Or</i> Volume of waste x the assumed density for that waste type

C.6 Reporting

Data compiled under this protocol is to be reported to the TAs (or delegated Data Collection Agent) within whose jurisdictions the Waste Collector operates. This includes TA areas where the Waste Collector collects waste and/or disposes of waste.

The following data is to be reported in a format compatible with the example on the next page, as specified and agreed with the TA (or delegated **Data Collection Agent**). Monthly data is to be supplied at the frequency requested by the TA.

C.7 Timing

Data is to be compiled on a monthly basis and reported annually, or as required under any relevant local solid waste bylaw, or at a frequency requested by the TA.

Waste Collector Name & Location		Tonnes month 1	Tonnes month 2	Tonnes month 3 etc.	
Quantity Collected	Total tonnes collected				
	Activity Source Split	<i>Domestic Kerbside</i>			
		<i>Residential</i>			
		<i>ICI</i>			
		<i>Landscape</i>			
		<i>C&D</i>			
		<i>Special</i>			
		<i>VENM</i>			
	Cross-boundary split				
	<i>Tonnage from TA 1</i>				
	<i>Tonnage from TA 2 disposed of in TA 1</i>				
	<i>Tonnage from TA 3 disposed of in TA 1</i>				
Quantity Deposited	Tonnes to Disposal Facility/Transfer Station A				
	Tonnes to Disposal Facility/Transfer Station B etc.				



Territorial Authority / Data Collection Agent

Definition of Data Collection Agent: Any organisation or individual empowered by a Territorial Authority to collect waste data on its behalf.

For the purposes of this protocol, references to Territorial Authorities may be taken to include any agent authorised to collect data on their behalf.

D.1 Aim of Protocol

This protocol sets out the data that **Territorial Authorities** (TAs) are to gather and the method for gathering and collating it.

D.2 Target Data Set

The purpose of the National Waste Data Framework is to produce a standardised set of reliable, consistent, and comparable waste metrics that can be shared and aggregated across TAs. Once all data specified within the protocol has been collated and reconciled by a TA, it should be possible to calculate a dataset with monthly time series data covering the following:

- The total tonnage of waste generated in the TA area and disposed of to a **Disposal Facility**
- The **Activity Source** of the tonnage that is generated in the TA area
- The tonnage of waste from the TA area deposited at each **Transfer Station**
- The tonnage of waste from the TA area deposited at each **Disposal Facility**
- The tonnage of waste from outside of the TA area deposited at each **Transfer Station**
- The tonnage of waste from outside of the TA area deposited at each **Disposal Facility**
- The tonnage of waste handled by **Waste Collectors** and by **General Users**.

The protocols outlined in this section detail the accepted method for calculating each of the above data sets. With the addition of composition data from SWAP audits conducted either in the TA area or in a similar area, it should also be possible to calculate:

- The **Composition** of waste that is generated in the TA area

It is important to note that the data gathered with this protocol may not constitute all of the data that a TA may want. All TAs are free to gather other data on waste to **Disposal Facilities** as they see fit, but the data should be able to be aggregated into the template recommended by this protocol. For example, litter and illegal dumping is normally classified as ICI waste, but may be recorded and reported separately by the TA.

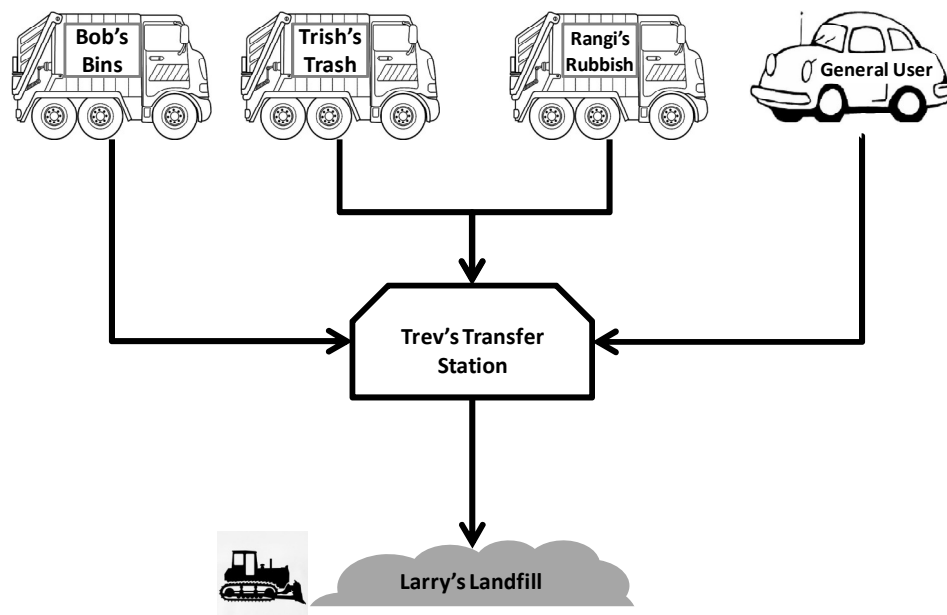
D.3 Develop Territorial Area Waste Flow Model

Initially, a Waste Flow Model will need to be developed (and maintained) to ensure that the waste flows to be reported are all-inclusive and are correctly identified and understood. The model does not need to be complex, but should include:

- the identification of **Waste Collectors** operating in the district, including those not collecting in the district but using **Transfer Stations** or **Disposal Facilities** in the district;
- The **Transfer Stations** and **Disposal Facilities** in the district that need to report data.

As far as is possible, waste flows both in and out of the district will need to be identified. The waste flow model should, where necessary, be aligned with those of neighbouring districts to form a consistent description of waste flows across the wider region.

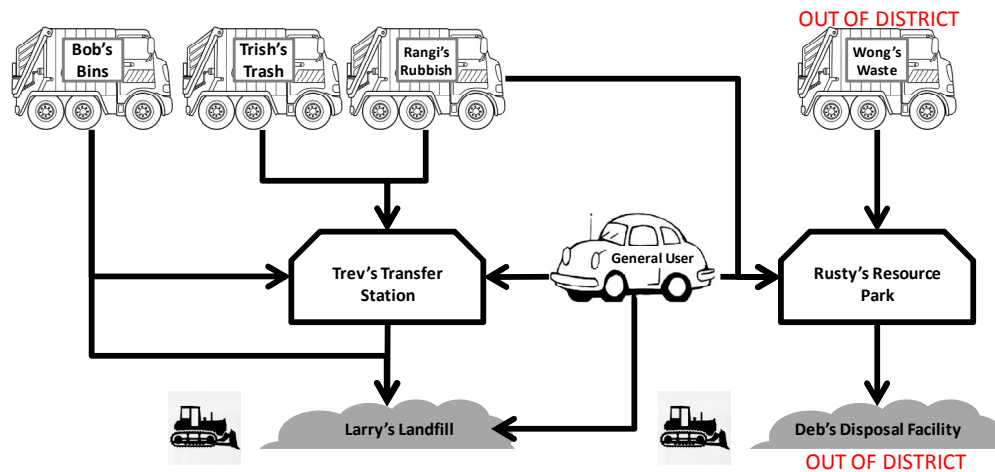
A highly simplified Waste Flow Model is shown below for the purposes of illustrating the concept.



In a district where there is only one transfer station and material goes to a single disposal point, the above waste flow model is likely to be sufficient. The TA would only need to collect data from the three **Waste Collectors** and data on **General Users** provided by the **Transfer Station**.

Where there are multiple facilities taking waste from various sources, and waste is entering or leaving the TA's area, the waste flow model will be correspondingly more complex. An illustration of this is shown in the graphic on the next page.

The cross-boundary movement of waste shown in the graphic would mean the TA needs to request data from the three **Waste Collectors** and the **Transfer Station** in the TA's area as well as from the **Waste Collector** transporting waste out of the TA area. Also, if the quantities warrant it, the TA would seek data on **General User** waste from the out-of-district **Disposal Facility**.



D.4 What Data Territorial Authorities Collect

Under this protocol, TAs are provided the following data:

From Transfer Stations:

- total tonnage of waste received by **Transfer Stations** broken down into tonnages from **Waste Collectors** and **General Users**
 - **General User** tonnages received by **Transfer Stations** are further split by **Activity Source**, and, if the quantities warrant, **Geographic Source**
- total tonnage of material sent by **Transfer Stations** to **Disposal Facilities** (or other Transfer Stations), split out by facility.

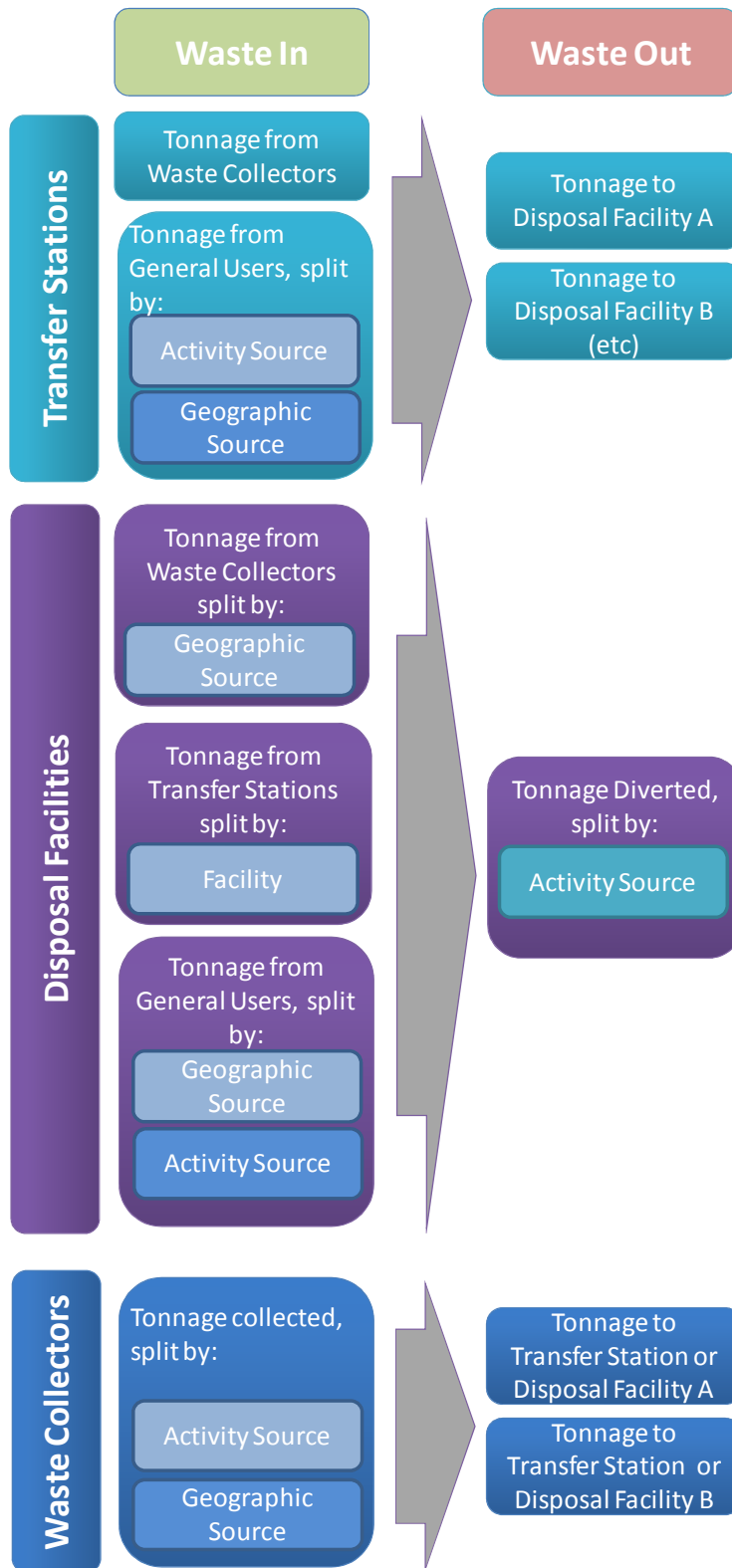
From Disposal Facilities:

- total tonnage of waste received broken down into tonnages from **Transfer Stations**, **Waste Collectors**, and **General Users**
 - **Transfer Station** tonnages are further split by **Geographic Source**
 - **Waste Collector** tonnages are further split by **Geographic Source**
 - **General User** tonnages are further split by **Activity Source** and **Geographic Source**
- total tonnage of **Diverted Material**, split into a reduced number of categories of **Activity Source**

From Waste Collectors:

- total tonnage of waste collected and/or disposed of in the district, split by **Geographic Source** and **Activity Source**
- total tonnage of waste collected split by disposal point (**Disposal Facility** or **Transfer Station**)

Summary Chart:



D.5 Aggregating Data

In generic terms, a TA would aggregate the data collected under this protocol using the following process:

Step 1: Data from **Transfer Stations** is reported to TAs in a format compatible to that shown in section **A.7**. Add all data for all **Transfer Stations** together. Data for all **Transfer Stations** should be added up for each field, so a totals sheet, also compatible with that shown in section **A.7**, showing aggregate data for all fields is created. The totals sheet should show monthly totals, as well as an annual total.

Step 2: Data from **Disposal Facilities** is reported to TAs in a format compatible to that shown in section **B.7**. Add data for all **Disposal Facilities** together. Data for all **Disposal Facilities** should be added up for each field, so a totals sheet showing aggregate data for all fields is created. This totals sheet should show monthly totals, as well as an annual total.

Step 3: Data from **Waste Collectors** is reported to TAs in a format compatible to that shown in section **C.6**. Add data for all **Waste Collectors** together. Data for all **Waste Collectors** should be added up for each field, so a totals sheet showing aggregate data for all fields is created. This totals sheet should show monthly totals, as well as an annual total.

D.6 Total Tonnage of Waste Generated in TA Area (Accounting for Cross-Boundary Movements)

Once the data has been aggregated, the TA can calculate the total tonnage of waste that has been generated in its district. The TA adds the following fields from the aggregated totals sheets:

Transfer Stations	Estimate of tonnage of General User waste from TA area
	<i>Plus</i>
Disposal Facilities	Estimate of tonnage of General User waste from TA area
	<i>Plus</i>
Waste Collectors	Waste collected from TA area
	<i>Less</i>
Disposal Facilities	Tonnage of Diverted Materials

Depending on the intended use of the data, **Disposal Facility** tonnage for **Diverted Materials**, can be subtracted from the total tonnage generated, as shown in the calculation above.

D.7 Activity Source of Waste Generated in the TA Area

For a TA, calculating the **Activity Source** of waste generated in its district requires an extra step beyond calculating the total tonnage of waste generated. **Transfer Stations, Disposal Facilities, and Waste Collectors** have all reported a breakdown of *total* tonnages into the seven different **Activity Sources**. These tonnage breakdowns include waste generated in all districts from which waste is being disposed of.

To calculate the **Activity Source** of waste generated in its district, the TA needs to calculate and sum the tonnages, split by **Activity Source**, for:

- **General User** waste from TA area disposed of at **Transfer Stations**
- **General User** waste from TA area disposed of at **Disposal Facilities**
- Waste collected by **Waste Collectors** from TA area.

The first step in calculating the **Activity Source** of waste is to convert the aggregated tonnages of the seven different **Activity Sources** into percentages. Separate percentage breakdowns will be calculated for **General User** waste from **Transfer Stations** and **Disposal Facilities** and for all waste from **Waste Collectors**. The three tonnages of waste generated in the TA area, broken down by **Activity Source**, are then added together. The calculation is as shown in the table below.

Transfer Stations	Estimate of tonnage of General User waste from TA area	Multiplied by	Percentage breakdown of General User waste by Activity Source
	<i>Plus</i>		
Disposal Facilities	Estimate of tonnage of General User waste from TA area	Multiplied by	Percentage breakdown of General User waste by Activity Source
	<i>Plus</i>		
Waste Collectors	Tonnage of waste collected from TA area	Multiplied by	Percentage breakdown of waste by Activity Source

Depending on the intended use of the data, **Disposal Facility** data on **Diverted Materials**, broken down by **Activity Source**, could be subtracted from the above totals.

Under Protocol B, **Activity Source** for diverted materials at **Disposal Facilities** is split by VENM, Special and 'All Other'. By default, the tonnage for 'All Other' should be split evenly between the remaining **Activity Sources**. Alternatively if more detailed **Activity Source** splits are desired (for example if the tonnage involved is large), these may be derived in consultation with the **Disposal Facility** operator.

D.8 Composition of Waste Generated in the TA Area

To calculate the **Composition** of waste that has been generated in its district, the TA applies separate compositions to the seven individual **Activity Source** categories. The compositions for the Activity Source categories can be derived from composition audits undertaken within the district or from composition audits conducted in districts that are considered to have similar waste flows. It is expected that the Ministry for the Environment's Solid Waste Analysis Protocol (**SWAP**) is used as the basis for determining compositions.

The composition for **Special** wastes, which are usually only disposed of at **Disposal Facilities**, can sometimes be taken directly from the facility weighbridge records.

4 Volume Two - Information about Waste Services and Facilities

The following Protocols are presented in this section:

E SERVICES

F FACILITIES

PROTOCOL E Services

***Definition of Services:** The services that are covered by this protocol include those that meet the Australia New Zealand Industrial Classification (ANZIC) Codes D291100 'Solid Waste Collection Services' or D291900 'Other Waste Collection Services', and any other waste or diverted material related services (for example, education)*

E.1 Aim of Protocol:

This protocol sets out the information about **Waste** and **Diverted Materials** services that TAs are expected to gather and methods for gathering that information. It is anticipated that the information gathered under this protocol will facilitate TAs in developing waste assessments under S 51 of the WMA that will provide consistent information that is comparable between TAs.

E. 2 Information to Gather on Each Service

For each service that is included under this protocol the following information should be gathered:

- **Type of Service.** The nature of the service which collects **Waste** or **Diverted Materials** For each service that is identified, as much of the following information as is available should, where appropriate, be provided.
 - **Receptacle** used in service - The size and type of receptacle used for a collection service.
 - **Quantity** – The amount of **Waste** or **Diverted Materials** a service collects annually. This will normally be measured by weight in the first instance, but may, in some instances, initially be measured by volume. The commercial confidentiality of information may restrict the information that is available or able to be presented.
 - **Composition** – the type of material(s) a service collects. (e.g. wood, paper, greenwaste) or a specific characteristic of the waste (e.g. domestic, organic, hazardous)
 - **Coverage** – The area to which a service is provided and, where applicable, the percentage of eligible properties within a district.
 - **Restrictions** – Restrictions on the services operation in terms of time or materials accepted etc. This includes licensing restrictions, contract expiry etc.
 - **Ownership** of service provider – Organisation or principal's name. Ideally the ultimate owners as well as the trading name should be identified

Further information on the standard of information required under each of these headings is outlined in the following sections.

E.3 Type of Service (Classification)

Under this protocol, services should be grouped and reported under the following classifications.

General Service Classification	Services:
Waste	Council waste collection from residential premises
	Council waste collection from non-residential premises
	Private waste collection from residential premises
	Private waste collection from non-residential premises
	Specialty non-hazardous waste collections (C&D, etc.)
Organic Waste	Council greenwaste collection from residential premises
	Council greenwaste collection from non-residential premises
	Private greenwaste collection from residential premises
	Private greenwaste collection from non-residential premises
	Council food waste & greenwaste collection from residential premises
	Council food waste & greenwaste collection from non-residential premises
	Private food waste & greenwaste collection from residential premises
	Private food waste & greenwaste collection from non-residential premises
	Council food waste collection from residential premises
	Council food waste collection from non-residential premises
	Private food waste collection from residential premises
	Private food waste collection from non-residential premises
	Landscaping and arborist services
	Rendering/tallow/grease trap/cooking oil and other organic waste collections
	Diverted materials

General Service Classification	Services:
	Council recycling collection from non-residential premises
	Private recycling collection from residential premises
	Private recycling collection from non-residential premises
	Other diverted materials services (tyre collections, reuse services, etc.)
Litter & Illegal Dumping	Litter bin servicing
	Loose litter collection
	Public place recycling bin servicing
	Illegal dumping collection
	Road sweeping, cesspit cleaning, etc.
Hazardous waste	Hazardous waste collection
	Medical waste collection
	E-waste
Haulage and Transport	Bulk waste transport and haulage services
Education & Communications	Council-provided waste minimisation programmes
	Other waste minimisation programmes

Note: Waste Collectors identified as part of this exercise might usefully be aligned with Waste Collectors that are required to report waste data under Protocol C of this Framework

E.4 Quantity

Annual figures should be used. The quantity of material handled by a service will normally be measured by weight in the first instance, but may, in some instances, initially be measured by volume. In general, quantities will be as reported by service operators, and no further querying of these figures is expected for the purposes of this protocol except where there are clear discrepancies with other reported figures.

The protocol for measuring quantities that service operators should refer to is contained in Section 7.

It is acknowledged that quantification of some services may not be possible for a variety of reasons, particularly the commercial sensitivity of some information. In these cases, estimates based on other available data should still be made to ensure sufficient information is available for the TA's purposes. Any assumptions, data gaps or uncertainties about the accuracy of any information should be identified.

E.5 Composition

The **Composition** of materials handled by waste collection services generally need not be reported except where there are large streams of potentially divertable material that could be identified for waste minimisation. For **Diverted Material** collections, the type of material handled by a service should be classified and reported according to Solid Waste Analysis Protocol (**SWAP**) primary classifications, split into secondary classifications that identify specific characteristics relating to divertability. Suggested classifications are shown below:

Primary Classification	Secondary Classification
Paper	Recyclable (other than cardboard)
	Cardboard
Plastics	Plastics 1
	Plastics 2
	Plastics 3
	Plastics 4
	Plastics 5
	Plastics 6
	Plastics 7
	Plastic wrap
	Plastic bags & other film
Organics	Kitchen waste
	Compostable greenwaste
	Reusable food
	Other organic
Ferrous metals	Primarily ferrous
Non-ferrous metals	Primarily non-ferrous
Glass	Recyclable bottles & jars
	Window pane
Textiles	Clothing/textiles
	Multimaterial/other
Sanitary paper	Nappies and incontinence products
	Paper towels and tissues
Rubble	Cleanfill
	Plasterboard
	Other
Timber	Untreated
	Fabricated
	Treated
Rubber	Tyres
	Other
Potentially hazardous	Medical waste
	E-waste

Primary Classification	Secondary Classification
	Household hazardous
	Commercial and industrial hazardous
	Sludges
	Other

It is likely that detailed composition data may not be available for some services for a variety of reasons, particularly the commercial sensitivity of some information. In these cases, estimates based on other available data should still be made to ensure sufficient information is available for planning purposes. Any assumptions, data gaps or uncertainties about the accuracy of any information should be identified.

E.6 Coverage

“Coverage” relates to the proportion of the TA area to which a service is provided. This applies to both council and private services. For the purposes of this protocol, ‘proportion’ is based on the number of units or properties to which the service is provided. For example, if it is a service provided to households, the proportion should relate to the number of households that can access the service, or, if it is a service provided to businesses, the proportion should relate to the number of businesses that can potentially access the service.

Under this protocol, information should be presented according to the proportion of **Urban** areas that are covered and the proportion of **Rural** areas that are covered.

It is recognised that detailed coverage data for some services may not be available. In these cases, any estimates or a general description of coverage should still be presented to assist with planning purposes.

E.7 Restrictions

This field should note any practical restrictions on the services operation in terms of time or materials accepted etc. This includes licensing restrictions, contract expiry etc, as well as size or composition of materials (e.g. will not collect contaminated material etc.). Some of these practical restrictions will not be relevant to all services and some will be relevant solely to council or private services.

E.8 Ownership

This should note the company name and trading name (if different), as well as ultimate ownership if it is a subsidiary or sister company, or there is some other formal relationship between service and/or facility operators.

E.9 Method for Gathering Information

Information should be gathered initially for eventual input into a TA's Waste Assessment and then updated on an annual basis in line with the reporting schedules for Protocols A-C.

	Preferred solution	Acceptable solution	Default solution
How information is obtained	Database and direct contact with service providers	Database and survey	Database and selected contacts
Protocol	A database is constructed from a variety of sources, such as the internet and Yellow Pages, and all identified service providers are contacted by phone and/or e-mail to compile the information	A database is constructed from a variety of sources, and all identified service providers are asked to complete a survey providing the information	A database is constructed from a limited number of sources, and service providers are contacted only where there are information gaps

PROTOCOL F Facilities

Definition of Facilities: *The facilities covered by this protocol are those that meet the Australia New Zealand Industrial Classification (ANZIC) Codes D292100 'Waste Treatment and Disposal Services' and D292200 'Waste Remediation and Materials Recovery Services'*

F.1 Aim of Protocol:

This protocol sets out the information on waste and diverted materials facilities that TAs are expected to gather and suggested methods for gathering that data. It is anticipated that the information gathered under this protocol will facilitate TAs in developing waste assessments under S 51 of the WMA that will provide consistent and comparable information.

F.2 Information to Gather on Each Facility

For each facility that is included under this protocol the following information should be gathered:

- **Type of Facility** - The nature of the facility which collects or receives waste or diverted materials
- **Capacity** - The amount of waste or diverted materials a facility is able to accept annually. This will normally be measured by weight in the first instance, but may, in some instances, initially be measured by volume
- **Annual throughput** - The amount of waste or diverted materials a facility accepts annually. This will normally be measured by weight in the first instance, but may, in some instances, initially be measured by volume
- **Composition** - the type of material(s) a facility is able to accept (e.g. wood, paper, greenwaste), or a specific characteristic of the waste (e.g. organic, hazardous)
- **Coverage** - The physical location of a facility and where it receives material from
- **Restrictions** - Restrictions on the facility's operation in terms of time or materials accepted etc. This includes consent conditions, viable asset life etc.
- **Ownership** - Organisation or principal's name. Ideally the ultimate owners as well as the trading name should be identified
- **Outputs** - The type and quantity of material that a facility generates (if any).

Further information on the standard of information required under each of these headings is outlined in the following sections.

F.3 Type of Facility (Classification)

Under this protocol services should be grouped and reported under the following classifications. Class 1-4 landfills are as defined in the most up-to-date version of the WasteMINZ Technical *Guidelines for Disposal to Land*, which is in draft form as of writing.

Service Classification	Example Facilities
Waste	Class 1 Landfill - Municipal Solid Waste Landfill or Industrial Waste Landfill
	Class 2 Landfill - C&D Landfill or Industrial Waste Landfill
	Class 3 Landfill - Managed/Controlled Fill
	Class 4 Landfill – Cleanfill
	Incinerator
	Refuse transfer station (RTS)/transfer station
	Autoclave (medical waste)
Organic Waste	Anaerobic digestion facility
	Mulching/shredding facility
	Composting facility
	Stockfeed facility
	Tallow or bio-fuel facility
	Rendering plant
	Vermicomposting facility
	Other organic waste processing facility
Diverted materials	Material recovery facility (MRF)
	Glass beneficiation/manufacturing facility
	Plastics remanufacturing facility
	Paper mill
	Reuse store
	Scrap metal recovery facility

Service Classification	Example Facilities
	Resource recovery facility
	Recyclables Bulking Facility
	Cement kiln, boilers, other thermal energy recovery facilities (e.g. MBT, gasification, pyrolysis, plasma, autoclave etc.)
	Refurbishment/repurpose facility
	Drop off
	Other recycling facility
Construction and demolition	Construction and demolition waste sorting facility
Hazardous waste	Hazardous, quarantine, or medical waste treatment facility
	E-waste processing facility
	Solvent or chemical recovery facility
Education	Community education facility

F.4 Quantity

This will normally be measured by weight in the first instance, but may, in some instances, initially be measured by volume. In general, quantities will be as reported by facility operators, and no further querying of these figures is expected for the purposes of this protocol except where there are clear discrepancies with other reported figures.

The protocol for measuring quantities that facility operators should refer to is contained in section 5.

F.5 Composition

The **Composition** of residual waste taken to facilities is covered under protocol D. For diverted materials, the type of material accepted should be should be classified and reported according to **SWAP** primary classifications and split into secondary classifications that identify specific characteristics relating to divertability. For ease of reference suggested classifications are shown in the following table:

Primary Classification	Secondary Classification
Paper	Recyclable
	Cardboard
Plastics	Plastics 1
	Plastics 2
	Plastics 3
	Plastics 4
	Plastics 5
	Plastics 6
	Plastics 7
	Plastic wrap
	Plastic bags & other film
Organics	Kitchen waste
	Compostable greenwaste
	Reusable food
	Other organic
Ferrous metals	Primarily ferrous
Non-ferrous metals	Primarily non-ferrous
Glass	Recyclable bottles & jars
	Window pane
Textiles	Clothing/textiles
	Multimaterial/other
Sanitary paper	Nappies and incontinence products
	Paper towels
Rubble	Cleanfill
	Plasterboard
	Other
Timber	Untreated
	Fabricated
	Treated
Rubber	Tyres
	Other
Potentially hazardous	Medical waste
	E-waste
	Household hazardous
	Commercial and industrial hazardous
	Sludges
	Other

It is likely that detailed composition data may not be available for some facilities for a variety of reasons, particularly the commercial sensitivity of some information or the simple lack of the data being gathered by any party. In these cases, estimates based on other available data could still be made to ensure sufficient information is available for the TA's purposes. Any assumptions, data gaps or uncertainties about the accuracy of any information should be identified when reporting.

F.6 Location/Coverage

Location/coverage should capture two related pieces of information – the physical location of the facility and the area which it serves. This relates to the proportion of the TA(s) area from which material might be drawn into the facility. As specific information on coverage might not be available for some facilities, a qualitative description or an informed estimate might need to suffice.

F.7 Restrictions

The restrictions under which a facility operates should include any material restrictions on the facility's operation in terms of time or materials accepted etc. This includes consent conditions (e.g. air, land and water discharge expiry dates, land use renewal date), viable asset life etc., as well as size or composition of materials (e.g. will not accept contaminated material etc.). The level of detail of the restrictions that is presented should be appropriate to the intended use of the information.

F.8 Ownership

This should note the company name and trading name (if different), as well as ultimate ownership if it is a subsidiary or sister company, or there is some other formal relationship between service and/or facility operators.

F.9 Outputs

The material outputs of a facility should be classified according to the categories in the table below.

Classification	Example Outputs
Waste	Solid Recovered Fuel/Refuse Derived Fuel
	Waste to disposal
	Sludges
	Energy
	Ash
Organic Waste	Blood/bone meal
	Compost
	Mulch
	Vermicompost/vermicast
	Food rescue
	Soil amendment/Fertiliser
	Stockfood

Classification	Example Outputs
	Tallow
Diverted materials	Metal
	Paper/Card
	Plastic
	Glass
	Reuseable/repurposed goods
	Textiles
	Wood
	Paint
	Gypsum
	Cement
Cleanfill	Virgin Excavated Natural Material
	Aggregate
Hazardous	Hazardous materials
	Recovered chemicals

It is likely that detailed output data may not be available for some facilities for a variety of reasons, particularly the commercial sensitivity of the data. In these cases, estimates based on other available data could still be made to ensure sufficient information is available for the TA's purposes. Any assumptions, data gaps or uncertainties about the accuracy of any information should be identified when reporting.

F.10 Information Gathering Method

Initially, information should be gathered for input into a TA's Waste Assessment and then updated on an annual basis, in line with the reporting regime for Protocols A-C.

	Preferred solution	Acceptable solution	Default solution
How information is obtained	Data base and direct contact	Database and survey	Database and selected contact
Protocol	A database is constructed from a variety of sources, such as the internet and Yellow Pages, and all identified service providers are contacted by phone and/or e-mail to complete the information	A database is constructed from a variety of sources, and all identified service providers are contacted and asked to complete a survey providing the information	A database is constructed from a limited number of sources, and service providers are contacted only where there are information gaps

5 Protocol for Measurement³ of Wastes

Three solutions for **Transfer Station** and **Disposal Facility** operators to gather tonnage data are shown in the following table. The operator can choose whichever solution, or combination of solutions, is most practical for its particular circumstances. The solution that is chosen is likely to depend on whether the facility has a weighbridge and whether all vehicle loads are weighed.

	Preferred solution	Acceptable solution	Default solution
How tonnage is calculated	Total quantity of waste based on weighbridge tonnage data	Total quantity of waste calculated based on combination of weighbridge tonnage data and data based on volume or vehicle type averages using weight to volume /vehicle type ratios.	Total quantity calculated based on volume or vehicle type averages using weight to volume /vehicle type ratios.
Protocol	Weight of vehicles in minus weight of vehicles out, only for those vehicles carrying waste intended for disposal at Disposal Facilities	Weight of vehicles in minus weight of vehicles out <i>Plus</i> for unweighed vehicles: Number of vehicles of each type x the assumed weight for that vehicle type <i>Or</i> Volume of waste x the assumed density for that waste type	Number of vehicles of each type x the assumed weight for that vehicle type <i>Or</i> Volume of waste x the assumed density for that waste type

Vehicle type (e.g. car, ute, van, trailer etc.) / weight ratios should be based on historical weighbridge data where available and the calculation method should be consistent with the 'average tonnage' method as described in Section 15 of the Waste Minimisation (Calculation and Payment of Waste Disposal Levy) Regulations 2009 (Refer Section 7). Where this information is not available the following defaults should be used:

³ *Weight and volume data must be compliant with the Weights and Measures Act 1987 and related regulations*
<http://www.legislation.govt.nz/act/public/1987/0015/latest/whole.html#DLM102968>
<http://www.legislation.govt.nz/regulation/public/1999/0373/latest/DLM301842.html>

Car-sized loads (includes larger vehicles carrying small loads)	75kg
Van/Ute/Single Axle Trailer-sized loads	125kg
Double Axle Trailer	250kg
Small Truck (Under 2.5 tonnes Tare Weight)/ Ute plus trailer	500kg

Source: *Waste Not Consulting 2015*

Assumed densities should be based on historical weighbridge data where available. Where this information is not available the following defaults should be used:

Loose, uncompacted Waste	0.130 tonnes (130 kg)/cubic metre
Uncompacted Waste	0.200 tonnes (200 kg)/cubic metre
Compacted Waste	0.320 tonnes (320 kg)/cubic metre
Soil/Rock/Fill	1.500 tonnes (1 500 kg)/cubic metre

Source: *Waste Minimisation (Calculation and Payment of Waste Disposal Levy) Regulations 2009*
<http://www.legislation.govt.nz/regulation/public/2009/0144/latest/DLM2055659.html>

6 Waste Data Definitions

The definitions that have been established as part of this Framework are focused on terms that are necessary for the effective communication and operation of the Framework. It is not intended that waste data terms for all purposes be defined within the Framework. In arriving at the definitions set out below, the preference has been for terms that are either already formally defined elsewhere (for example in legislation), or are in common use in New Zealand. In some instances, definitions or terms have been amended to facilitate their application under the Framework.⁴

ACTIVITY SOURCE	Generally, the type of activity that generates the waste being recorded. The Activity Sources for use in National Waste Data Framework are listed below and defined in the following rows: <ul style="list-style-type: none"> • Domestic Kerbside • Residential • ICI • Landscape • C&D • Special • VENM
<i>Construction and Demolition (C&D)</i>	Waste produced directly or incidentally by the construction and demolition industries. This includes building materials such as insulation, nails, plasterboard and timber, roofing materials, as well as waste originating from site preparation, such as dredging materials, tree stumps, and rubble.
<i>Domestic Kerbside</i>	Domestic-type waste collected from residential premises by the local council (or by a contractor on behalf of the council), or by private waste collections (through kerbside or similar collection).
<i>Industrial/commercial/institutional (ICI)</i>	Waste from industrial, commercial and institutional sources (ie supermarkets, shops, schools, hospitals, offices). For the purposes of these protocols Illegal dumping and litter should be classified under ICI
<i>Landscaping</i>	Waste from landscaping activity and garden maintenance (including public gardens), both domestic and commercial, as well as from earthworks activity, unless the waste contains only VENM, or unless the earthworks are for purposes of construction or demolition of a structure.
<i>Residential</i>	All waste originating from residential premises, other than that covered by any of the other Activity Source categories. For example, a person arriving with a trailer load after cleaning out the garage would classify as residential waste.
<i>Special</i>	Waste that fits into significant, identifiable waste streams, usually from a single generator. Special wastes are those that cause

⁴ A fuller discussion of the criteria used for determining definitions is provided in: WasteMINZ (2014) National Waste Data Framework: Milestone 2 Progress Report and Discussion Document. Prepared for Waste Management Institute New Zealand by Eunomia Research & Consulting Ltd and Waste Not Consulting Ltd November 2014

<p>Virgin Excavated Natural Material (VENM)</p>	<p>particular management and/or disposal problems and need special care. This includes, but is not restricted, to hazardous and medical wastes (including e-wastes). It also includes any substantial waste stream (such as biosolids, infrastructure fill or industrial waste) that significantly affects the overall composition of the waste stream, and may be markedly different from waste streams at other disposal facilities.</p> <p>Material that when discharged to the environment will not have a detectable effect relative to the background and comprising virgin excavated natural materials, such as clay, soil, and rock that are free of:</p> <ul style="list-style-type: none"> • manufactured materials such as concrete and brick, even though these may be inert • combustible, putrescible, degradable, or leachable components • hazardous substances or materials (such as municipal solid waste) likely to create leachate by means of biological breakdown; • any products or materials derived from hazardous waste treatment, stabilisation or disposal practices; • materials such as medical and veterinary waste, asbestos, or radioactive substances that may present a risk to human health if excavated; • contaminated soil and other contaminated materials; • liquid waste.
COMPOSITION	<p>The type of material(s) included in the waste (e.g. wood, paper, greenwaste) or a specific characteristic of the waste (e.g. organic, hazardous). Under the framework composition is expected to be classified according to the Solid Waste Analysis Protocol (SWAP)</p>
CROSS-BOUNDARY	<p>When waste is transferred from one Territorial Authority area to another. In the case of a specific authority this could mean waste loads or parts of loads originating in another TA being deposited in a facility located in that TA, or vice versa.</p>
DATA COLLECTION AGENT	<p>Any organisation or individual empowered by a Territorial Authority to collect waste data on its behalf</p>
DISPOSAL FACILITY	<p>As defined by Section 7 of the WMA 2008:</p> <p>(a) a facility, including a landfill,—</p> <p style="margin-left: 20px;">(i) at which waste is disposed of; and</p> <p style="margin-left: 20px;">(ii) at which the waste disposed of includes household waste; and</p> <p style="margin-left: 20px;">(iii) that operates, at least in part, as a business to dispose of waste; and</p> <p>(b) any other facility or class of facility at which waste is disposed of that is prescribed as a disposal facility.</p>
DISPOSAL POINT	<p>A Disposal Facility or Transfer Station</p>
DIVERTED MATERIALS	<p>As defined under the WMA 2008: Diverted material means any</p>

	<p>thing that is no longer required for its original purpose and, but for commercial or other waste minimisation activities, would be disposed of or discarded</p> <p>In terms of the Protocols in this document, 'Diverted Materials' refers only to materials at Disposal Facilities that meet the requirements for Diverted Materials in the Online Waste Levy System guidance documents.</p>
GENERAL USER	A user of a Transfer Station or Disposal Facility who does not meet the definition of a Waste Collector
GEOGRAPHIC SOURCE	A descriptor of the physical location of where the waste is generated. For reporting purposes this will generally be the Territorial Authority area.
HAZARDOUS WASTE	<p>Means waste that:</p> <p>(a) contains hazardous substances at sufficient concentrations to exceed the minimum degrees of hazard specified by Hazardous Substances (Minimum Degrees of Hazard) Regulations 2000 under the Hazardous Substances and New Organism Act 1996; or</p> <p>(b) meets the definition for infectious substances included in the Land Transport Rule: Dangerous Goods 1999 and NZ Standard 5433: 1999 – Transport of Dangerous Goods on Land; or</p> <p>(c) meets the definition for radioactive material included in the Radiation Protection Act 1965 and Regulations 1982.</p>
LITTER & ILLEGAL DUMPING	<p>Litter is material that has been disposed of, either intentionally or unintentionally, in a public place, other than in a receptacle or area deemed to be suitable for such disposal by a duly designated agency. Litter is generally distinguished by being of a small enough size that it is plausible that its improper disposal was unintentional.</p> <p>Illegal dumping is the illegal, intentional deposit of any material in any place.</p>
ORGANIC WASTE	Waste that is of biological origin and that can be degraded through biological processes.
RURAL (AREA)	As defined by Statistics New Zealand (refer http://www.stats.govt.nz/methods/classifications-and-standards/classification-related-stats-standards/urban-area.aspx)
URBAN (AREA)	As defined by Statistics New Zealand (refer http://www.stats.govt.nz/methods/classifications-and-standards/classification-related-stats-standards/urban-area.aspx)
SWAP	Solid Waste Analysis Protocol. New Zealand's official protocol for calculating the composition of solid waste. Refer: http://www.mfe.govt.nz/publications/waste/solid-waste-analysis-protocol

TRANSFER STATION	An appropriately-consented waste management facility for the receipt of refuse for consolidation prior to transportation to Disposal Facilities or another Transfer Station. <i>For clarity, if a facility that performs these functions adjoins a Disposal Facility and disposes of its waste at that Disposal Facility, it may, at the discretion of the operator, be considered part of the Disposal Facility and not a Transfer Station. In such instances, data for the Transfer Station need not be recorded separately</i>
WASTE	As defined by Section 5 of the WMA 2008, waste (a) means any thing disposed of or discarded; and (b) includes a type of waste that is defined by its composition or source (for example, organic waste, electronic waste, or construction and demolition waste); and (c) to avoid doubt, includes any component or element of diverted material, if the component or element is disposed of or discarded
WASTE COLLECTOR	Consistent with section 56 (4) of the WMA 2008. A Waste Collector: (a) includes commercial and non-commercial collectors and transporters of waste (for example community groups and not for profit organisations); but (b) does not include individuals who collect or transport waste for personal reasons (for example a person taking household garden waste to a landfill)
WASTE OR DIVERTED MATERIAL FACILITY	The facilities covered by this protocol are those that meet the Australia New Zealand Industrial Classification (ANZIC) Codes D292100 'Waste Treatment and Disposal Services' and D292200 'Waste Remediation and Materials Recovery Services'
WASTE OR DIVERTED MATERIAL SERVICE	The services that are covered by this protocol include those that meet the Australia New Zealand Industrial Classification (ANZIC) Codes D291100 'Solid Waste Collection Services' or D291900 'Other Waste Collection Services', as well as educational services

7 Extracts from Waste Minimisation (Calculation and Payment of Waste Disposal Levy) Regulations 2009

Section 15 Request for approval of average tonnage system

- (1) The operator of a disposal facility may, in writing and at any time, request the Secretary to approve the use of an average tonnage system that ascribes a weight to waste or diverted material that enters the facility based on the type of motor vehicle it is carried in.
- (2) An average tonnage system may apply only to 1 or more of the following:
- (a) light motor vehicles, meaning motor vehicles that have a gross vehicle mass of 3,500 kg or less:
 - (b) motor vehicles of classes MA (passenger cars), MB (forward control passenger vehicles), MC (off-road passenger vehicles), MD1 and MD2 (certain light buses), and NA (light goods vehicles) (as those classes are defined in table A of Part 2 of Land Transport Rule 33020: Fuel Consumption Information 2008):
 - (c) trailers towed by vehicles referred to in paragraph (a) or (b).
- (3) The operator's request must include the following:
- (a) a description of each type of motor vehicle to which the average tonnage system will apply; and (b) the average tonnage of waste or diverted material that has been calculated as being carried in each type of vehicle (which will be ascribed to waste or diverted material that enters the facility in that type of vehicle); and
 - (c) the extent to which the average tonnage for each type of vehicle was calculated based on measurements using a compliant weighbridge or a conversion factor; and
 - (d) evidence that the calculation of the average tonnage for each type of vehicle is based on a reasonably representative sample of the vehicles (including evidence of the number of vehicles in the sample and the period during which the sample was taken).
- (4) The Secretary must consider the request on receiving it.
- (5) The Secretary may, if satisfied that the calculation of the average tonnage for each type of vehicle is based on a reasonably representative sample of the vehicles,—
- (a) approve the average tonnage system; and
 - (b) if approval is given, determine the period during which the approval applies, which must be a period of 3 years or less.
- (6) The Secretary must, as soon as practicable after making his or her decision,—
- (a) provide written notice of the decision to the operator; and
 - (b) if approval is given, specify the period during which the approval applies.
- (7) The Secretary may, at any time, revoke the approval of an average tonnage system by giving written notice to the operator.
- (8) To avoid doubt, the description of a type of motor vehicle included in an operator's request under subclause (3)(a) need not coincide with a class of motor vehicle referred to in subclause (2).
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Schedule: Conversion factors for volume-to-weight calculations

Type of waste or diverted material	Description of waste or diverted material	Conversion factor
Waste or material in rubbish bags or carried in cars	Small loads (0.5 cubic metres or less) of uncompacted general waste or material, including bags of domestic and commercial refuse <i>or</i> Waste, or material, for diversion that is similar in density to loose and uncompacted recyclable containers, such as cans and plastic bottles	0.130 tonnes (130 kg)/cubic Metre
Uncompacted general waste or material	Larger loads (more than 0.5 cubic metres) of uncompacted waste or material from residential, commercial, industrial, construction and demolition (excluding cleanfill), and landscaping activities <i>or</i> Waste, or material, for diversion that is similar in density to timber or uncompacted cardboard and paper	0.200 tonnes (200 kg)/cubic metre
Compacted waste or material	Waste or material carried in a compacted state (including in kerbside collection compactors, stationary compactors, and front-end loaders) and compacted bulk waste or material from transfer stations <i>or</i> Waste, or material, for diversion that is similar in density to whole glass bottles and loose light-gauge scrap metal	0.320 tonnes (320 kg)/cubic metre
High-density waste or material	Waste or material composed of materials with a specific gravity greater than 1.0 (for example, concrete and masonry rubble, clay, soil, slags, sludges (including biosolids), ash, foundry sand, pomace (fruit pulp), and abattoir waste) <i>or</i> Waste, or material, for diversion that is similar in density to crushed glass	1.500 tonnes (1 500 kg)/cubic metre

8 Information Management

An information management consultant was engaged by WasteMINZ to advise on information management system requirements and system hosting models. Key findings are summarised here:

8.1 Information Management System Requirements

Information management systems must be capable of maintaining data integrity, data security and confidentiality. Key controls for these could include the following:

8.1.1 Data Integrity

- Data that is entered is automatically validated by the system
- Validation checks are carried out by the Data Collector upon data loading
- Data audits and verifications are scheduled

8.1.2 Data Security

- Data is held in a secure data repository
- Access is granted only to individuals who are held responsible and accountable
- Data is backed up with an appropriate level of audit trail, and copies of the data are stored offsite

8.1.3 Data Confidentiality

- Data is contained in the system through unique user ID or identifier rather than referring to actual names (the code is only available to authorised individuals)
- Where there are potential conflicts of interest data may be managed by a 3rd party or by defined segregation of duties
- Different levels of access to data are provided
- Only aggregated data is made publically available
- An appropriate data sharing agreement is entered into