

# New Zealand Waste Data Framework: Draft Definitions and Protocols for Waste to Disposal Facilities

Prepared for  
Waste Management Institute New Zealand

by  
Eunomia Research & Consulting Ltd and  
Waste Not Consulting Ltd

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## Document quality control

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# 1 Introduction

This document presents a set of proposed draft definitions and protocols for gathering information within a National Waste Data Framework. Roles and responsibilities of different sectors of the waste industry are also outlined.

**The protocols in this document relate only to the collection, transport, and disposal of solid waste to Disposal Facilities (as defined by the Waste Minimisation Act 2008). The protocols do not cover diverted materials or materials that are disposed of at non-levied sites.**

The intent of the protocols is to standardise data collection and, where possible, they have aimed to align with existing practices in order to minimise the burden on key parties and facilitate uptake - while still delivering a useful advance in data quality.

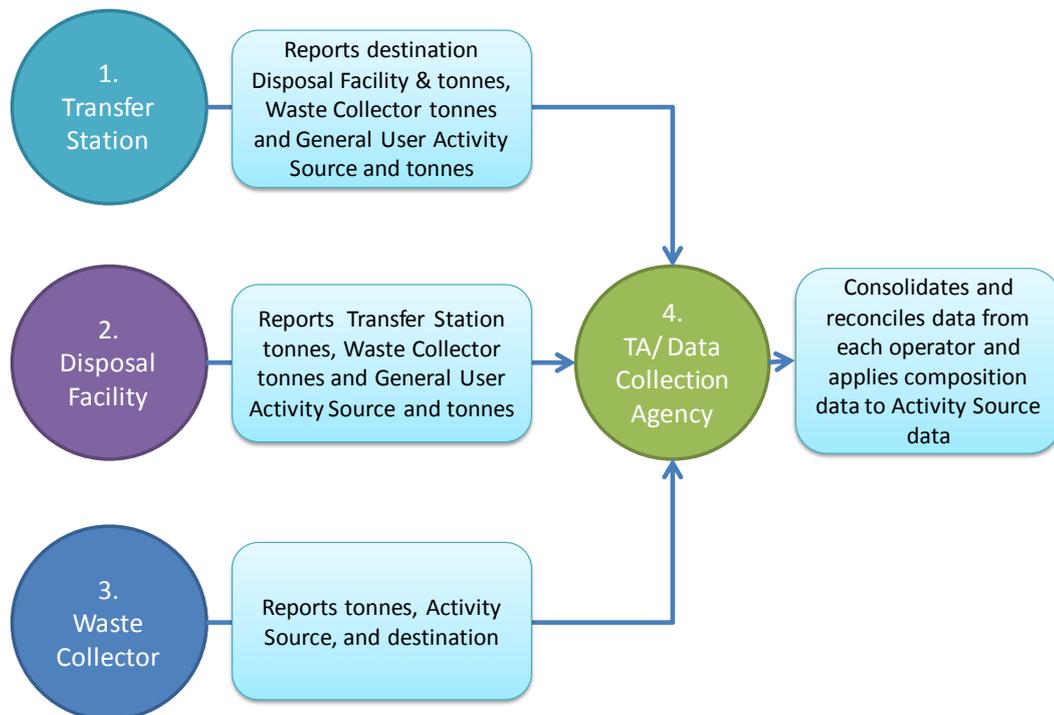
## 1.1 Waste Flow Model

This set of four protocols is focused solely on waste that is collected and sent to disposal facilities (as defined in the WMA). Under the framework Territorial Authorities (or a nominated agent) are responsible for collating information from three possible 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 territorial authority by each of the participants in the data collection process and recommends ways in which this data can be collected.

The chart below presents a simplified data flow model on which these protocols are based:



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.

## 1.2 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 disposed of to Disposal Facilities. These are:

- **Quantity** – generally measured by weight in the first instance, but which, however, 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)
- **Activity Source** – the nature of the activity that resulted in the generation of the waste (e.g. construction, industry) or other relevant descriptor (Special or virgin excavated natural material (VENM))
- **Geographic Source** – the territorial authority 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 protocols outlined in this document are designed to enable consistent information to be gathered and compiled on these characteristics of waste.

## 1.3 Measurement of Waste

Essentially the same protocols are stipulated for measurement of waste across the different agents. Protocols for measurement of waste are provided in Section 4.

## 1.4 Which Protocol Solution to Use

The protocols provide for three methods to gather data: A preferred solution, which usually involves directly obtaining information from all users, an acceptable solution, which generally involves surveying or sampling and applying that to all data, 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 practical. For example it may not be practical for a very busy transfer station to request Activity Source data from General Users as due to the time added to each transaction, in which case a bi-annual survey would likely be appropriate. On the other hand Transfer Stations with few General Users could readily collect this information during each transaction.

## 2 Roles and Responsibilities

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### 2.1 Territorial Authorities/Data Collection Agent

There is currently 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*.<sup>1</sup> This document is being reviewed in early 2015 and it is anticipated that the updated version will reference the outcomes 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 and Disposal Facility operators), this section addresses solely the roles and responsibilities of these 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 accepted that not all TAs will be enacting bylaws in the near future. 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 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.
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.

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

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 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 handling and reporting of data, it is the TA's responsibility to exercise good 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.
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.

## 2.2 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 consistency 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 facility to which waste is transferred for disposal.

## 2.3 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.

## 2.4 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, 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.

## 2.5 Ministry for the Environment

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

### 3 Data Protocols

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The following Protocols are presented in this section:

- 1 TRANSFER STATION**
- 2 DISPOSAL FACILITY**
- 3 WASTE COLLECTOR**
- 4 TERRITORIAL AUTHORITY**

PROTOCOL  
**A**

## Transfer Stations

**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. For clarity, if a facility that performs these functions adjoins a Disposal Facility and disposes of its waste at that Disposal Facility, it is to be considered part of the Disposal Facility and not a Transfer Station.

### A.1 Aim of Protocol:

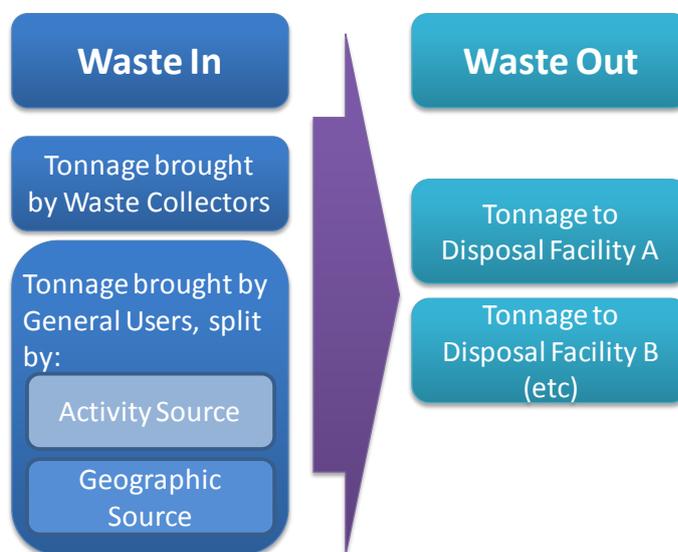
This protocol sets out the data that transfer station operators are to report to TAs and the methods for gathering and reporting that data.

### 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 4 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:**



### 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 total for all Waste Collectors is to be reported for each month.

#### **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 included 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 data for all **General Users** is to be reported for each month.

### 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**
- **ICI**
- **Landscape**
- **C&D**
- **Special**
- **VENM** (Virgin Excavated Natural Material)

	Preferred solution	Acceptable solution	Default solution
How Activity Source is calculated	Each load coded to Activity Source based on customer reporting at weighbridge	Activity Source split based on regular Transfer Station surveys	Activity source is split based on existing SWAP data
Protocol	Each General User is asked to state the Activity Source of their load according to the above classifications. This is recorded in a separate field in the weighbridge records	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.	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. This is necessary as it is recognised this may vary from tonnages entering the Transfer Station due to recovery operations on the site and 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.

	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 reconciled with Disposal Facility weighbridge records.	Weight of vehicles in minus weight of vehicles out.  It is expected that the tonnage figure used will be based on or reconciled with landfill weighbridge 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.

*NB: This protocol for Transfer Station waste applies only to **General Users**. Cross Boundary protocols for Waste Collectors are set out in Protocol 3 (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 a separate 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

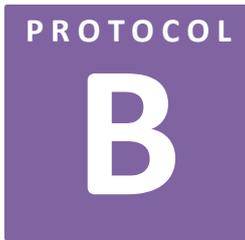
Data compiled under this Protocol is to be reported to the Territorial Authority (or delegated Data Collection Agent) under whose jurisdiction the facility operates.

The following data is to be reported in a format compatible with the example below, as specified and agreed with the Territorial Authority (or delegated **Data Collection Agent**). Monthly data is to be supplied.

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&amp;D</i>			
<i>Special</i>					
	<i>VENM</i>				
Quantity out	Tonnes sent to Disposal Facility A				
	Tonnes sent to Disposal Facility B				

### 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.



## 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 and the methods for gathering and reporting it.

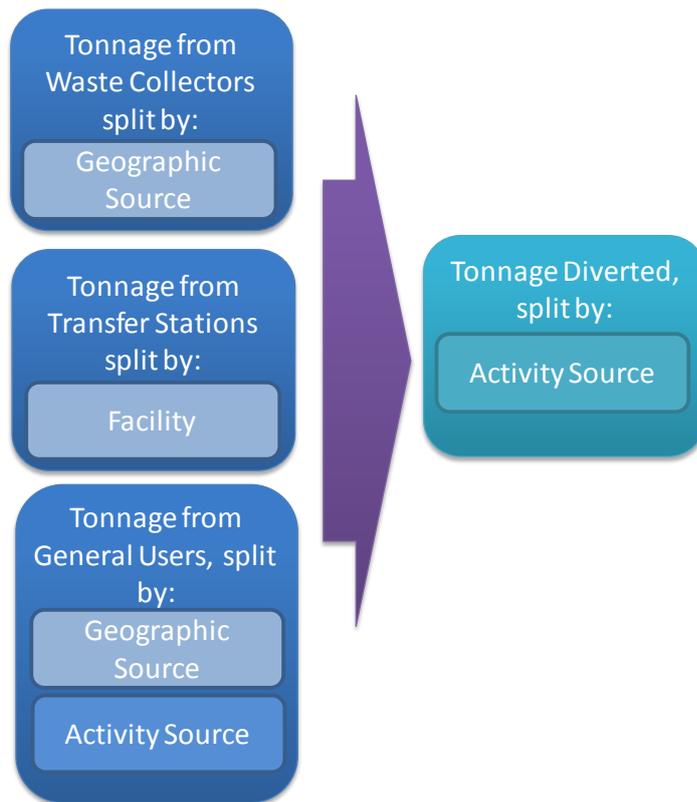
### B.2 What Disposal Facilities Report

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 4 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.

**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. Aggregated data for all **Waste Collectors** is to be reported for each month split by **Geographic Source**.

	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 a separate 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 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 data for all **General Users** is to be reported for each month. *NB: This protocol only applies where **General Users** access the **Disposal Facility***

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

The protocol for determining **Geographic Source** is as follows:

	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 a separate 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 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**

	Preferred solution	Acceptable solution	Default solution
How Activity Source is calculated	Each load coded to Activity Source based on customer reporting at weighbridge	Activity Source split based on regular weighbridge surveys	Activity source is split based on existing SWAP data
Protocol	Each General User is asked to state the Activity Source of their load according to the above classifications. This is recorded in a separate field in the weighbridge records	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.	SWAP data is used to provide a default mix of Activity Source for the facility or for a facility regarded as being sufficiently similar.

## 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 the Online Waste Levy System (OWLS) for the relevant time period. Each Disposal Facility will already have an established system for identifying Diverted Materials. This system is to be used for reporting Diverted Materials under this protocol.

### 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 the Online Waste Levy System. 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.

## B.7 Reporting

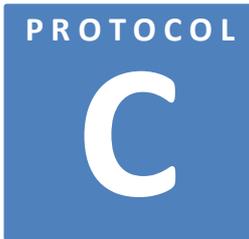
Data compiled under this Protocol is to be reported to the Territorial Authority (or delegated Data Collection Agent) under whose jurisdiction the facility operates and to other Territorial Authorities from which waste is received.

The data is to be reported in a format compatible with the example below, as specified and agreed with the Territorial Authority (or delegated **Data Collection Agent**). Monthly data is to be supplied.

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&amp;D</i>					
<i>Special</i>					
<i>VENM</i>					
Quantity Out	Diverted Material Total Tonnes				
	Activity Source Split	<i>Special</i>			
		<i>VENM</i>			
		<i>All Other</i>			

### 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.



## Waste Collectors

**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

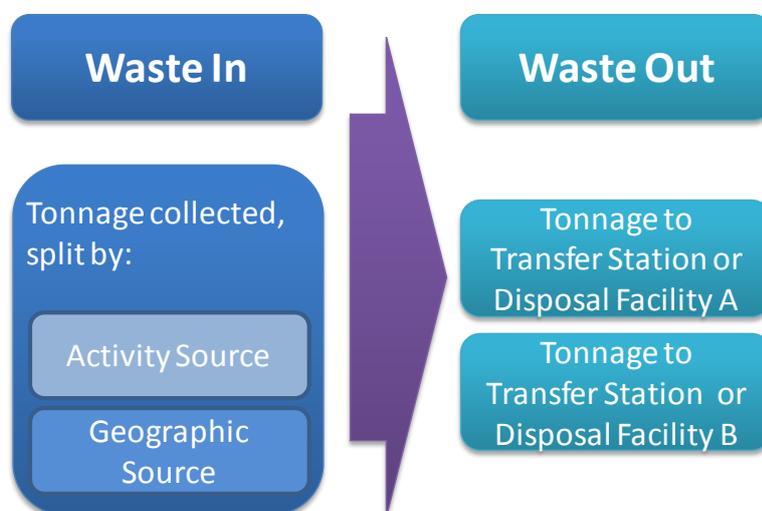
This protocol sets out the data that **Waste Collectors** are to report and the methods for gathering and reporting it.

### C.2 What Waste Collectors Report

Under the protocol **Waste Collectors** report the following:

- total tonnage of waste collected split by **Geographic Source** (see C.3) and **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 **part loads** collected in one Territorial Authority area are regularly disposed of or bulked in a different Territorial Authority area. In general this protocol should be applied where cross boundary movements of waste are likely to make up a noticeable proportion of collected material. In these instances an estimate of the proportion of waste originating in each Territorial Authority area should be made, and the calculated tonnages reported to the Territorial Authorities where the waste is being disposed of or bulked.

### C.4 Splitting Tonnages by Activity Source

**Waste Collectors** should report 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**
- **ICI**
- **Landscape**
- **C&D**
- **Special**
- **VENM**

	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 Waste Collectors tonnage comes from a single Activity Source, e.g. ICI.)
Protocol	<ol style="list-style-type: none"> <li>1. Classify all customers into one of the Activity Source categories,</li> <li>2. Aggregate tonnages actually billed to each customer type</li> </ol>	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.  Where a mix of Activity	Estimate proportion of Waste Collector activity attributable to each Activity Source

Preferred solution	Acceptable solution	Default solution
	<p>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 be required to record data on Activity Source of every load for a one week period at least twice per year.</p>	

### C.5 Destination Facilities & Tonnages

For all waste from a specific **Geographic Source** (i.e. Territorial Authority area) **Waste Collectors** are to report the quantity of waste that is deposited at each **Transfer Station** or **Disposal Facility**, within the given period.

*NB: Waste Operators are to report data to both the Territorial Authority where the waste is collected and the Territorial Authority where the waste is deposited. In most cases this will be the same however, if waste is transported across boundaries, data is to be reported to all relevant Territorial Authorities.*

	Preferred solution	Acceptable solution	Default solution
<b>How Quantity is calculated</b>	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.
<b>Protocol</b>	<p>Weight of vehicles in minus weight of vehicles out.</p> <p>It is expected that the tonnage figure used will be based on or reconciled with weighbridge records.</p>	<p>Weight of vehicles in minus weight of vehicles out.</p> <p>It is expected that the tonnage figure used will be based on or reconciled with weighbridge records.</p>	<p>Number of vehicles of each type x the assumed weight for that vehicle type</p> <p>Or</p> <p>Volume of waste x the assumed density for that waste type</p>

## C.6 Reporting

Data compiled under this Protocol is to be reported to the Territorial Authority (or delegated Data Collection Agent) within whose jurisdiction 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 below, as specified and agreed with the Territorial Authority (or delegated **Data Collection Agent**). Monthly data is to be supplied.

Waste Collector Name & Location		Tonnes month 1	Tonnes month 2	Tonnes month 3 etc.	
Quantity Collected	Total tonnes collected				
	Activity Source Split	<i>Residential</i>			
		<i>ICI</i>			
		<i>Landscape</i>			
		<i>C&amp;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.				

## 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.



## 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** 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 set of reliable, consistent, and comparable waste data that can be shared and aggregated across Territorial Authorities. Once all data specified under the Framework has been collated and reconciled by a Territorial Authority, it should be possible to calculate a clear dataset with monthly time series data covering the following:

- The total tonnage of waste generated in the TA area
- The Activity Source of the tonnage that is generated in the TA area
- The composition of waste 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.

*Note: The data that is gathered under the Framework does not constitute all the data that Territorial Authorities may want, and all Territorial Authorities are free to gather and use other data as they see fit.*

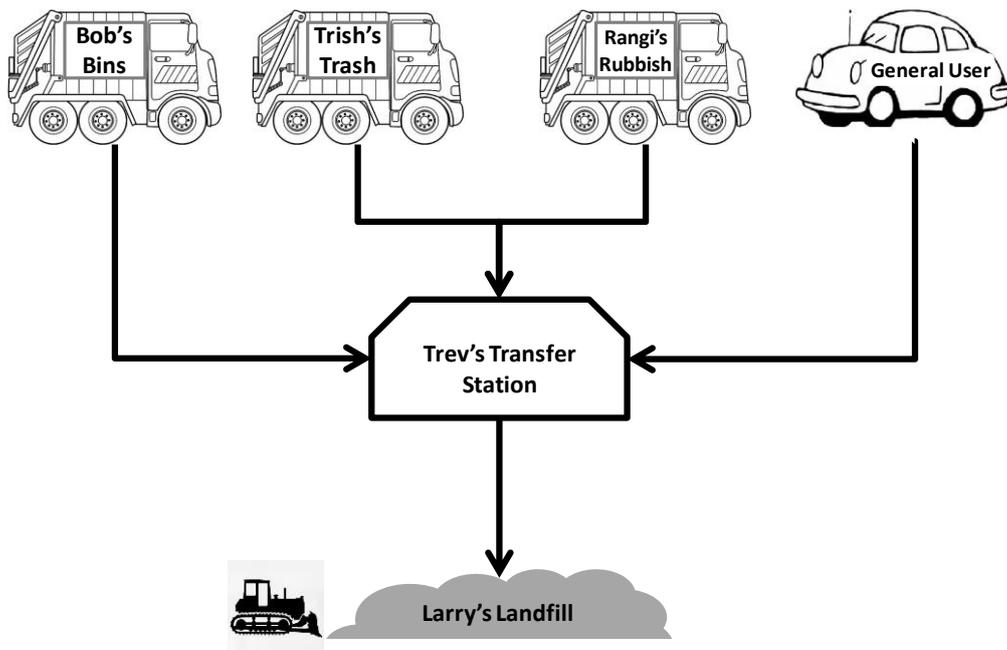
### D.3 Develop Territorial Area Waste Flow Model

A Waste Flow Model will need to be developed (and maintained) to ensure waste flows to be reported are correctly identified and understood. The model does not have to be complex but should include:

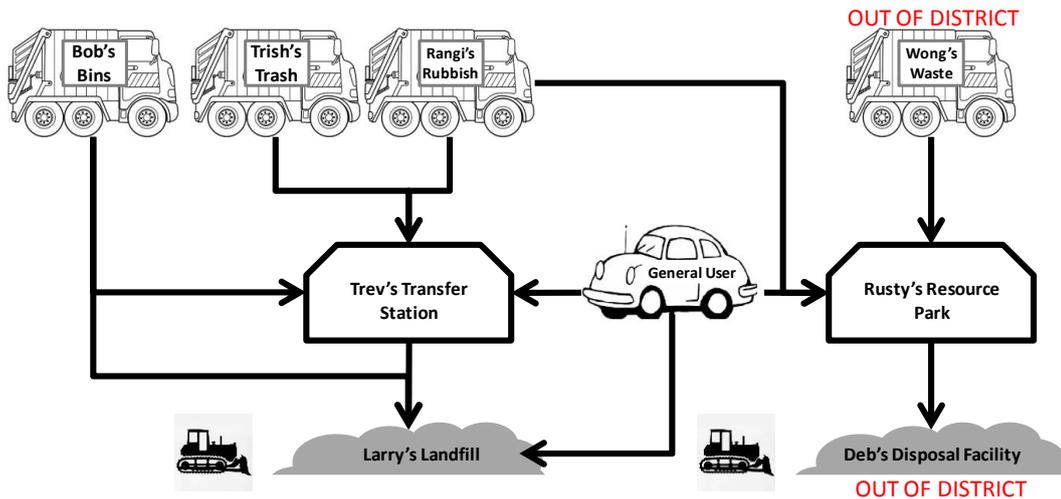
- the identification of Waste Collectors operating in the district, including those not collecting but using Transfer Stations or Disposal Facilities in the district;
- The Transfer Stations and Disposal Facilities in the district that need to report data.

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

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 type of waste flow model is likely to be sufficient. Where there are multiple facilities taking waste from various sources and waste is entering and leaving the district, the waste flow model will be correspondingly more complex. An illustration of this is shown in the following graphic.



## D.4 What Data Territorial Authorities Collect

Under the protocol Territorial Authorities 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 **Geographic Source**
- total tonnage of material sent by **Transfer Stations** to **Disposal Facilities** (or other Transfer Stations), split out by facility (see 1.6)

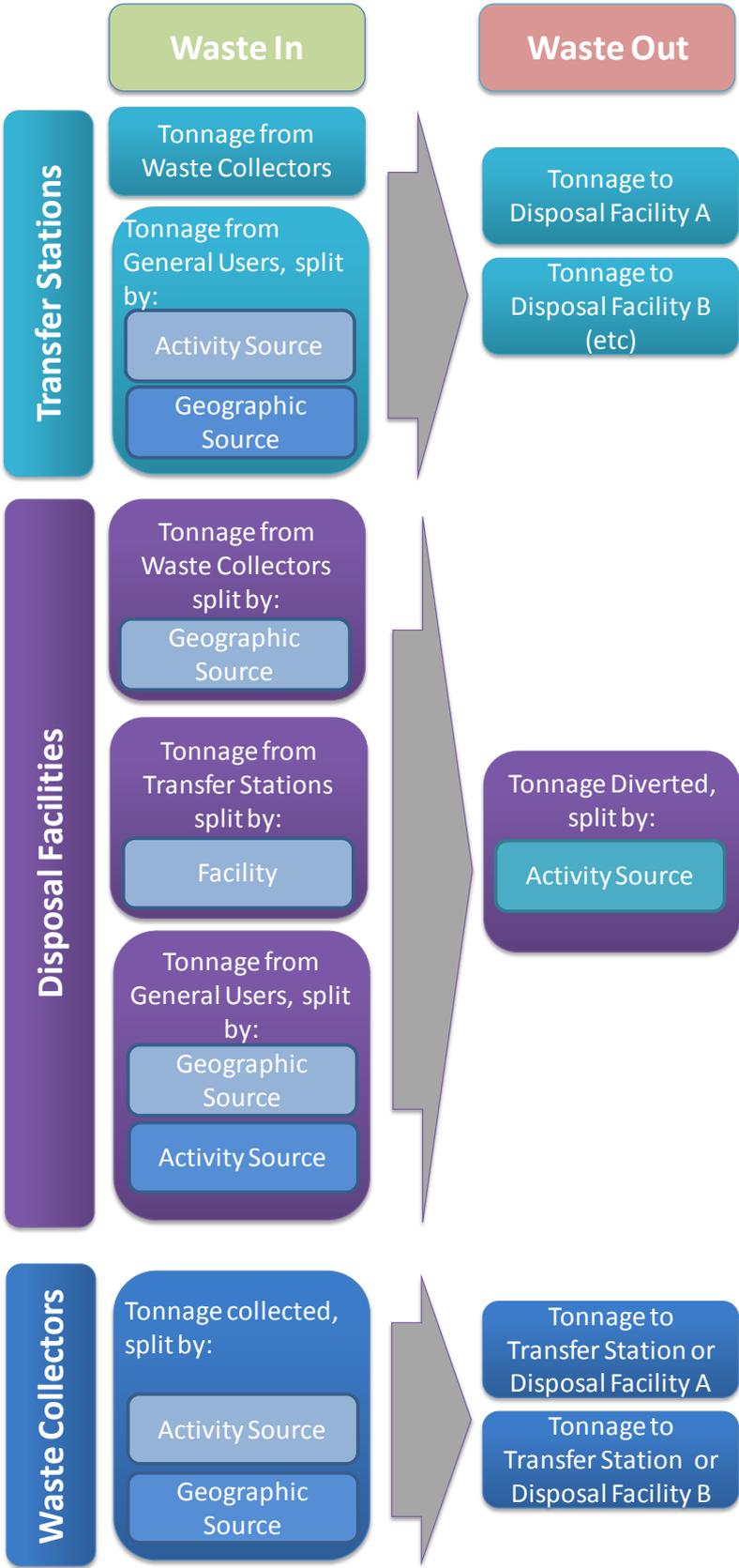
### From Disposal Facilities:

- 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 material diverted split by **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

**Step 1:** Data from Transfer Stations is reported to Territorial Authorities 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. This should show monthly as well as an annual total.

**Step 2:** Data from Disposal Facilities is reported to Territorial Authorities 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 should show monthly as well as an annual total.

**Step 3:** Data from Disposal Facilities is reported to Territorial Authorities 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 should show monthly as well as an annual total.

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

To calculate the total tonnage of waste that has been generated in its district, the TA adds the following fields from the aggregated totals sheets:

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

*NB: The above protocol will calculate total tonnage excluding material that is diverted from Disposal Facilities.*

## 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 compared to 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. Different percentages will be calculated for General User waste from Transfer Stations and Disposal facilities and 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.

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

## 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.

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

## D.9 Data Integrity and Commercial Confidentiality

For the framework to function effectively, good data integrity and measures to preserve commercial confidentiality are essential. Key concerns of the private sector are:

- That data relating directly to an operator is deliberately or inadvertently released into the public domain or to other operators
- That data is released in a form that is not sufficiently aggregated, and that enables competitors to ascertain commercially sensitive information
- That they may be required to supply commercially sensitive information to a TA that owns or operates waste services or facilities that are in direct competition

Without adequate data security and processes that ensure commercial confidentiality is protected, suppliers of data may be unwilling to provide information, and this will compromise the entire framework.

It is beyond the scope of this draft protocol to prescribe specific measures as the data gathering processes may vary between TAs. Key principles in protecting data security and confidentiality which should be applied include the following:

- Data should be held in secure systems that have access restricted to approved personnel
- All data should be regularly backed up off site
- Once data is entered into systems original data returns should be retained in secure systems to enable audit and review
- Information released into the public domain must be in an aggregated form that does not allow specific operators or data pertaining to those operators to be identified. In general the protocols outlined in this document should provide sufficient aggregation, however in some instances it may be necessary to aggregate lower level classifications into higher level classifications to preserve confidentiality
- Where TAs own and operate services or facilities that directly compete with private sector facilities, TAs should utilise a third party data collection agent to collect and aggregate data on their behalf, or develop internal protocols to separate data gathering staff and access from operational staff.

## 4 Protocol for Measurement<sup>2</sup> of Wastes

	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 going to 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.) to 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 6). Where this information is not available the following defaults should be used:

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

<sup>2</sup> 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>

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 <b>Waste</b>	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>

## 5 Waste Data Definitions

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The definitions set out 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 under 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.<sup>3</sup>

**Activity Source** 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:

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

*C&D* 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.

*Domestic Kerbside* 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).

*ICI* Waste from industrial, commercial and institutional sources (ie supermarkets, shops, schools, hospitals, offices).

*Landscaping* 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.

*Residential* 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.

*Special* Waste that fits into significant, identifiable waste streams, usually from a single generator. Special wastes are those that cause particular management and/or disposal problems and need special care. It includes any substantial waste stream (such as

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<sup>3</sup> 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

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.

*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. For clarity, if a facility that performs these functions adjoins a Disposal Facility and disposes of its waste at that Disposal Facility, it is to be considered part of the Disposal Facility and not a Transfer Station

*VENM* Virgin Excavated Natural Material. 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:

- 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.

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

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.

Disposal Point A Disposal Facility or Transfer Station

Diverted Material As defined under the WMA 2008: Diverted material means any 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

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.

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.
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	<p>Consistent with section 56 (4) of the WMA 2008. A Waste Collector:</p> <p>(a) includes commercial and non-commercial collectors and transporters of waste (for example community groups and not for profit organisations); but</p> <p>(b) does not include individuals who collect or transport waste for personal reasons (for example a person taking household garden waste to a landfill)</p>

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

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### 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).

**Schedule: Conversion factors for volume-to-weight calculations**

<b>Type of waste or diverted material</b>	<b>Description of waste or diverted material</b>	<b>Conversion factor</b>
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