WasteDataFlow method for calculating national waste performance indicators (NI191 & 192) and BVPI Comparators (BVPI82a & 82b) from Question 100

This document is designed to be used in conjunction with GN30 '*Method for calculating NI191, 192 and 193*', which provides further information regarding the background of the National Indicator metrics.

A change of calculation method, not content.

Question 100 in WasteDataFlow has replaced a variety of other treatment and disposal questions; the use of Qu100 means that the data are contained within a more complex tree structure than was the case with the individual questions that Qu100 replaced. The original National Indicator (NI) and Best Value Performance Indicator (BVPI) definitions referred to the previous (pre-Qu100) WasteDataFlow question set. Although NIs and BVPIs no longer have any official standing, this document sets out how the indicators can best be calculated using Qu100 data. The calculations described follow the original calculation methods as closely as possible, while interpreting how those methods can best be applied to the Qu100 data structure. Please note there are no proposals to change the material types or sources (e.g. sweepings or IBA metals) which are included or excluded from the metrics; this is purely a change to the way the calculation of the indicators is carried out as a result of the changes to the base data brought about by the move to Qu100.

National Indicators NI191 and 192

For the NIs the calculation process is in its approach fundamentally the same as that prior to the use of Qu100: looking at the tonnages which are actually sent for recycling (recorded at final destinations), reuse and composting and applying either user-defined household factors entered directly to flows within Qu100 (much as Qu69 was used pre-Qu100) or factors based on proportions from the collection questions, as was done previously.

Prior to Qu100 the WDF questions provided a wide, but ultimately finite, range of defined locations in which tonnages could be recorded as being sent for recycling, composting or reuse, with a single tier of processing through which they could have been treated. This meant that each of these defined locations could be assigned a certain way in which they would be handled within the indicator calculations.

With Qu100 there is an almost limitless number of locations at which data could be recorded as being sent for recycling, composting or reuse; potentially following a number of different intermediate treatment methods. Hence, continuing with a calculation method based on pre-defined data locations, with an associated list of how to treat these locations, wouldn't likely capture all the required values.

The new calculation is therefore not a combination of pre-defined parts, but instead is set up to define as part of the calculation process how each sent tonnage should be incorporated, by asking a series of questions of its location and other information. The answers to these questions build up a set of four characteristics which can then be handled as part of a simpler calculation to generate the numerators of NI191, NI192, BVPI Comparators 82a and 82b.
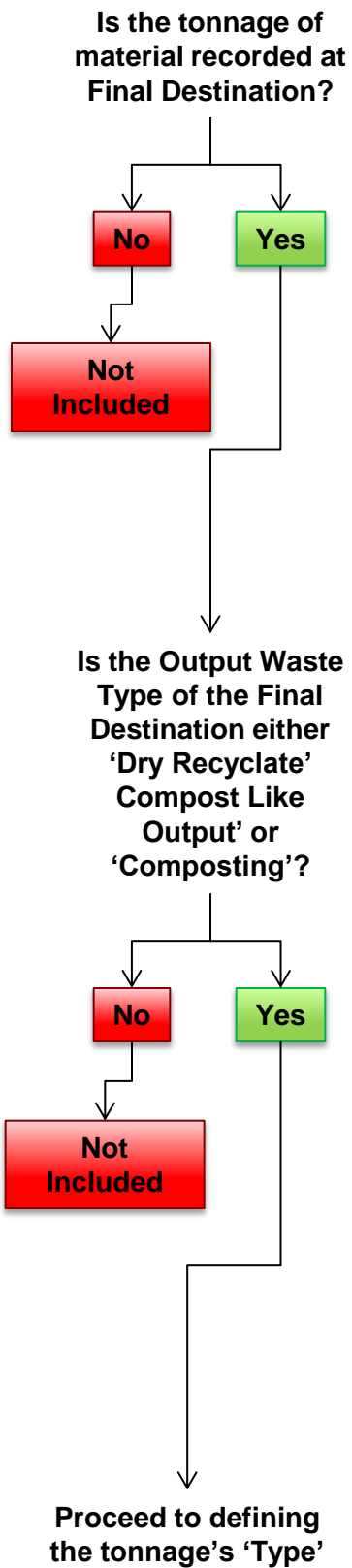
Calculation Process:

- Is the tonnage initially suitable?
- Define the tonnage's 'Type'
- Define its 'Split'
- Define its 'Subsection'
- And Define its 'Source'

The method used to define each of the above is set out in the following flow diagrams 1 to 5.
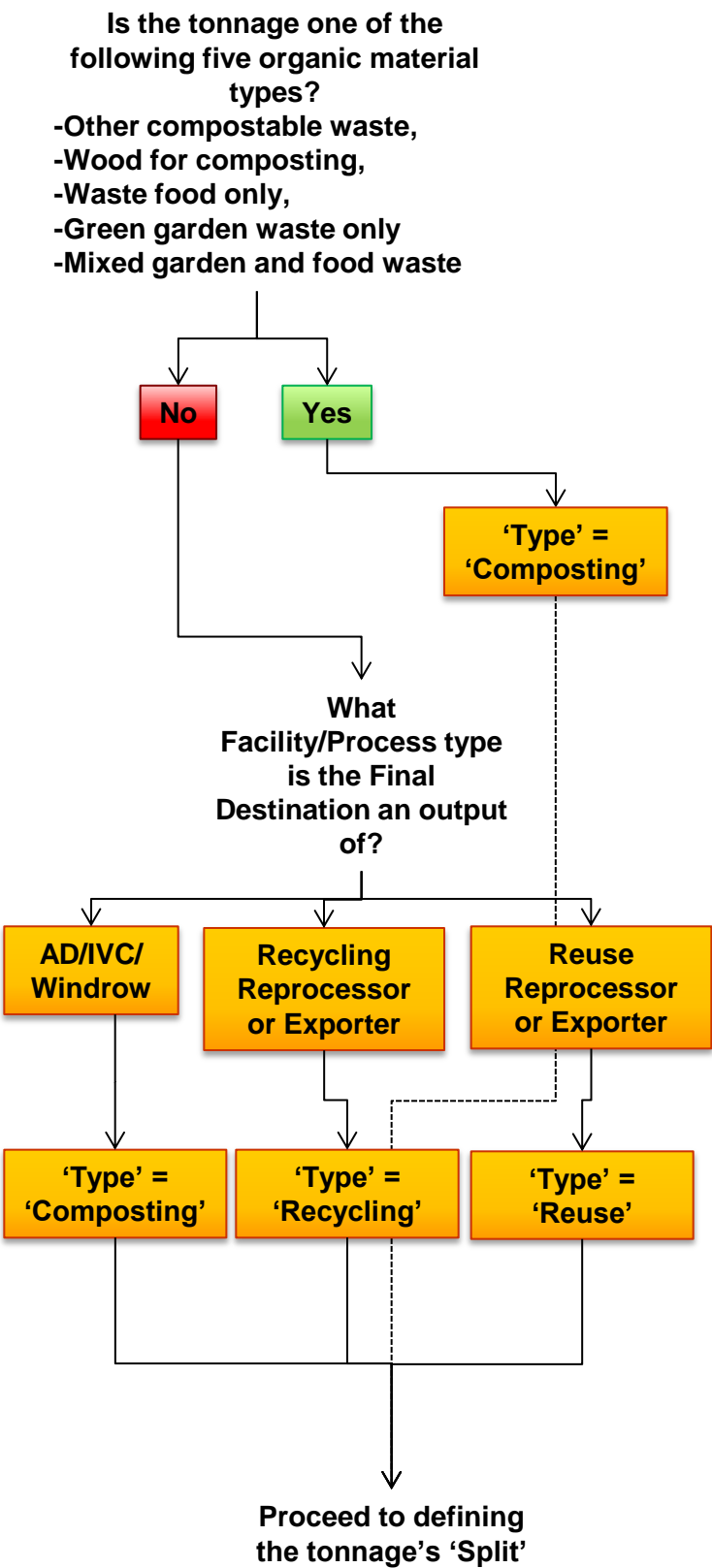
1.

Is the tonnage potentially suitable for the NI192 numerator?

Is the tonnage of material recorded at Final Destination?

No → **Not Included**

Yes

Is the Output Waste Type of the Final Destination either 'Dry Recyclate' Compost Like Output' or 'Composting'?

No → **Not Included**

Yes
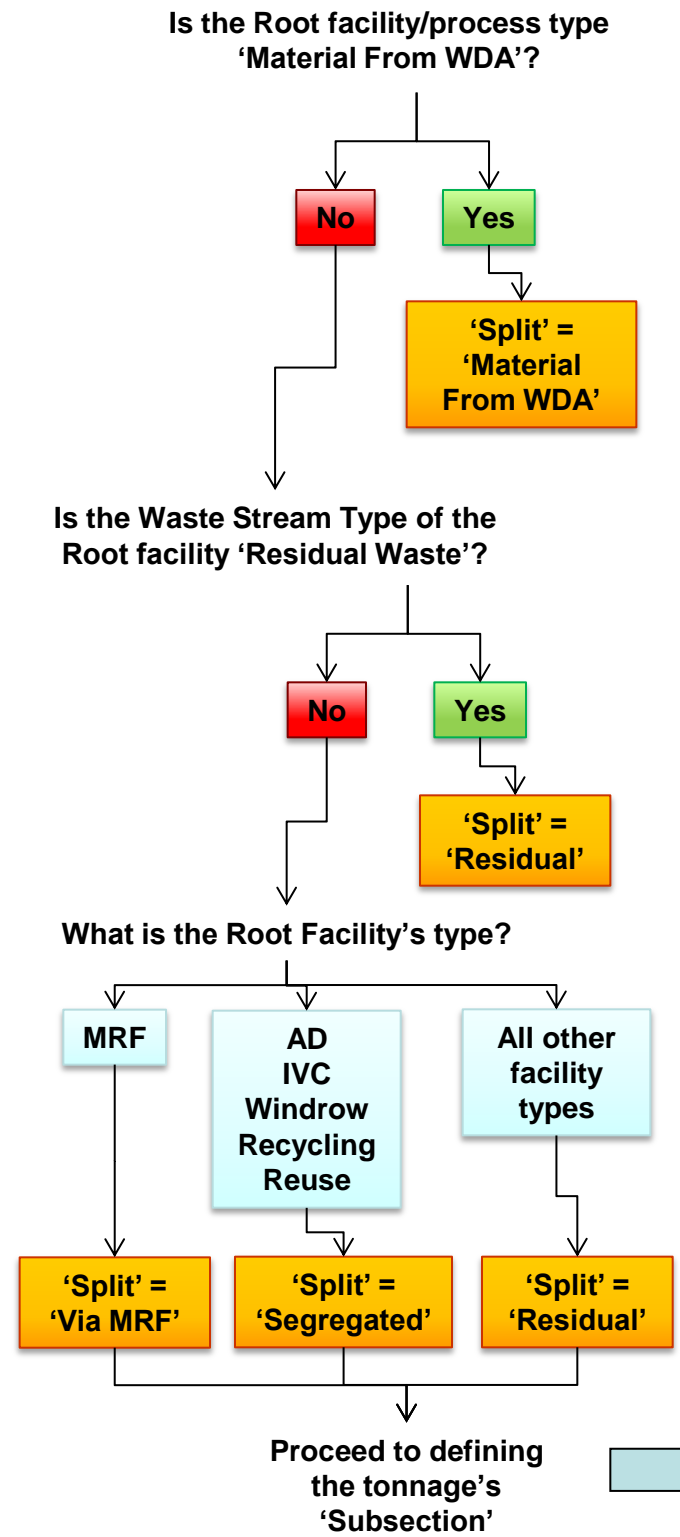
Proceed to defining the tonnage's 'Type'

2.

Type – This, along with the 'Split', defines which household factor will be applied to the tonnage as well as defining which of the BVPI comparators A, B and Reuse numerators the value will sit in.

Is the tonnage one of the following five organic material types?
-Other compostable waste,
-Wood for composting,
-Waste food only,
-Green garden waste only
-Mixed garden and food waste

No

Yes → **'Type' = 'Composting'**

What Facility/Process type is the Final Destination an output of?

AD/IVC/ Windrow	Recycling Reprocessor or Exporter	Reuse Reprocessor or Exporter
'Type' = 'Composting'	**'Type' = 'Recycling'**	**'Type' = 'Reuse'**

Proceed to defining the tonnage's 'Split'

3.

Split – This along with the 'Type' defines which household factor to apply to the tonnage. In the case of two-tier authorities, this also defines where material has been back-allocated from the WDA and is therefore excluded from the figures rolled up to the WDA from the WCA (as the WDA will record this material in its own data).

Is the Root facility/process type 'Material From WDA'?

No

Yes → **'Split' = 'Material From WDA'**

Is the Waste Stream Type of the Root facility 'Residual Waste'?

No

Yes → **'Split' = 'Residual'**

What is the Root Facility's type?

MRF	AD IVC Windrow Recycling Reuse	All other facility types
'Split' = 'Via MRF'	**'Split' = 'Segregated'**	**'Split' = 'Residual'**

Proceed to defining the tonnage's 'Subsection'

4. **Subsection** – Not all material types are suitable for inclusion in the calculation of NI192 and BVPI Comparators A and B. Excluded material types are: Rubble, Plasterboard, IBA and Metals from IBA.
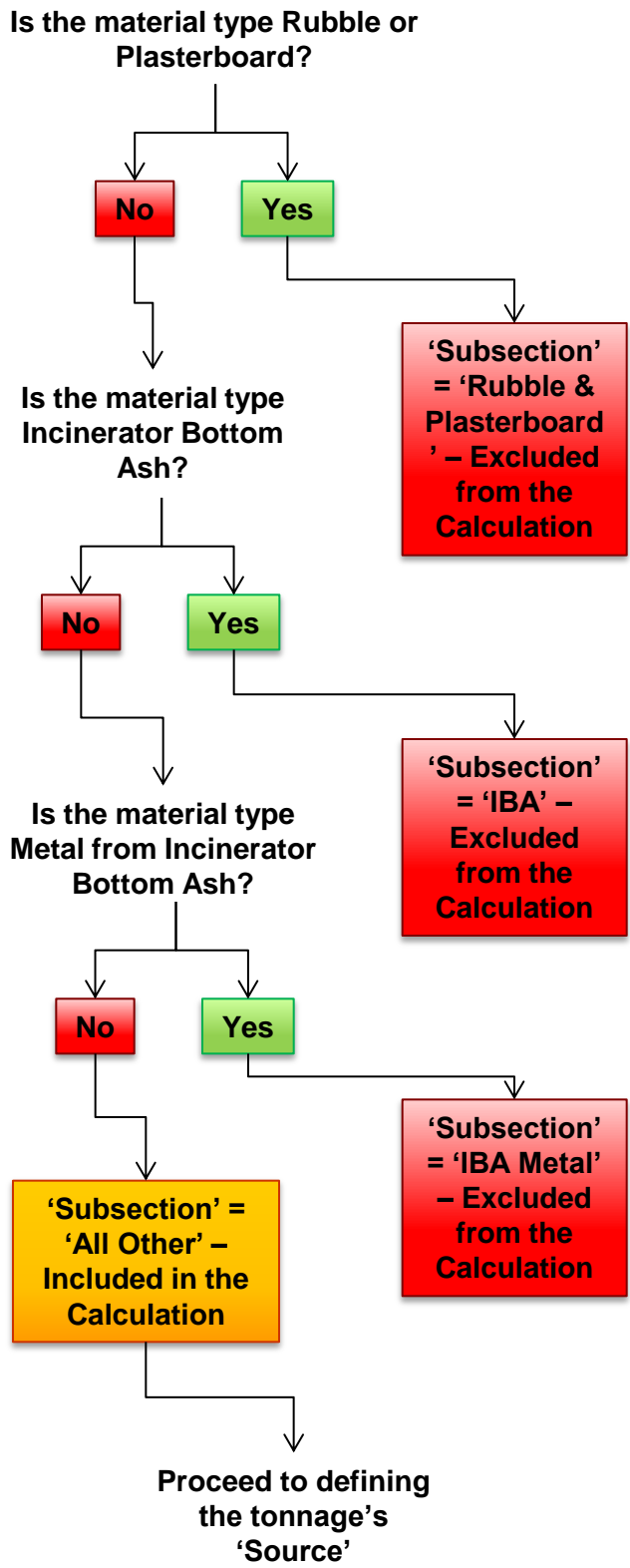
5. **Source** – As NI192 and BVPI Comparators A and B are all based on Household waste rather than total LACW, each suitable tonnage recorded at Final Destination needs to have a 'household factor' applied to it to determine what proportion will be included in the calculation.
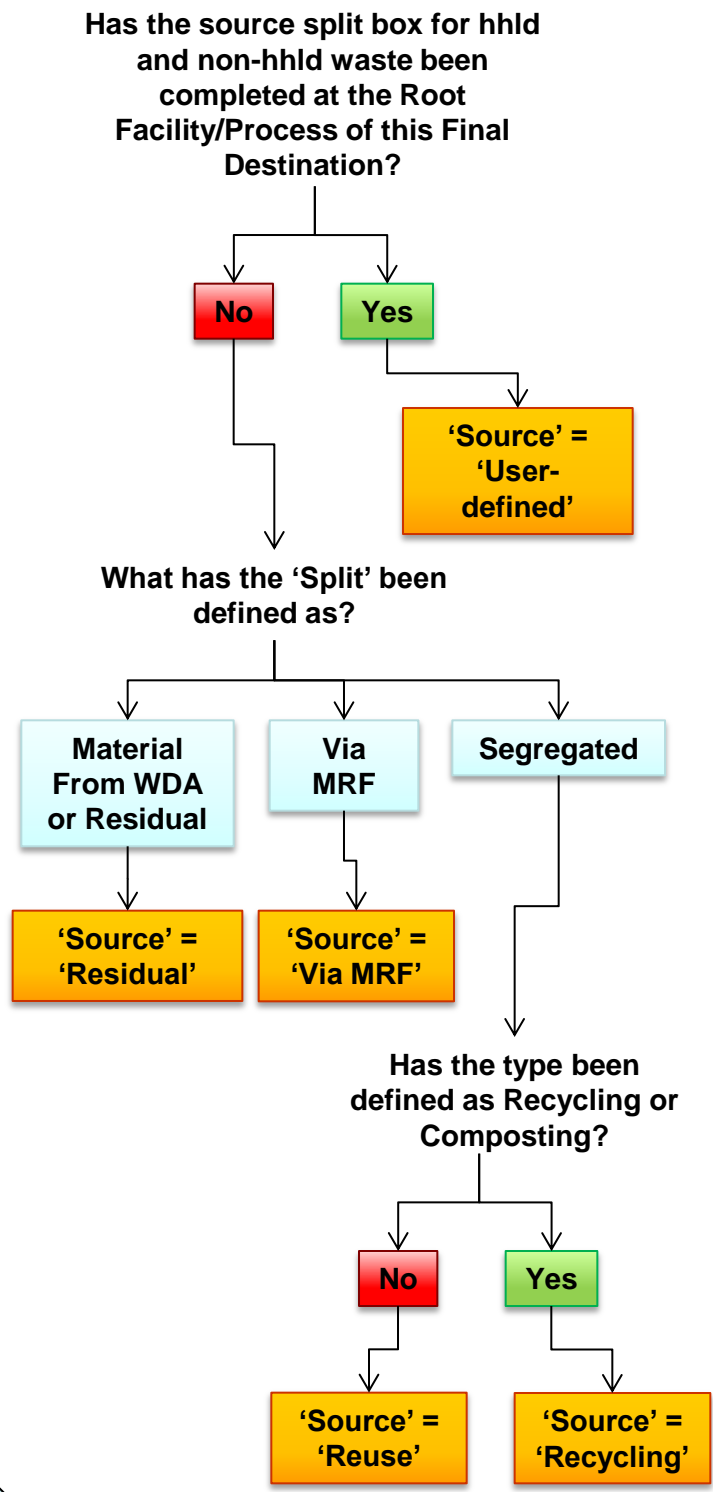
Calculating the Household Factors

Source = User-defined
In situations where the Waste Source Split for either HH or Non-HH sources, has been completed at the root node of the Branch on which the Final destination sits, the following ratio is applied:

Waste Source Split	
Tonnes HH Sources	
Tonnes non-HH Sources	

$$\text{HH Factor} = \frac{\text{HH Sources}}{(\text{HH Sources} + \text{non-HH Sources})}$$

Where a User-defined Factor hasn't been supplied a Factor based on collected tonnages is applied as below:

Source = Residual

$$\text{HH Factor} = \frac{\text{Tonnages recorded in Qu23 HH Source Categories}}{\text{Total tonnage recorded in Qu23}}$$

Source = Via MRF

$$\text{WCA \& UA HH Factor} = \frac{\text{Qu10, 12, 16, 17, 33 \& 34 Commingled}}{(\text{Qu10, 12, 16, 17, 33 \& 34 Commingled} + \text{Qu11 Commingled})}$$

$$\text{WDA HH Factor} = \frac{\text{Qu14 Commingled}}{(\text{Qu14 Commingled} + \text{Qu11 Commingled})}$$

Source = Recycling

$$\text{WCA \& UA HH Factor} = \frac{(\text{Qu10, 12, 16, 17, 33 \& 34 Recycling (excl. Rubble and Plasterboard)} + \text{Qu18 HH})}{(\text{Qu10, 12, 16, 17, 33 \& 34 Recycling (excl. Rubble and plasterboard)} + \text{Qu18 HH} + \text{Qu11 Recycling excl. Rubble and Plasterboard})}$$

$$\text{WDA} = \frac{\text{Qu14 Recycling (excl. Rubble and Plasterboard)}}{(\text{Qu14 Recycling (excl. Rubble and plasterboard)} + \text{Qu11 Recycling excl. Rubble and Plasterboard})}$$

Source = Reuse

$$\text{WCA \& UA HH Factor} = \frac{(\text{Qu10, 12, 16, 17, 33 \& 34 Reuse (excl. Rubble and Plasterboard)} + \text{Qu18 HH})}{(\text{Qu10, 12, 16, 17, 33 \& 34 Reuse (excl. Rubble and plasterboard)} + \text{Qu11 Reuse excl. Rubble and Plasterboard})}$$

$$\text{WDA} = \frac{\text{Qu14 Reuse (excl. Rubble and Plasterboard)}}{(\text{Qu14 Reuse (excl. Rubble and plasterboard)} + \text{Qu11 Reuse excl. Rubble and Plasterboard})}$$

Flowchart 4 (Subsection)

Is the material type Rubble or Plasterboard?
- No → **Is the material type Incinerator Bottom Ash?**
  - No → **Is the material type Metal from Incinerator Bottom Ash?**
    - No → 'Subsection' = 'All Other' – Included in the Calculation → Proceed to defining the tonnage's 'Source'
    - Yes → 'Subsection' = 'IBA Metal' – Excluded from the Calculation
  - Yes → 'Subsection' = 'IBA' – Excluded from the Calculation
- Yes → 'Subsection' = 'Rubble & Plasterboard' – Excluded from the Calculation

Flowchart 5 (Source)

Has the source split box for hhld and non-hhld waste been completed at the Root Facility/Process of this Final Destination?
- No → **What has the 'Split' been defined as?**
  - Material From WDA or Residual → 'Source' = 'Residual'
  - Via MRF → 'Source' = 'Via MRF'
  - Segregated → **Has the type been defined as Recycling or Composting?**
    - No → 'Source' = 'Reuse'
    - Yes → 'Source' = 'Recycling'
- Yes → 'Source' = 'User-defined'

WasteDataFlow

National Indicator NI191

WCA/WDA/UA

Numerator:

Calculation	Notes
Total Household Waste	As defined under NI192 denominator
Minus	
Total household waste sent for reuse, recycling or composting	as defined under NI192 numerator

Denominator:

Calculation	Notes
Total households in authority area (dwelling stock).	Dwelling stock figures relating to end of financial year (e.g. March 2013 for April 2012 – March 2013 returns) uploaded into WDF for Qtr 4, once received from the Valuation Office.

National Indicator NI192

WCA/UA

Numerator:

Calculation	Notes
Sum of:	
Each Tonnage accepted as suitable with a Subsection of 'All other'	As defined under flow diagrams 1 and 4
Multiplied by	
The household waste factor applicable to each tonnage's Source	As defined under flow diagram 5

National Indicator NI192

WCA/UA

Denominator:

Calculation	Notes
Total tonnage of hhld waste collected for recycling or reuse from Q10, Q12, Q16, Q17, Q18 (hhld waste column), Q33 and Q34; all materials excluding rubble/plasterboard.	Rubble/plasterboard are non-hhld waste and therefore are not included in NI 192 calculation. Material rejected is not deducted as this is part of the total hhld waste arisings.
Plus	
Collected residual hhld waste from Q.23.	This includes all collected hhld waste (regular collection, street cleaning, bulky waste & collected household other), CA site hhld, gully sweepings, asbestos and separately collected healthcare waste. It does NOT include CA Site non-hh, Collected non-hh waste (Highways, C&D, Grounds, C&I, non household other), beach cleansing, fly-tipped materials and Other Collected Waste. In line with the indicator guidance, waste arising from sweeping of gullies should be counted as hhld waste. Waste from emptying drainage pots under the Highways Act should be reported as "Highways Waste" and will therefore not be counted as hhld waste Asbestos waste arising from domestic properties or any of the premises itemised in Schedules 1 or 2 of the Controlled Waste Regulations 1992 is hhld waste. If asbestos arises from other sources, it should be reported under a non-hhld row in Q.23, such as construction & demolition wastes, CA site non-hhld, or in the case of fly tipped asbestos in the waste arising from fly tipped category. Hhld waste includes clearance of any waste put out in contravention to section 46 of the EPA 1990 (e.g. 'side waste') but does not include clearance of waste deposited in contravention to Section 33 of the EPA 1990 (fly-tipped waste). Therefore any fly-tipped waste (Section 33) should be entered under "Waste arising from clearance of fly-tipped materials" and 'side waste' (Section 46) should be entered under a collected hhld waste category.

National Indicator NI192

WDA

Numerator:

Calculation	Notes
Sum of:	
Each Tonnage accepted as suitable with a Subsection of 'All other'	As defined under flow diagrams 1 and 4
Multiplied by	
The household waste factor applicable to each tonnage's Source	As defined under flow diagram 5
Plus	
The NI192 Numerator of each of the WDA's constituent WCAs	See Calculation for WCA/UA
Minus	
Any tonnage within the WCA numerators with a Split of 'Material From WDA'	As defined under flow diagram 3 N.B only the household portion of tonnages with a split of 'Material From WDA' is subtracted

National Indicator NI192

WDA

Denominator:

Calculation	Notes
Total tonnage of hhld waste collected for recycling or reuse from Q14; all materials excluding rubble/plasterboard.	Rubble/plasterboard are non-hhld waste and therefore are not included in NI 192 calculation. Material rejected is not deducted as this is part of the total hhld waste arisings.
Plus	
Total tonnage of collected hhld waste for recycling, composting or reuse by WCAs	As defined above for WCA/UA
Plus	
Collected residual hhld waste from Q.23.	As defined above for WCA/UA

BVPI "Comparators"

As with the NIs, the calculations for BVPIs 82a, 82b, 82c and 82d have required re-working for Qu100. The opportunity has been taken to more closely align this new group of "BVPI Comparators" with the methods used for the NIs, whilst still working to the title of the previous BVPI (e.g. "Percentage of household waste arisings which have been sent for recycling").

"Sent" Tonnages:

This alignment of the BVPI and NI methods has been done as the BVPIs (which were superseded many years ago by the NIs) based their definition of material "sent for reprocessing, treatment or disposal" on the total collected minus any subsequent rejections. Whilst this would usually equal the equivalent material "sent" as defined by the NI (the net tonnage recorded at the reprocessor), the figure could differ in situations where stockpiling or use of previously stockpiled material occurred.

In order to streamline the calculation process and bring the BVPIs in line with NI192 to allow for improved comparison, the existing BVPI 82a and 82b calculations have been replaced with comparators which base their calculation of sent material on that recorded at final destinations (rather than collected tonnages less their rejections). This not only aligns the calculations, but also leads to a simpler calculation process (given the possible variations and complexities in local authorities' Qu100 trees).

Classification of asbestos:

Historically the other main difference between the BVPIs and NIs was that the NIs deemed that separately collected asbestos collected in Qu23 was a household waste, whilst the BVPIs had classified this asbestos as a non-household stream. For the BVPI comparators, asbestos will be defined as a household waste rather than a non-household one. Doing this means that there can then be a single figure for collected household waste, rather than one as defined under the NIs and one under the BVPIs. Having this universal household waste figure also has the benefit that the residual household waste factor (the ratio between household and non-household residual waste) will be the same in both the NI and BVPI comparator calculations, meaning that local authorities do not need to be asked for a separate factor in Qu100.

Alignment of calculations, and BVPI comparator for reuse:

As well as providing a situation where a user will now only need to understand one calculation concept for both NI192 and BVPI 82a and 82b comparators, it also means that the BVPI comparators will now always equal the equivalent component part of NI192. For example, if you were to add the value for BVPI 82a comparator and 82b comparator, the difference between this total and NI192 would be the percentage of household waste sent for reuse, (which wouldn't have always been the case with the original BVPI and NI192 definitions). A reuse equivalent of BVPI comparator 82a and 82b can now be calculated if you wish, filling this gap in the range provided by the original BVPIs and giving a true breakdown of NI192 between recycling, composting and reuse. That is, with the new calculation method it will become the case that

Numerator of BVPI 82a comparator (recycling) + Numerator of BVPI 82b comparator (composting) + Numerator for reuse = NI192 numerator

BVPI "Comparators" Continued

Changes to BVPI 82c and 82d:

BVPI 82c and 82d have also been more closely aligned with the NI principles in their comparators. The main differences here from the original BVPI calculation would be that the original didn't include rejection from reuse and also attempted to apportion collection rejections between different treatment routes rather than using the method adopted for NI193 which classes all collection rejections as landfill. For the 82c and 82d comparators, reuse rejections have been included in order to bring them in line with the NIs and provide a much-needed update now that reuse is more prevalent than when the BVPIs were first conceived. Also, all collection rejections have now been designated as landfill as per NI193, to provide consistency and to simplify the calculation process.

N.B. BVPIs 84a, 84b, 86, 87, 91a and 91b will all continue to be calculated as they are currently, as they do not use values from any of the questions replaced by Qu100 (note that not all of these BVPIs are applicable to all types of authority).

BVPI Comparator 82a

WCA/UA

Numerator:

Calculation	Notes
Sum of:	
Each Tonnage accepted as suitable with a Subsection of 'All other' AND a type of 'Recycling'	As defined under flow diagrams 1, 2 and 4
Multiplied by	
The household waste factor applicable to each tonnage's Source	As defined under flow diagram 5

Denominator:

Calculation	Notes
Total Household Waste	As defined under NI192 denominator

BVPI Comparator 82a

WDA

Numerator:

Calculation	Notes
Sum of:	
Each Tonnage accepted as suitable with a Subsection of 'All other' AND a type of 'Recycling'	As defined under flow diagrams 1, 2 and 4
Multiplied by	
The household waste factor applicable to each tonnage's Source	As defined under flow diagram 5
Plus	
The BVPI 82a Numerator of each of the WDA's constituent WCAs	See Calculation for WCA/UA
Minus	
Any tonnage within the WCA numerators with a Split of 'Material From WDA'	As defined under flow diagram 3 N.B only the household portion of tonnages with a split of 'Material From WDA' is subtracted

Denominator:

Calculation	Notes
Total Household Waste	As defined under NI192 denominator

BVPI Comparator 82b

WCA/UA

Numerator:

Calculation	Notes
Sum of:	
Each Tonnage accepted as suitable with a Subsection of 'All other' AND a type of 'Composting'	As defined under flow diagrams 1, 2 and 4
Multiplied by	
The household waste factor applicable to each tonnage's Source	As defined under flow diagram 5

Denominator:

Calculation	Notes
Total Household Waste	As defined under NI192 denominator

BVPI Comparator 82b

WDA

Numerator:

Calculation	Notes
Sum of:	
Each Tonnage accepted as suitable with a Subsection of 'All other' AND a type of 'Composting'	As defined under flow diagrams 1, 2 and 4
Multiplied by	
The household waste factor applicable to each tonnage's Source	As defined under flow diagram 5
Plus	
The BVPI 82a Numerator of each of the WDA's constituent WCAs	See Calculation for WCA/UA
Minus	
Any tonnage within the WCA numerators with a Split of 'Material From WDA'	As defined under flow diagram 3 N.B only the household portion of tonnages with a split of 'Material From WDA' is subtracted

Denominator:

Calculation	Notes
Total Household Waste	As defined under NI192 denominator