

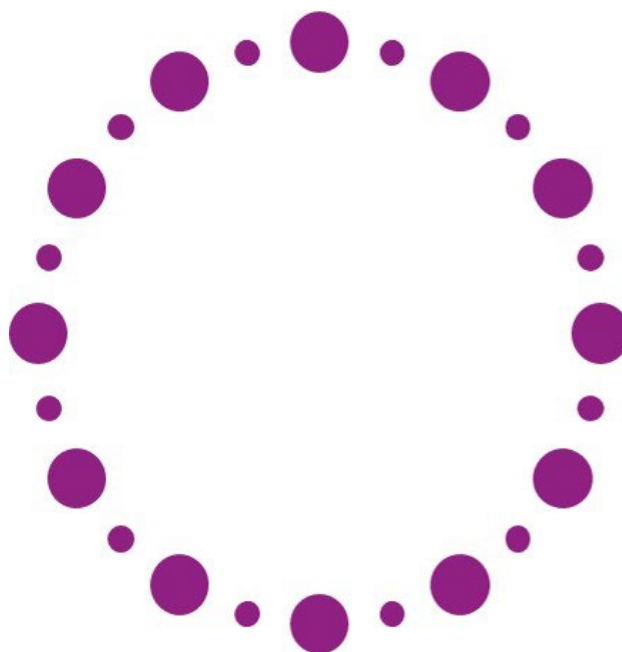
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Settlement methodology paper

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1. Introduction

Census Office published a selection of [Census 2021 main statistics tables for settlements](#) on 30 November 2023. This paper gives details of the settlement boundaries used, along with information on the methodology used to create these statistics.

2. Settlement boundaries, names and codes

Given that settlement boundaries have not changed since 2015, the boundaries used to report settlement statistics for Census 2021 are exactly the same as those that were used to report Census 2011 statistics – which were taken from the [2015 Review of the Statistical Classification and Delineation of Settlements](#) (PDF, 1.2 MB).

As a result, the codes and names used to reference settlements in this recent release remain unchanged – apart from a few tweaks to settlement names to reflect changes in the naming of Local Government Districts. Further details are given below.

2.1. Minor alterations to settlement naming

When the settlement statistics were released for Census 2011, settlement names that were duplicated were clarified by adding the former Local Government District name in brackets after the settlement name (For example, there are two settlements called 'Dromore', in Census 2011 settlement statistics they were referred to as 'DROMORE (OMAGH LGD)' and 'DROMORE (BANBRIDGE LGD)'). For this Census 2021 release, these names have been updated to include the current Local Government District 2014 where appropriate (For example, 'DROMORE (FERMANAGH AND OMAGH LGD)' and 'DROMORE (ARMAGH CITY, BANBRIDGE AND CRAIGAVON LGD)'). Where the addition of the current Local Government District name created ambiguity, the County or the nearest larger settlement was used to clarify the location.

2.2. Settlement names that are out of date but cannot be changed

There are occasions where updating the settlement name may have caused confusion. On those occasions the name has been retained unchanged – despite referring to administrative areas that no longer exist. For example, the settlement boundary of ‘Metropolitan North Down’ is split from the ‘Belfast City’ settlement along the boundary of the former ‘North Down’ Local Government District. With the introduction of the 2014 Local Government District boundaries the settlement ‘Metropolitan North Down’ is now within the current ‘Belfast’ LGD boundary, so changing that name would not make sense in the context of neighbouring settlements.

To avoid any confusion, it is recommended that any settlement statistics are reported using both the code and the name as the codes are unique and consistent.

3. Methodology

A two stage process using spatial analysis techniques was used to assign Census 2021 usual residents to settlements.

3.1. Stage 1: Data Zone approximation

A Data Zone approximation method was used for 60 of the largest settlements. This approach allocated Data Zones to settlements to produce an approximated count of Census 2021 usual resident persons and households. The approximated counts for these settlements are within five per cent of the exact counts. A number of rules were used in assigning Data Zones to settlements:

1. Where a Data Zone area is wholly located within the boundaries of a settlement, it is attributed to that settlement.
2. Where a Data Zone area is intersected by the boundaries of two or more settlements, it is attributed to the settlement containing the largest proportion of its Census 2021 usual resident population.
3. Where a Data Zone area is intersected by the boundaries of one or more settlements and the Data Zone also contains an area outside of any

settlements, if the majority of the Data Zone population is in a settlement, then the Data Zone was allocated to that settlement. Otherwise, if the majority of the Data Zone population was outside of any settlements it was classified as 'Elsewhere in Northern Ireland'.

More information on the Data Zone statistical geography and the Data Zone aggregation method are available on the [Census 2021 output geography information papers](#) page of the NISRA website. The 60 settlements for which accurate approximations can be produced using Data Zones are included in the [Flexible Table Builder](#), released 22 June 2023.

3.2. Stage 2: Grid Square approximation

Since 1971, census statistics have been produced for 1km and/or 100m grids in Northern Ireland. For Census 2021, where a settlement could not be approximated using Data Zones (due to not meeting the accuracy threshold of within 5 per cent), the 100m grid has been used to approximate them. A number of rules were used in assigning 100m grid squares to settlements:

1. Where a grid square area is wholly located within the boundaries of a settlement, it is attributed to that settlement.
2. Where a grid square area is intersected by the boundaries of two or more settlements, it is attributed to the settlement containing the largest proportion of its Census 2021 usual resident population.
3. Where a grid square area is intersected by the boundaries of one or more settlements and the grid square also contains an area outside of any settlements, if the majority of the grid square population is in a settlement, then the grid square was allocated to that settlement. Otherwise, if the majority of the grid square population was outside of any settlements it was classified as 'Elsewhere in NI'.

4. Crawfordsburn, Ballyholland and Greenisland

When the grid squares allocated to settlements are aggregated to produce an approximated count of Census 2021 usual resident persons and households, the counts for all but three of the settlements are within five per cent of the exact counts.

The three settlements outside of this five per cent accuracy threshold are 'Crawfordsburn', 'Ballyholland' and 'Greenisland'. While these settlements could feasibly be approximated using the 100m grids, the earlier Stage 1 Data Zone approximation reduced the available grid squares that could be assigned.

In practical terms what that meant was, where two settlements are side by side (or very close to each other) and one was approximated using Data Zones, the spill over of that Data Zone into the smaller settlement meant that it was not possible to assign 100m grids from within that intersected section to the smaller settlement – or else the population would be double counted.

For example, the 'Holywood_and_Clandeboye_C1' Data Zone intersects the 'Crawfordsburn' settlement boundary and the 'Bangor' settlement boundary. The majority of the Data Zone population is located within the 'Bangor' settlement boundary resulting in that Data Zone being assigned to the 'Bangor' settlement. The area within the 'Crawfordsburn' settlement boundary covered by that Data Zone cannot be re-assigned to 'Crawfordsburn' during the grid square approximation as it would result in a double count.

More information is included in the ['Settlements - exact count vs approximated count of usual residents for Census 2021'](#) table, which shows the counts of Census 2021 usual residents both on an exact basis and resulting from the approximation methods outlined in this paper.