Performance, Information and Intelligence

2016 New Ward Boundaries
Guidance on calculating statistics for the new 2016 wards

Briefing Note
February 2016
2016 New Ward Boundaries
Guidance on calculating statistics for the new 2016 wards

<table>
<thead>
<tr>
<th>Guidance on calculating and presenting statistics for the new 2016 wards</th>
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</thead>
<tbody>
<tr>
<td>For statistical purposes where possible all data should be assigned to wards based on the ONS Best-fit methodology of Output Areas to higher geographies.</td>
</tr>
<tr>
<td>For non-statistical and administrative purposes more accurate mapping should be applied. For example, the electoral register electors should be allocated to the exact ward within which they live.</td>
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<tr>
<td>For the most accurate results, the most detailed level data (at least Output Area) should be used to assign data to higher geographies.</td>
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<tr>
<td>Postcode Lookups - need to ensure that everyone is using the same postcode lookups for allocating postcode data to higher geographies</td>
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1. Introduction

This guidance note will outline the implications of the new ward boundaries in terms of the provision of statistics, Bristol City Council policy and planning boundaries and partner boundaries. It will also outline the availability of published statistics and list resources available to assist with creating statistics for the new wards.

2. Provision of statistics

2.1 ONS Geographies and ‘Best-fit’ Geography Policy

ONS statistical geographies nest within each other - 2011 Output Areas (OA11) nest within 2011 Lower Layer Super Output Areas (LSOA11s) and LSOA11 within 2011 Middle Layer Super Output Areas (MSOA11). Ward boundaries are an administrative geography and do not nest within the statistical geography hierarchy. Wards across the country did match the statistical geography hierarchy when it was introduced in 2004, but any ward boundary changes since mean that wards will no longer match.

ONS geography policy is to use Output Areas as their building blocks for higher level geographies including statistical geographies such as LSOAs and MSOAs and administrative geographies such as wards. Point or postcode data is allocated to an OA and that whole OA is then allocated to a higher level geography based on its population-weighted centroid. As such if a new ward boundary cuts across an OA, then any statistics that ONS publish will be based on allocating that whole OA to the ward within which its population-weighted centroid falls.
The example below shows a number of postcodes (pink dots) within the same output area but straddles 3 different 2016 Wards. All four postcodes are allocated to 2016 Filwood ward based on the location of the output area’s population weighted centroid (blue star).

**Figure 1: Postcodes, Output Areas and 2016 wards**

In Bristol, although our OA11 and LSOA11 fit to our current wards, these statistical geographies will not nest within the new 2016 ward boundaries. Since statistical geographies remain largely unchanged over time (just 5% updated by splits/merges following the census due to large increases/decreases in population) statistical geographies will not fit to our 2016 wards now or in future.

There are a number of advantages to using the best-fit approach including: a simple methodology; clear allocations; one version of ‘the truth’ for internal consistency especially when calculating rates (ie the numerator and denominator match); and no arbitrary splits of OAs and population characteristics.

### 2.2 Terminology and Variable names – 2016 Statistical Wards and 2016 Geographical Wards

For statistical purposes, all data should be assigned to wards based on the ONS Best-fit methodology of Output Areas to higher geographies. Allocations made on this basis should be referred to as ‘2016 Statistical wards’

For non-statistical and administrative purposes more accurate mapping should be applied. For example, the electoral register electors should be allocated to the exact ward within which they live. Allocations made on this basis should be referred to as ‘2016 Geographical wards’
The following naming conventions should be used for variables:

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Geography</th>
</tr>
</thead>
<tbody>
<tr>
<td>OA11CD</td>
<td>2011 Census Output Area ONS code</td>
</tr>
<tr>
<td>OA11NM</td>
<td>2011 Census Output Area local name</td>
</tr>
<tr>
<td>LSOA11CD</td>
<td>2011 Census Lower Layer Super Output Area ONS code</td>
</tr>
<tr>
<td>LSOA11LN</td>
<td>2011 Census Lower Layer Super Output Area local name</td>
</tr>
<tr>
<td>WARD11CD</td>
<td>2011 Ward ONS code</td>
</tr>
<tr>
<td>WARD11NM</td>
<td>2011 Ward name</td>
</tr>
<tr>
<td>GEWD16CD</td>
<td>2016 Geographical Ward ONS code</td>
</tr>
<tr>
<td>GEWD16NM</td>
<td>2016 Geographical Ward name</td>
</tr>
<tr>
<td>STWD16CD</td>
<td>2016 Statistical Ward ONS code</td>
</tr>
<tr>
<td>STWD16NM</td>
<td>2016 Statistical Ward name</td>
</tr>
<tr>
<td>STNP16CD</td>
<td>2016 Statistical Neighbourhood Partnership code</td>
</tr>
<tr>
<td>STNP16NM</td>
<td>2016 Statistical Neighbourhood Partnership name</td>
</tr>
</tbody>
</table>

Note: The three ‘St George’ wards should be ordered before other wards beginning with ‘S’. This is how the ONS codes are ordered.

2.3 Calculating statistics for new 2016 statistical ward boundaries

i. Property, Household and Person level data

BCC databases held at property, household or person level that include a ward reference will need to be allocated to 2016 statistical wards and 2016 geographical wards from May 2016 onwards. Assuming that all databases have a current UPRN, this should be a simple matching process. Business Systems automatically updated after the 5th May include: Uniform, Civica, Bristol Waste, Lagan, Enterprise System Bus (ESB), Liquid Logic and the Electoral Roll.

ii. Postcode level data

Postcode level data (ie full unit postcode BS1 5UY) should be aggregated to higher level geographies using the ONS Postcode Lookup (NSPL). The Postcode Look up lists all postcodes and allocates them to an OA11. The OA11s are then allocated to higher geographies (including 2016 wards) based on the population–weighted centroid (PWC) of the OA11 (see Figure 1). This ensures that any statistics used as numerators match the ONS denominators since both sets of data will be based on best-fit.
A local version of the NSPL has been created which includes the new 2016 statistical ward references. The actual 2016 geographical ward has also been included for reference. Only a very small proportion of postcodes are allocated differently between the 2016 statistical ward and the 2016 geographical ward. Based on postcodes as at November 2015, 97% of live postcodes are allocated to the same 2016 ward using the best-fit whole OA-based methodology as they would be if they were allocated to the ward based on the exact location of the postcode.

iii. Output Area level data

Figure 2: Output Areas and 2016 wards

The smallest geography for which population and census statistics are available is by Output Area. OA11 statistics should be allocated to 2016 wards and other higher level geographies based on the population–weighted centroid (PWC) of the OA11. In the example above, the OA11 is split between three 2016 wards but would be allocated to 2016 Filwood ward based on the OA11 PWC (shown as a star).

A lookup table is available. This ensures that any statistics used as numerators match the ONS denominators since both sets of data will be based on best-fit. Only a small proportion of OA11s are split by the new 2016 ward boundaries - 82 out of 1,368 (6%) of OA11s.

iv. Lower Layer Super Output Area level data

Some statistics are published at LSOA level such as the Indices of Deprivation and DWP Benefits data. LSOA11 data can be allocated to new 2016 wards based on the Population-Weighted Centroid (PWC) of the LSOA11. In the example below, the LSOA11 is split between three 2016 wards but would be allocated to 2016 Bishopsworth ward based on the LSOA11 PWC (shown as a star). A lookup table is available. 58 out of 363 (22%) of LSOA11s are split by the new 2016 ward boundaries.
v. Current Ward level data

Many nationally published datasets are only available by ‘frozen wards’ ie for ward boundaries as at either 2001 or 2011 in order to enable comparisons of change over time. These statistics cannot be re-aggregated to 2016 wards.

3. Bristol City Council policy and planning boundaries

Wards are used as a basis for many policy and planning boundaries within BCC, including for example: Strategic Housing Market Area Zones; Community Infrastructure Levy charging and expenditure; CYPS Areas; Neighbourhood Partnerships. These boundaries should ideally be changed to reflect the new ward boundaries.

4. Partner boundaries

A number of organisations and groups currently use ward boundaries, either individually or in aggregate, as a basis for their work. Notable examples include: Fire Service (Community Safety Sectors); Clinical Commissioning Groups; and Neighbourhood Policing Areas.

5. Availability of published statistics – some examples

The majority of ONS data will only be published for the new 2016 wards in Bristol from 2017 on-wards.

meantime, population estimates for new 2016 wards in Bristol will be calculated by Bristol City Council using the best-fit methodology.

The majority of 2011 Census statistics are available by OA11 and so can be re-aggregated to 2016 Statistical Wards using the best-fit methodology. Some of the more detailed tables which are only available at ward level and above, however, will be not be available for 2016 wards. 2011 Census data including the 2011 Census Selected Statistics Profiles will be calculated for the new 2016 wards by Bristol City Council using the best-fit methodology.

The 2011 Census results together with some other ONS small area data sets area available from NOMIS https://www.nomisweb.co.uk/. Bristol City Council has created a user-defined geography for the 2016 Statistical Wards which is publically available to use on NOMIS. The geographies are named STATWD16. Since the definitions are based on aggregations of OA11s, the 2016 Statistical Wards can only be used to extract statistics which are originally available at OA11 level.

The 2015 Indices of Deprivation is only available by LSOA11 and should continue to be used at an LSOA level. When mapping the 2015 Indices of Deprivation, the new ward boundaries can simply be overlaid on top.

DWP benefit statistics are currently only published for wards as in 2001 and LSOA01. As such it is not possible to re-aggregate to the new ward boundaries.

6. Resources

The following lookup files are available on the Bristol City Council shared directory G:\BCC-Common\Ward 2016:

- Output Area to 2016 Statistical Ward Lookup (OA11PWC-STATWD16)
- Lower Layer Super Output Area to 2016 Statistical Ward Lookup (LSOA11PWC-STATWD16)
- National Statistics Postcode Lookup (NSPL) for statistical geographies
- National Statistics Postcode Directory (NSPD) for geographical allocations
- Explanation of the difference between the National Statistics Postcode Lookup (NSPL) and the National Statistics Postcode Directory (ONSPD)

These resources can be shared with non-BCC partners and other on request.

For more information please contact:
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