

(February 2019)

Introduction

1. In 2008, the Northern Ireland Assembly approved the reform of Local Government. The change moved Local Government from 26 Districts (LGD1992) to 11 new Districts (LGD2014), as well as making changes to the powers of Local Government. The new Districts are made up of 80 District Electoral Areas (DEAs), which form the basis for the electoral representation on councils, which in turn can be broken down into 462 new Electoral Wards (Ward2014).
2. [Technical guidance](#) on the production of official statistics for the 11 new Districts was published in September 2013. It described how official spatial statistics for Local Government Districts can be produced.
3. The purpose of this paper is to provide further guidance on the production of official statistics for District Electoral Areas (DEAs) and Electoral Wards. In particular, how to take aggregate official spatial statistics and create statistics for these sub-geographies. It is worthwhile to note that some issues associated with producing statistics for the 11 new Local Government Districts become more pertinent when looking at smaller geographies.
4. A map of the 80 District Electoral Areas along with coding and naming scheme are shown in Annex 1.

Official Statistics

5. Currently, producers can create statistics for the new geographies from existing microdata (or unit record data) in a number of ways. These include:
 - recording the grid reference of the household or business and using this to classify records spatially; or
 - using the postcode of the household or business and relating this to the Local Government District without access to address information; or
 - obtaining the geography of the household or business directly without access to the address or postcode.

6. If access to existing microdata is available, statistics should be created in that order to ensure a high level of accuracy. NISRA have published a [methodology/quality paper](#) on creating a postcode-based lookup table to different geographies, including some quantification of accuracy levels. In short, postcode-based statistics are within 1.5 per cent of actual figures for Local Government Districts, Parliamentary Constituencies and District Electoral areas. For smaller geographies such as Wards and Super Output Areas, this percentage rises to 3-5 per cent, and even higher for 2011 Census Small Areas.

New Lookup Table

7. One-to-one relationship lookup tables were developed to create statistics for the new 11 Local Government Districts from 2001 Census Output Areas, 2011 Census Small Areas or 2011 Super Output Areas¹. Table 1 provides some information on the accuracy of these lookup tables in relation to the 2011 Census usual residents.

Table 1: Accuracy of lookup tables for 11 New Local Government Districts

LGD2014	Usually Resident Population	Population estimates based on:		Relative difference with actual based on:	
		Small Areas	Super Output Areas	Small Areas	Super Output Areas
Antrim and Newtownabbey	138,700	138,600	138,600	0.1%	-0.1%
Armagh City, Banbridge and Craigavon	199,300	199,700	197,900	0.2%	-0.7%
Belfast	333,300	333,900	331,100	0.2%	-0.7%
Causeway Coast and Glens	140,900	140,900	140,900	0.0%	0.0%
Derry City and Strabane	147,700	147,700	147,700	0.0%	0.0%
Fermanagh and Omagh	113,200	113,200	113,200	0.0%	0.0%
Lisburn and Castlereagh	135,600	134,800	137,300	-0.5%	1.3%
Mid and East Antrim	135,200	135,300	135,300	0.1%	0.1%
Mid Ulster	138,700	138,600	139,900	-0.1%	0.9%
Newry, Mourne and Down	171,700	171,500	172,000	-0.1%	0.2%
Ards and North Down	156,700	156,700	157,000	0.0%	-0.2%

8. In general, the population estimates resulting from aggregating whole Small Areas or Super Output Areas are within one per cent from the published usual resident population. The proportion of the population allocated to an incorrect LGD is 0.1 and 0.4 per cent for Small Areas and Super Output Areas respectively. As such, both lookup tables were considered fit for purpose for creating official statistics. Accordingly, statistics from the 2011 Census for the new 11 Local Government Districts were created through aggregations of Census Small Areas².

¹ The existing Small Areas, Output Areas and Super Output Areas do **not** fit neatly within the 11 new district boundaries. One to one relationships are based on a best-fit approach, see https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/11DC_Lookup_1_1.xls.

² See https://www.nisra.gov.uk/sites/nisra.gov.uk/files/publications/11DC_Guidance.pdf

9. Similar one-to-one relationship lookup tables were developed to approximate the 80 new District Electoral Areas with the 4,537 Small Areas or the 890 Super Output Areas. Table 2 shows the distribution of relative differences between the exact and approximate population estimates from the 2011 Census.

Table 2: Accuracy of lookup tables for 80 Districts Electoral Areas

Difference between exact and approximation of 2011 usual resident population	Statistical geography	
	Small Area	Super Output Area
Less than 1 per cent	41	16
Between 1 and 2 per cent	28	10
Between 2 and 3 per cent	5	6
Between 3 and 5 per cent	6	20
Between 5 and 10 per cent	0	22
More than 10 per cent	0	6
All DEAs	80	80

10. It is clear that the approximation using Small Areas is more accurate than that based on Super Output Areas. The proportion of the 2011 Census usual resident population allocated to the wrong DEA was 1.8 per cent when using the Small Area based lookup. This rises to 4.5 per cent when using Super Output Areas as building blocks. This is evident from looking at the number of building blocks per District Electoral Area; on average, a DEA is made up from 57 Small Areas or 11 Super Output Areas.
11. Based on these measures of accuracy, the lookup from Small Areas to DEA was considered fit for purpose and can be downloaded from the [NISRA website](#), along with supporting information on the quality of this lookup. The lookup using Super Output Areas as building blocks was however not deemed fit for purpose, as an approximation within five per cent of the actual population was only achievable for less than two thirds of DEAs.
12. A final exploration was undertaken to assess the viability of a similar one-to-one lookup table to approximate the 462 new Wards with the 4,537 Small Areas. As is clear from the results in Table 3, this is a very inaccurate approximation. For nearly one in five Wards, the population estimate differs in excess of 10 per cent from published figures. The proportion of the 2011 Census usual resident population allocated to the wrong Ward was 5.9 per cent. The Small Area to Electoral Ward lookup was not deemed fit for purpose and hence will not be released.

Table 3: Accuracy of lookup tables for 462 new Wards

Difference between exact and approximation of 2011 usual resident population	Small Area	
	Number	Proportion
Less than 1 per cent	95	20.6%
Between 1 and 2 per cent	47	10.2%
Between 2 and 3 per cent	33	7.1%
Between 3 and 5 per cent	96	20.8%
Between 5 and 10 per cent	109	23.6%
More than 10 per cent	82	17.7%
All Electoral Wards	462	100.0%

Issues

13. The advice and guidance **relates to count data only**. The guidance does **not** apply to percentages, rates or other derived statistics. Users wishing to create such statistics will need to apply this guidance to the baseline count data before creating the derived statistics.
14. It is recommended that any statistics produced for the new geographies should be accompanied by **metadata** outlining the method of spatial classification. The lookup table to approximate DEA Statistics from Small Area statistics also provides an indication of accuracy using the 2011 Census counts of usual residents and occupied households. However, these indications of accuracy may not be applicable, particularly when reporting on sub-sections of the population or locally concentrated groups (for example, the elderly, ethnic minority groups, etc).
15. Data producers should always assess the risk of disclosing information on individuals, households, or businesses. The protection of the privacy of individual information whilst balancing the need for effective use of the statistics is embedded in the Code of Practice for Official Statistics³. If official statistics are produced from original micro data for multiple geographies, this can lead to **disclosure risks**. Producers should particularly be aware of this in any consideration of requests for statistics across multiple geographies, where information on cross-sections of geographies can be deducted through differencing. A producer may choose a less accurate method to reduce this risk, as it is more preferable than not releasing statistics at all. The main statistical disclosure control techniques are described in http://www.ninis2.nisra.gov.uk/public/documents/NINIS_Disclosure_Policy.doc
16. NISRA published 2011 Census key statistics for the District Electoral Areas in Northern Ireland on 8th March 2016 on the [NISRA website](#).

³ See <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/code-of-practice-for-official-statistics.pdf>

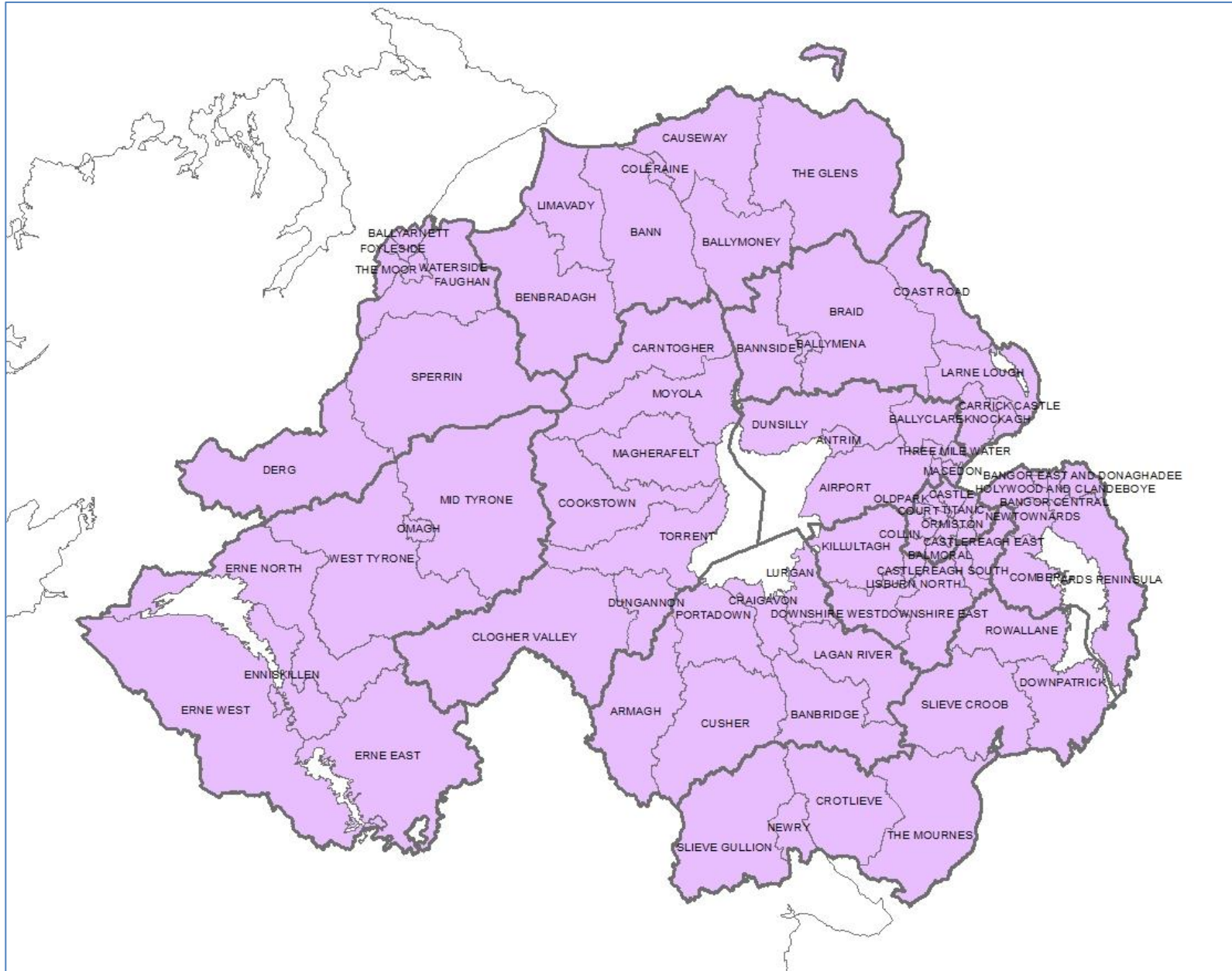
17. The **official names and codes** for the 11 new Districts (LGD2014) and the 80 new District Electoral Areas (DEA2014) are given in Annex 1. There are three Districts for which the names were changed slightly on 24 February 2016, which were originally named (a) Armagh, Banbridge and Craigavon; (b) Derry and Strabane; and (c) North Down and Ards.
18. As with the 26 current Districts, there is no official definition of **urban - rural** relating to the 11 new Districts or the 80 District Electoral Areas.
19. **Further guidance** is available from the NISRA Geography website⁴ or by e-mail from info@nisra.gov.uk.

Northern Ireland Statistics and Research Agency

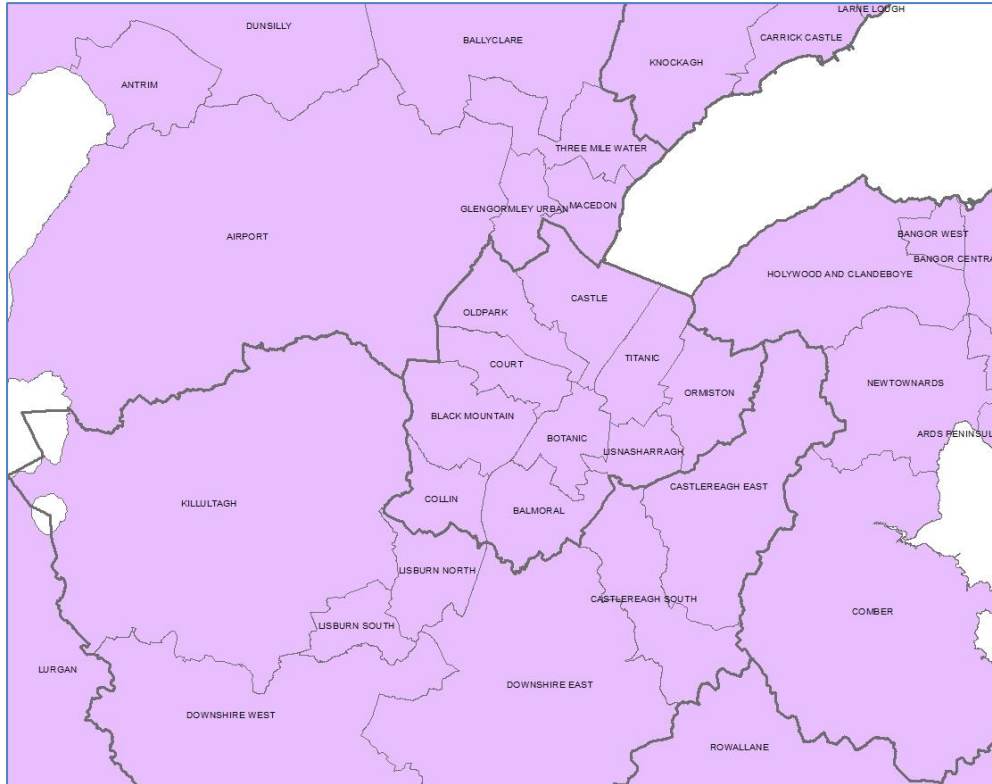
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⁴ <https://www.nisra.gov.uk/support/geography>

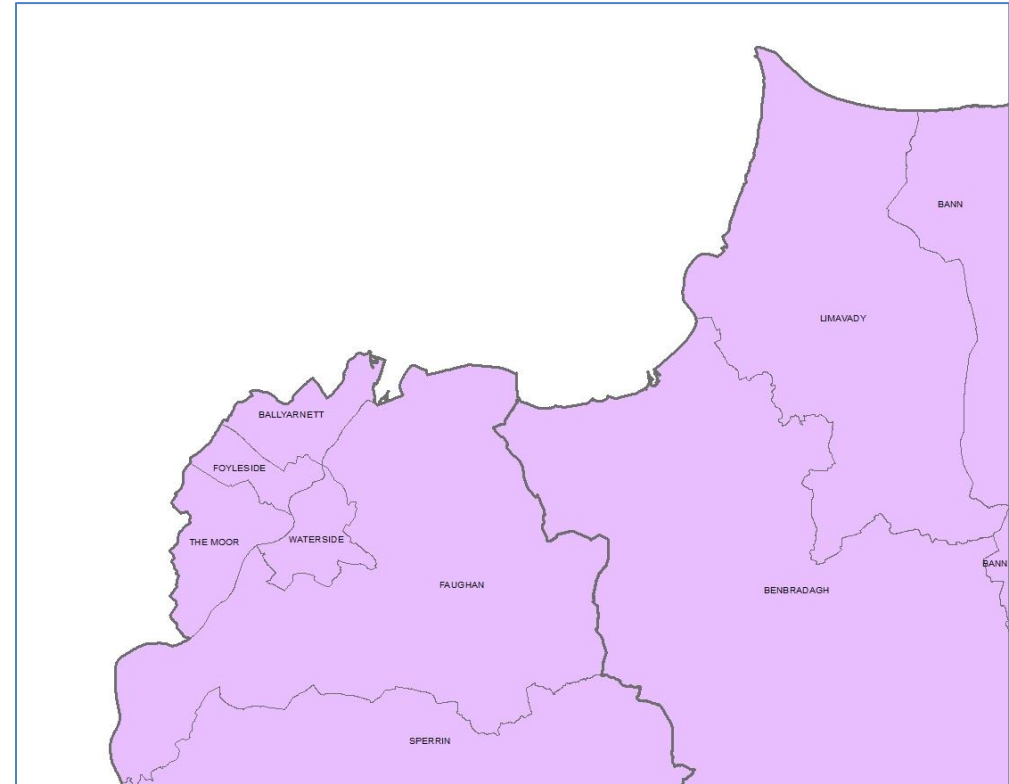
Annex 1: Figure A.1 Map of 80 District Electoral Areas (DEA2014) in Northern Ireland



Inset: Greater Belfast



Inset: North West



See also: <http://www.deac-ni.org/final-maps.htm>

List of 11 Local Government Districts and their District Electoral Areas

LGD 2014 Code	LGD 2014 Name	District Electoral Areas			
N09000001	Antrim and Newtownabbey	N10000101	Airport	N10000105	Glengormley Urban
		N10000102	Antrim	N10000106	Macedon
		N10000103	Ballyclare	N10000107	Three Mile Water
		N10000104	Dunsilly		
N09000002	Armagh City, Banbridge and Craigavon* <i>(Armagh, Banbridge and Craigavon)</i>	N10000201	Armagh	N10000205	Lagan River
		N10000202	Banbridge	N10000206	Lurgan
		N10000203	Craigavon	N10000207	Portadown
		N10000204	Cusher		
N09000003	Belfast	N10000301	Balmoral	N10000306	Court
		N10000302	Black Mountain	N10000307	Lisnasharragh
		N10000303	Botanic	N10000308	Oldpark
		N10000304	Castle	N10000309	Ormiston
		N10000305	Collin	N10000310	Titanic
N09000004	Causeway Coast and Glens	N10000401	Ballymoney	N10000405	Coleraine
		N10000402	Bann	N10000406	Limavady
		N10000403	Benbradagh	N10000407	The Glens
		N10000404	Causeway		
N09000005	Derry City and Strabane* <i>(Derry and Strabane)</i>	N10000501	Ballyarnett	N10000505	Sperrin
		N10000502	Derg	N10000506	The Moor
		N10000503	Faughan	N10000507	Waterside
		N10000504	Foyleside		
N09000006	Fermanagh and Omagh	N10000601	Enniskillen	N10000605	Mid Tyrone
		N10000602	Erne East	N10000606	Omagh
		N10000603	Erne North	N10000607	West Tyrone
		N10000604	Erne West		
N09000007	Lisburn and Castlereagh	N10000701	Castlereagh East	N10000705	Killultagh
		N10000702	Castlereagh South	N10000706	Lisburn North
		N10000703	Downshire East	N10000707	Lisburn South
		N10000704	Downshire West		
N09000008	Mid and East Antrim	N10000801	Ballymena	N10000805	Coast Road
		N10000802	Bannside	N10000806	Knockagh
		N10000803	Braid	N10000807	Larne Lough
		N10000804	Carrick Castle		
N09000009	Mid Ulster	N10000901	Carntogher	N10000905	Magherafelt
		N10000902	Clogher Valley	N10000906	Moyola
		N10000903	Cookstown	N10000907	Torrent
		N10000904	Dungannon		
N09000010	Newry, Mourne and Down	N10001001	Crotlieve	N10001005	Slieve Croob
		N10001002	Downpatrick	N10001006	Slieve Gullion
		N10001003	Newry	N10001007	The Mournes
		N10001004	Rowallane		
N09000011	Ards and North Down* <i>(North Down and Ards)</i>	N10001101	Ards Peninsula	N10001105	Comber
		N10001102	Bangor Central	N10001106	Hollywood and
		N10001103	Bangor East and Donaghadee	N10001107	Clandeboyne
		N10001104	Bangor West		Newtownards

* Districts where the official name was changed on 24 February 2016, former/original name in brackets.