Methodology for forecasting ward electorates

At the start of this review, we obtained the electoral register (September 2013 data) provided by the Electoral Registration Officer (ERO) for each council area. This data is supplied with postcodes, which allows us to calculate the electorate for each part of the area under consideration, and hence for each proposed ward.

The rules governing reviews state that we must take into account the likely change in the number and distribution of the local government electorate over a 5 year period from the start of the review when aiming for electoral parity.

Our approach to this requirement is to collect data from each local authority on expected new residential development and demolition within its area over the 5 year period, with as much detail about location as is available. From this data, combined with data on the existing average number of electors per dwelling in the area, we calculate a forecast of electorate for the 5 year period. Our experience has found that an increase in development in one part of a council area does not necessarily result in an increase in electorate across the whole council area.

Experience has also shown that this approach alone has often produced forecast electorates that are higher than those occurring in practice. Therefore, to assist us in achieving a better forecast, we also take population projections for the same period from the National Records of Scotland (formerly the General Register Office for Scotland). Using these, we scale the forecast electorate to reflect the projected population change.

The table below sets out the steps that we take to complete this calculation. Appendix A contains a numerical example for a fictitious council area.

Step	Description	Variable
1	Calculate local government electorate per ward, excluding attainers, at September 2013, from electoral register.	E
2	Calculate electorate for council area by adding ward data.	EC
3	Tabulate council area dwelling count from GROS: http://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/housholds/household-estimates. We use count of dwellings rather than households (dwellings include vacant property and second homes) since the forecast change data from councils is also about dwellings rather than households. More detailed data (by multi-member ward) is available from Scottish Neighbourhood Statistics (www.sns.gov.uk). However, we do not use this since we do not try to model variations in electors per dwelling across a council area.	D
4	Calculate electorate per dwelling for council area.	N=EC/D
5	Collate new build and demolition data from council per ward for 5 years to May 2019 and hence change in number of dwellings per ward.	C
6	Calculate raw forecast electorate per ward	R=E+(C*N)

Step	Description	Variable
7	Calculate council area raw forecast electorate by adding ward raw forecasts.	RC
8	Tabulate current (projected 2014) population (PC) and projected population for 2019 (PP) from NRS population projections for Scottish areas. Latest available is 2012 based http://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-projections/sub-national-population-projections/2012-based	PC PP
9	Calculate scaling factor so that electorate change over period is consistent with NRS projected population change for period.	S=(EC*PP)/(PC*RC)
10	Calculate forecast ward electorates by applying scaling factor to each raw forecast ward electorate.	F=S*R
11	Calculate council area forecast electorate by adding forecast ward electorates.	FC

Appendix A:
Worked example of an invented council area, with 4 wards

This is a numerical example of the methodology we will use to forecast ward electorates during our Fifth Reviews of Electoral Arrangements.

Step	Data	Calculation	
1	2013 electorates Ward 1 - 10,000 Ward 2 - 10,000 Ward 3 - 10,000 Ward 4 - 10,000		E
2		Council area total = 10,000+10,000+10,000+10,000 =40,000	EC
3	Dwelling count 2012 - 32,000		D
4		Electorate per dwelling = 40,000/32,000 =1.25	N
5	Change in dwellings per ward Ward 1 - 4,000 Ward 2 - 0 Ward 3 - 0 Ward 4 - 0		C
6		Raw forecast electorates Ward 1: 10,000 + (4,000*1.25)=15,000 Ward 2: 10,000 + (0*1.25)=10,000 Ward 3: 10,000 + (0*1.25)=10,000 Ward 4: 10,000 + (0*1.25)=10,000	R
7		Council area raw forecast electorate 15,000+10,000+10,000+10,000 =45,000	RC
8	2014 population - 50,000 2019 population - 55,000		PC PP
9		Scaling factor (40,000*55,000)/(50,000*45,000) =0.9778	S
10		Forecast electorates Ward 1: 15,000*0.9778 = 14,666 Ward 2: 10,000*0.9778 = 9,778 Ward 3: 10,000*0.9778 = 9,778 Ward 4: 10,000*0.9778 = 9,778	F
11		Council area forecast electorate 14,666 + 9,778 + 9,778 + 9,778 =44,000	FC