



A QUALITY ASSURANCE AND CONTINGENCY STRATEGY FOR THE ONE NUMBER CENSUS

**To: Members of the Census Advisory Groups
Members of the Liaison Group on Population Statistics (LGPS)
Local Government Statistical Liaison Officers**

1. The aim of this paper is to provide Census users with a comprehensive description of the steps that will be taken to quality assure the One Number Census (ONC) estimates in 2001. It follows on from Advisory Group paper (00)16 (LGPS paper (00)11) which was circulated to both the Census Advisory Groups and the Liaison Group on Population Statistics in October 2000. The paper addresses the need identified at that time for more detailed information on the ONC quality assurance and contingency strategy and methodologies.
2. During the winter of 2000/1, ONS also consulted Statistical Liaison Officers (SLOs) within local government regarding the most suitable areas from which to “borrow strength” should the quality assurance of ONC estimates show a need for contingency action. Many thanks to all the SLOs who responded to that consultation exercise. Your comments have been included within our proposals wherever this has been possible (see Appendix F).
3. This paper is restricted to the ONC quality assurance and contingency procedures. It does not cover the ONC methodology itself. An updated version of the ‘Guide to the One Number Census’ is available, if you wish to receive a copy please contact the address below.

**Professor Ian Diamond, University of Southampton
Emma Wright, Katy Stokes & Jim Newman, Census Division, ONS**

September 2001

Address for Correspondence:

Katy Stokes
Census Division
Office for National Statistics
Room 4200W
Segensworth Road
Titchfield, Fareham
HANTS, PO15 5RR

Tel: +44 (0)1329 813507
Fax: +44 (0)1329 813407
E-mail: katy.stokes@ons.gov.uk

A QUALITY ASSURANCE AND CONTINGENCY STRATEGY
FOR THE ONE NUMBER CENSUS

LIST OF CONTENTS

- 1. GLOSSARY OF TERMS AND ABBREVIATIONS**
- 2. INTRODUCTION**
- 3. OVERVIEW AND SUMMARY**
 - 3.1 Background information**
 - 3.2 Summary of the quality assurance process**
 - 3.2.1 Summary at the sub-national level
 - 3.2.2 Summary at the regional level
 - 3.2.3 Summary at the national level
 - 3.2.4 Formal process for quality assuring ONC estimates
 - 3.3 Summary of the contingency strategy**
- 4. THE QUALITY ASSURANCE PROCESS**
 - 4.1 Detailed sub-national quality assurance procedures**
 - 4.1.1 Quantitative quality assurance
 - 4.1.2 Qualitative quality assurance
 - 4.1.3 Supplementary quality assurance
 - 4.1.4 Schedule for sub-national quality assurance and contingency
 - 4.2 Detailed regional quality assurance procedures**
 - 4.3 Detailed national quality assurance procedures**
- 5. THE CONTINGENCY STRATEGY**
 - 5.1 Sub-national adjustment: borrowing strength**
 - 5.2 National adjustment: estimation based upon demographic information**
- 6. REFERENCES**

APPENDICES:

- A Comparators to be used in the ONC quality assurance process**
- B Sources of qualitative information**
- C Formal process of quality assuring ONC estimates**
- D Borrowing strength methodology**
- E Proposed areas for borrowing strength**

1. GLOSSARY OF TERMS AND ABBREVIATIONS

borrowing strength

The contingency strategy at the sub-national level whereby new estimates are produced based on data from areas showing similar demographic characteristics (see 5.1).

Census Coverage Survey (CCS)

A follow-up survey designed to provide the information required to measure the degree of underenumeration in the 2001 Census.

Defence Analytical Services Agency (DASA)

The agency that supplies counts of home armed forces personnel to ONS.

Department for Education and Skills (DfES)

The source for school census data for England.

Department for Work and Pensions (DWP)

The source for child benefit and pensions data.

dependency ratio

The ratio of population counts for different age groups. The 'young' dependency ratio divides the number of people aged 0 to 14 by those aged 15 to 64. The 'old' dependency ratio divides those aged 65 and over by the same denominator.

design group (DG)

Design groups (also referred to as estimation areas or EAs) form the geographical level at which ONC estimates will be made.

diagnostic range

A range of plausible values for an ONC estimate calculated from the comparator data sets.

dual system estimation (DSE)

The method by which ONC estimates will be made based on: the number of people captured by both the Census and the CCS; and the number of people captured by one but not the other.

Hard to Count (HtC)

An index with a value of 1, 2 or 3 based on certain demographic characteristics of an area.

Health Authorities (HAs)

The source for patient register data.

Higher Education Statistics Agency (HESA)

The agency that supplies counts of higher education students.

imputation process

The ONC process whereby households and individuals are created so that the numbers of each on the Census database equal the approved ONC estimates.

local authority district (LAD)

The lowest geographical level at which ONC estimates will be made. In this document, the term also covers unitary authorities.

mid-year estimate (MYE)

Annual population estimates produced by the Population Estimates Unit of the ONS. These are rolled forward from the previous Census with adjustments made for births, deaths and migration.

One Number Census (ONC)

The project to create a single Census database that makes adjustments for the estimated undercount.

sex ratio

The ratio of males to females within any age group.

United States Air Force (USAF)

The source for counts of foreign armed forces personnel and their dependents.

(ONC) update process

The process whereby the records created by the ONC imputation process are added to the Census database.

Welsh Assembly (WA)

The source for school census data for Wales.

2. INTRODUCTION

The aim of this paper is to address the need highlighted in the October 2000 consultation for more detailed information on the quality assurance and contingency methodologies that will be used in 2001.

Following the 1991 Census it was acknowledged that the Census suffered from a degree of undercount, the extent and nature of which was not identified by the Census Validation Survey (CVS). To avoid a similar situation following the 2001 Census, development and planning has focused on two main areas:

- maximising coverage in the Census; and
- developing a thorough and resilient approach to estimate the level of underenumeration and adjust the population estimates accordingly.

The One Number Census (ONC) project was initiated to address the second of these points. The project is concerned explicitly with the measurement of underenumeration and the development of procedures to adjust the Census for this undercount. It ensures that the most appropriate estimation procedures are used. The work has been conducted by the ONS in collaboration with academics from Southampton University, with additional consultation with experts in the fields of matching and dual system estimation. The work has been subject to expert review at all stages, resulting in the design of the Census Coverage Survey (CCS) together with the associated estimation methodology.

The quality assurance and contingency procedures described here form a fundamental part of the ONC methodology. They deal with the possibility that the results of the ONC estimation may not be plausible, either in some areas of the country or, indeed, in the nation itself. This could be the result of dependence between the observations in the Census and the CCS or because of fieldwork problems in the CCS.

The purpose of this paper is to describe:

- the procedures that will be used to quality assure the ONC population estimates following the 2001 Census; and
- the contingency strategy that will be used should these quality assurance procedures find significant evidence to indicate that the initial ONC population estimates are implausible.

The process described in this paper refers to England and Wales. Slightly different geographical areas pertain to Scotland and to Northern Ireland but the philosophy is identical. For ease of presentation, local authority districts also refer to unitary authorities.

3. OVERVIEW AND SUMMARY

3.1. Background information

The ONC Quality Assurance and Contingency Strategy was agreed by the ONC Steering Committee in February 2000. The key points of this strategy are:

- ONC population estimates should be quality assured to ensure they are plausible for all areas of the country. The quality assurance process will involve demographic analyses and include broad comparisons with both demographic estimates and administrative sources;
- ONC estimates for each design group (or estimation area) and its constituent unitary and local authorities will be systematically quality assured as they are produced. Once all estimates have been generated and quality assured, the resulting national ONC population estimate will also be subject to quality assurance; and
- If the quality assurance procedures clearly indicate that it is necessary to adjust one or more ONC estimates at either a sub-national or national level, a contingency strategy will be invoked. This will involve either borrowing strength (at a sub-national level) or using an adjustment based upon ancillary demographic information (at a national level).

Proposals outlining how the ONC Quality Assurance and Contingency Strategy, agreed in February, should be implemented were discussed and agreed by the Steering Committee in June 2000. That paper focussed on:

- the choice of comparators to quality assure the ONC estimates;
- the choice of comparisons and demographic analyses to be conducted;
- the circumstances in which a decision would be made to adjust an ONC estimate; and
- the strategies to adjust an ONC estimate.

Both the Quality Assurance and Contingency Strategy and the proposals for its implementation were summarised in Advisory Group paper (00)16 which was circulated to members of the Census Advisory Groups and the Liaison Group on Population Statistics (LGPS) in October 2000. Further details are contained in ONC Steering Committee papers ONS(ONC(SC))00/04 and ONS(ONC(SC))00/18 (all papers are available on request from ONS).

3.2 Summary of the quality assurance process

The quality assurance process will take place at all geographical levels from local authority district (LAD) upwards.

Initial quality assurance will take place at the LAD and design group (DG) level. This quality assurance will, in broad summary, comprise a comparison of the ONC estimates with a range of both quantitative and qualitative information and will be undertaken sequentially according to the processing timetable.

At each stage a decision will be taken whether to accept an individual LAD or DG or whether to invoke a contingency strategy. The decisions and the cumulative relationship between the ONC estimates and the comparators will be monitored over time, with particular emphasis placed on, for example, regional estimates. At the end of this process, the cumulative national estimates will be compared with a set of national comparators and a final decision taken as to whether to accept these estimates or to invoke a national contingency strategy.

3.2.1 Summary at the sub-national level

Quality assurance at the LAD and DG level will involve three distinct stages, as described over the following pages.

Stage 1 : Quantitative Quality Assurance

The process, illustrated in Figure 1a overleaf, starts with a comparison of the ONC estimates with the raw Census counts and with a number of comparator data sets. These comprise various administrative records together with the ONS mid-year population estimates for 2000.

The comparators will be used to form a diagnostic range for each of the indicators (namely population counts by five year age-sex group, sex ratios and dependency ratios). This range will permit an initial comparison to be made although no final decisions will be made at this stage. The diagnostic ranges will give an indication as to whether the ONC estimates are broadly consistent with expectations from a range of demographic and administrative records.

Stage 2 : Qualitative Quality Assurance

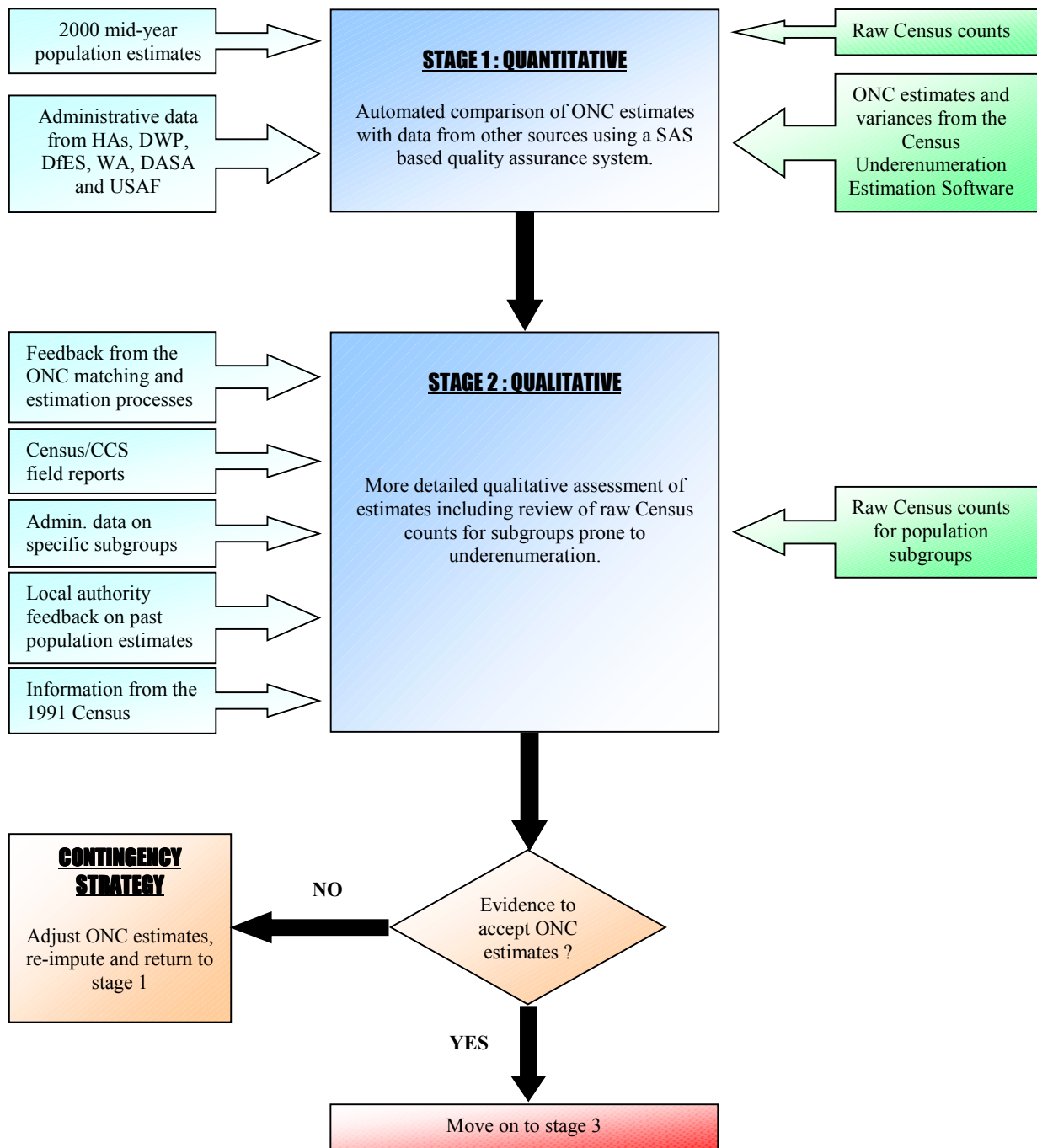
The second stage of the sub-national quality assurance process, illustrated in Figure 1a overleaf, is to use qualitative information to examine the ONC estimates further. This information will be drawn from a variety of sources, including:

- feedback from the ONC matching and estimation processes;
- feedback from Census and Census Coverage Survey field managers regarding the success of the fieldwork;
- administrative data on specific population subgroups such as students and armed forces;
- submissions to ONS during the past decade from local authorities and other interested groups with regard to the accuracy of the mid-year population estimates; and
- information from the 1991 Census.

The qualitative indicators will be used either to:

- affirm the ONC estimates because they are broadly consistent with expectations or because they have identified population trends not picked up by demographic or administrative sources; or
- decide that the ONC estimates are not acceptable and that a contingency strategy needs to be invoked (see section 5.1 for details of the contingency strategy).

Figure 1a : First and second stages of the sub-national quality assurance process



Stage 3 : Supplementary Quality Assurance

The third stage of the quality assurance process follows the ONC imputation and update processes and is illustrated in Figure 1b below.

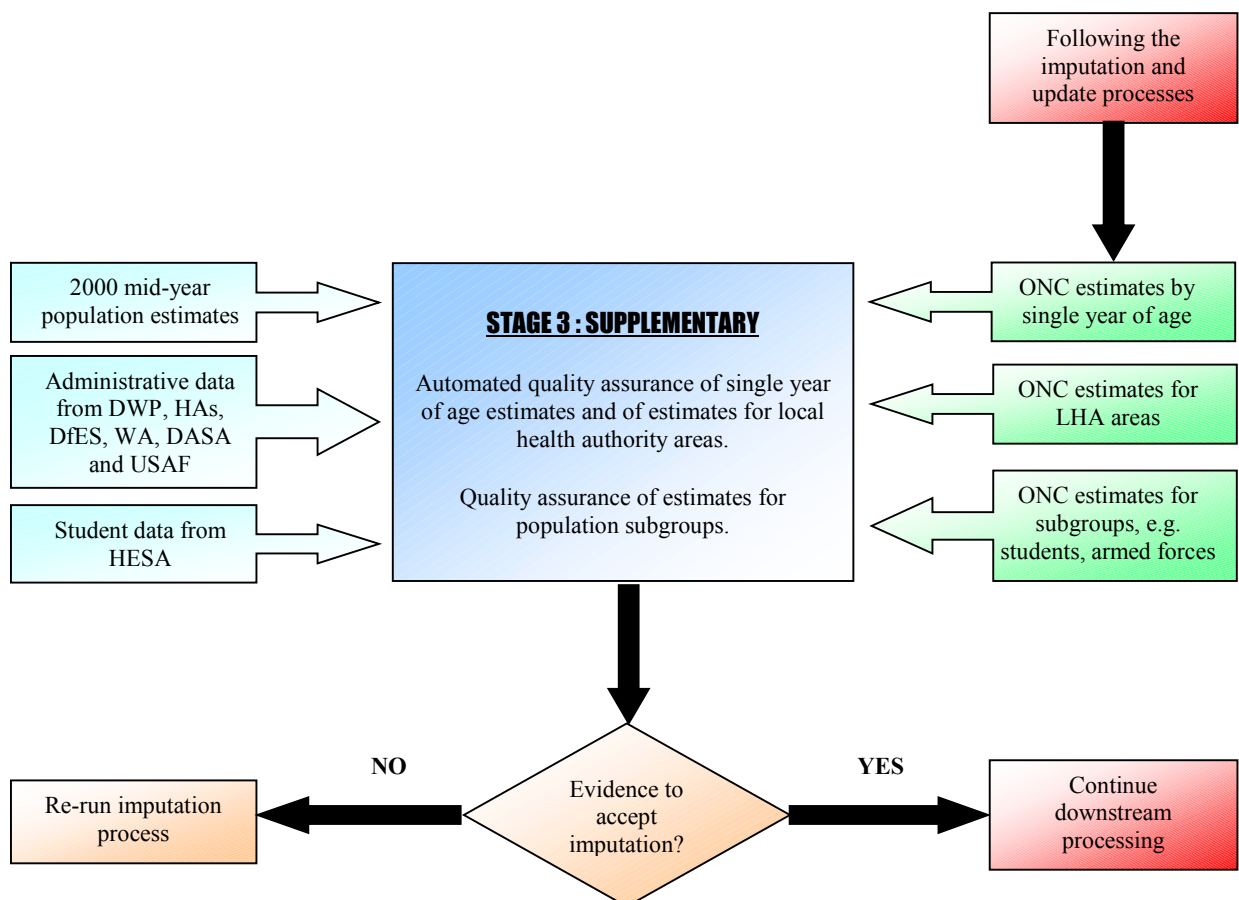
Firstly, the ONC imputations will be quality assured by single year of age within each of the five year age-sex groups quality assured during stage one for LADs and DGs. This process ensures the distributions of ages within the age-sex groups are consistent with the same sources of demographic and administrative information used during the stage one process.

Secondly, the process followed for LADs and DGs during stage one will be replicated for local health authority (LHA) areas.

Thirdly, the imputed counts for certain specific population subgroups will be quality assured using data from administrative sources, namely: counts of students in higher education; counts of home armed forces; and counts of foreign armed forces and their dependents.

If these estimates are accepted then the process moves on. However, if the ONC estimates are not accepted then this information is fed back to the imputation system, imputation is adjusted and the new estimates are quality assured. When estimates have passed all three stages of quality assurance, the accepted estimates are included in the cumulative totals for the region and nation.

Figure 1b : Third stage of the sub-national quality assurance process



3.2.2 Summary at the regional level

Quality assurance at the regional level will follow an identical process to the quantitative stage for the sub-national level (as summarised in 3.2.1) looking at the same set of indicators. Each region will be quality assured once all its constituent LADs and DGs have passed the sub-national process.

3.2.3 Summary at the national level

The final stage of quality assurance will be at the national level. A cumulative approach will be taken at this level, with the estimates from each DG being added to the cumulative total as they are accepted through the sub-national process.

In addition, plausibility ranges for the rolled-forward 2001 MYEs have been calculated in ONS (see ONC(SC)99/05). The national ONC estimates (i.e. the sum of the accepted estimates for all DGs) will be compared with these ranges. If the national ONC estimates are rejected, a national contingency strategy, as described in section 5.2, will be invoked.

3.2.4 Formal process for quality assuring ONC estimates

Each week, from September 2001, data for approximately four DGs will be available and the quality assurance process described will be applied to the estimates for each of these DGs and their constituent LADs. Further details of the meetings that will take place are outlined in Appendix C.

In addition, it will be necessary over time to review previous decisions. This will be particularly true over the first few weeks as experience develops. To aid the continuous monitoring of the quality assurance process, cumulative data will be available on the estimates of underenumeration over time. This will enable all decisions to be compared with previous decisions and to forewarn of future patterns.

3.3 Summary of the contingency strategy

When ONC estimates are rejected at the sub-national level, a contingency strategy will be invoked. This will use information from similar areas that have already passed quality assurance to produce revised ONC estimates. This process is called ‘borrowing strength’ and is explained fully in section 5.1.

If any of the final national ONC estimates fail quality assurance, a separate contingency strategy will be invoked. This will use ancillary demographic information to adjust the ONC estimates at the sub-national level, with the sum of these adjusted estimates representing the adjusted national estimate (see section 5.2).

4. THE QUALITY ASSURANCE PROCESS

4.1 Detailed sub-national quality assurance procedures

The following sections describe in more detail the stages in the sub-national quality assurance process summarised in section 3.2.1.

4.1.1 Quantitative quality assurance

This first, quantitative stage will carry out quality assurance of ONC estimates for a number of indicators within each LAD and DG, namely: a count of all those aged under one (both sexes combined); a count for each sex for the ages 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84 and 85+; a sex ratio for each of these age groups; and young and old dependency ratios.

A diagnostic range against which to compare each of these ONC estimates will be constructed from appropriate comparative data. The process of constructing these diagnostic ranges involves a number of sub-processes which will be explained, stage by stage, over the following pages.

Stage 1 : Selection of appropriate comparative data

The major criteria for selection of the comparators are that the data are available at both national and sub-national levels, are known to be reasonably accurate (or have been cleaned by an expert) and are reasonably timely.

Table 1 overleaf outlines the different comparators that will be used when quality assuring the ONC estimates at a sub-national level. It also details the sources and time references for these data and lists the age ranges for which each of these comparators will be used. A fuller description is included at Appendix A.

The following points about the comparators should be noted.

- Whilst patient registers provide migration information used in producing the rolled forward MYEs, they do not contribute to their absolute value. Therefore the population estimates from these two sources are considered to be independent.
- The 2001 extrapolations are not of sufficient quality to replace the 2000 MYEs and will be used alongside them as a separate comparator. **They will be produced specifically for the ONC quality assurance and will not be published for use for any other purpose.**
- HA patient register data will be adjusted for coverage differences with the resident population (i.e. home armed forces and foreign armed forces and their dependents will be added).
- The armed forces data used to make these adjustments bases an individual's location on where they are stationed rather than their home address.
- The 2001 HA patient register data will replace the 2000 data in the process when it becomes available.
- Child benefit and pension records will be cleaned to correct or add postcodes to enable all records to be allocated to a specific LAD.
- School census data bases an individual's location on where they study rather than their home address.

Table 1 : Comparators for quality assurance of the sub-national ONC estimates by age

Comparator	Time Reference	Source	Age Groups
<u>Demographic estimates</u> a) Published rolled-forward MYEs for 2000 b) 2000 MYEs extrapolated to mid-2001 based upon average annual changes	30 June 2000 30 June 2001	Population & Demography Division, ONS (P&D)	0, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84 and 85+
<u>Estimates of under 1s</u> Registered births during year prior to Census Day adjusted for infant mortality and migration	29 April 2001	P&D	0
<u>HA patient register records</u> Number of patients registered with NHS GPs	30 June 2000 & 29 April 2001	Individual health authorities via P&D	0, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84 and 85+
<u>Child benefit records</u> Number of children aged under 16 for whom child benefit is claimed	August 2000	Department for Work and Pensions (DWP), cleaned by Oxford University	0, 1-4, 5-9 and 10-14
<u>Pension records</u> Number of people aged 65+ claiming state retirement pension and/or other benefits	May 2000	Department for Work and Pensions (DWP), cleaned by Oxford University	65-69, 70-74, 75-79, 80-84 and 85+
<u>School census data</u> Number of children aged 5-14 attending all educational establishments	1 January 2000 & 1 January 2001	Department for Education and Skills (DfES) and the Welsh Assembly (WA)	5-9 and 10-14

Stage 2 : Calculation of adjusted patient register counts

Figure 2 overleaf illustrates the calculations undertaken during stages 2 to 5.

Steps 1 and 2 of Figure 2 address the fact that HA patient registers are known to be prone to administrative error, specifically they tend to include records for more people than there are in the local population. This error, however, is not uniform and varies by both age and geography, with some groups (25-29 year-old males for example) generally having a lower patient register count than the MYE. In addition to this, there is inherent variation within both the MYEs and the patient register counts. It is impossible, however, to distinguish between the effects of the administrative error and the variation of the data.

Administrative error exists as a result of both:

- the way in which the patient register is managed (e.g. delays in removing patients who have moved or died from a register); and
- certain types of people being more or less likely to register with a new GP when they move (e.g. young males tend to be less likely to re-register than young females).

The principal aim for the process described in stage 2 is to adjust the patient records count to minimise the impact of the administrative error.

The methodology for making the adjustment involves calculating the absolute difference between the patient register count and the MYE for that age-sex group as a percentage of the MYE. This is calculated for the LAD plus its five most similar LADs (as defined by the ONS Classification of Local and Health Authorities). This calculation has been seen to produce relatively extreme values for individual LADs when applied to past data. Therefore the median of the six figures will be added to 100% to produce an adjustment factor to multiply with the MYE. This will create a population estimate based on the MYE but with a buffer placed above calculated from the associated patient register count. If the patient register count for the LAD of interest is lower than the associated MYE, the adjustment factor will be calculated as 100% minus the median of the six figures. This will create a buffer below the MYE rather than above.

It is this new, adjusted patient register count which is used when calculating the diagnostic range. This process is carried out at the LAD level. An adjusted patient register count at the DG level is calculated by summing the counts from the constituent LADs.

Worked example

Referring to Figure 2 overleaf, it can be seen that for males aged 65 to 69 in local authority x, the MYE is 4,000 and the HA patient register count is 4,320. Therefore the patient register figure is 8% higher than the MYE. The table below shows the equivalent figures for the five most similar LADs.

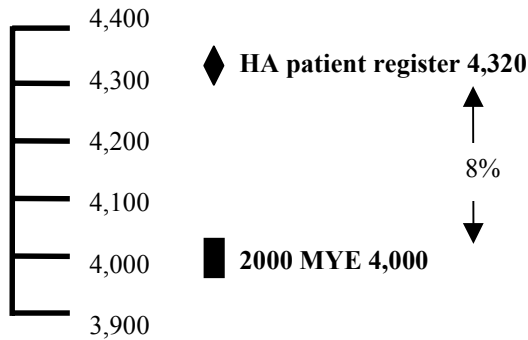
LAD	HA Counts	MYEs	Diff. as % of MYE
a	4,219	4,100	2.9%
b	3,904	3,750	4.1%
c	3,595	3,500	2.7%
d	4,586	4,200	9.2%
e	3,948	3,800	3.9%
x	4,320	4,000	8.0%

The median of the absolute differences for these six LADs is 4.0%. Therefore the adjusted patient register count, or MYE buffer, for LAD x is $4,000 * 104\% = 4,160$.

Figure 2 : Steps involved in calculating sub-national diagnostic ranges

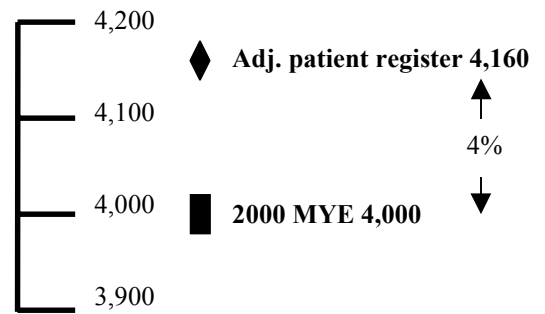
Step 1

Males 65 - 69 for local authority x



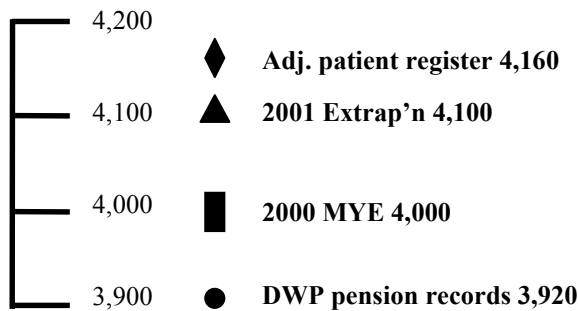
Step 2

Adjust patient register counts over group of similar local authorities : median absolute difference = 4%



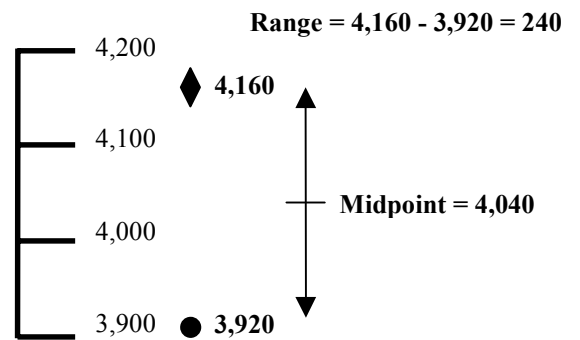
Step 3

Add any other comparators for males aged 65-69 (e.g. DWP pension records)



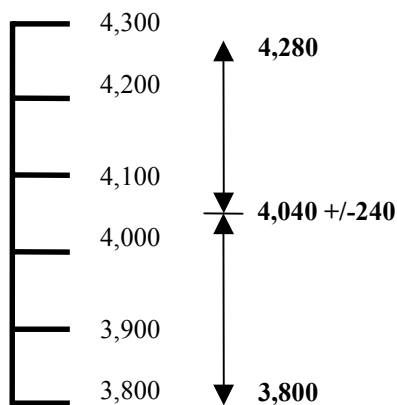
Step 4

Calculate range and midpoint of range



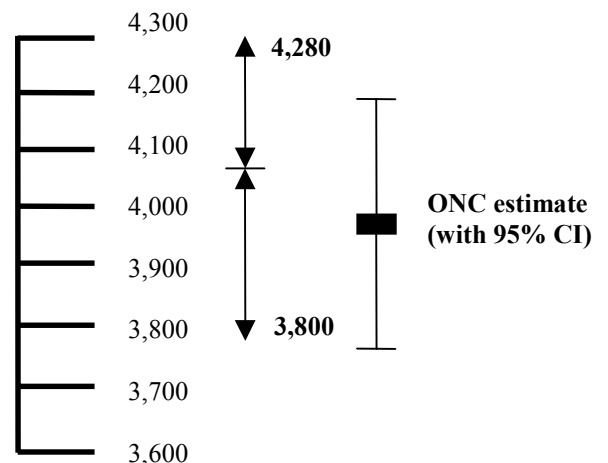
Step 5

Define diagnostic range as midpoint +/- range of comparators



Step 6

Compare ONC estimate and confidence interval to diagnostic range



Stage 3 : Calculation of the diagnostic range

Steps 3 to 5 of Figure 2 illustrate how the diagnostic range is calculated from the range of different comparators available. The diagnostic range for any age-sex group is defined as:

the midpoint of the range of the different comparators plus or minus the range itself

This definition recognises that although the comparators provide a good estimate of the indicator in question, the comparators themselves will contain error and variance. It would be incorrect, therefore, to assume that the range of the comparators themselves would represent a definitive range of likely values for the indicator. By defining the diagnostic range as the midpoint plus or minus the range of comparators, we are extending the diagnostic range broadly between 2 and 2½ standard deviations beyond the extreme values of the range of comparators.

Worked example

To continue the example from stage 2, we have four comparators for the age range 65 to 69: the 2000 MYE; the 2001 extrapolation of the MYE; the adjusted patient register count; and the count of pension records. These are 4,000, 4,100, 4,160 and 3,920 respectively.

The range of these values equals the maximum minus the minimum, i.e. $4,160 - 3,920 = 240$.

The midpoint is half way between the maximum and minimum, i.e. $3,920 + (240 \div 2) = 4,040$.

The diagnostic range equals the midpoint plus or minus the range, i.e. $4,040 \pm 240$. Therefore the diagnostic range reaches from 3,800 to 4,280.

Stage 4 : Restriction of the diagnostic range

The diagnostic ranges have been found to vary greatly by LAD. Extreme examples of this would be where all comparator LADs had a very high or low absolute difference between the patient register count and the MYE, resulting in extremely wide or narrow diagnostic ranges. These would be of little meaning in the quality assurance procedures and to overcome this problem, it is proposed to restrict the diagnostic ranges. This process will be followed at both the LAD and DG level.

Cut-off values based around the 10th and 90th percentiles of the empirical distribution have been calculated, using mid-1999 data, by taking the width of the diagnostic range for each LAD in an age-sex group and expressing this as a percentage of the midpoint. Any values outside these cut-off values will be set to the relevant cut-off value and the diagnostic range will be recalculated.

The values below indicate the predetermined cut-off values that have been calculated as a result of this analysis. These values have been rounded and grouped to improve the efficiency of the automated quantitative comparison of the quality assurance process. The frequency with which they are expected to be applied varies across the age-sex groups. On average, however, it is expected that approximately 20% will be restricted from becoming too narrow and approximately 9% will be restricted from becoming too wide (based on 1999 data).¹

<u>Age</u>	<u>Minimum % of midpoint</u>	<u>Maximum % of midpoint</u>
0-19	5	20
20-24	20	60
25-29	10	30
30-79	5	20
80-84	10	30
85+	20	60

¹ Simulations using 1999 data suggest that the restriction of diagnostic ranges is particularly likely to be applied in London. Therefore, we will incorporate the original patient records count into the qualitative process detailed in 4.1.2.

Worked example

Continuing the worked example, the diagnostic range expressed as a percentage of the midpoint equals $480 \div 4,040 = 11.9\%$. This sits comfortably between the cut-off values of 5% and 20% for the 65 to 69 age range.

If, however, the diagnostic range had been twice as large, i.e. 960, this would have equalled 23.8% of the midpoint. In this case the diagnostic range would have been restricted to 20% of the midpoint, i.e. 808. This would be placed evenly around the existing midpoint, i.e. $4,040 \pm 404$, giving a diagnostic range reaching from 3,636 to 4,444.

Stage 5 : Comparison with the ONC estimates and confidence intervals

Step 6 of Figure 2 introduces the ONC estimate with a 95% confidence interval to compare against the diagnostic range. The confidence interval gives an indication of how exact we consider the ONC estimate to be. If the estimate and the entire confidence interval fall within the diagnostic range, there would be strong evidence to support accepting the estimate. However it should be emphasised that no decision to accept or reject will be made without considering the full range of information available, including the qualitative information detailed in section 4.1.2.

Similarly, if the ONC estimates tend to be above or below the diagnostic range then this would not be taken as final evidence to reject the ONC estimates. Instead it will be seen as an indication of cause for concern, again to be investigated fully using the qualitative information.

Example

The quantitative quality assurance process is illustrated in Figures 3 to 8 over the following pages which give, for simulated data for Southampton, an illustration of the process for male and female population counts and for sex ratios. The simulation uses 1991 Census data updated to 1999, plus patient register and other administrative data for 1999. It should be stressed that this simulation is for one LAD only and should not be seen as indicative of all LADs and DGs.

It can be seen from these charts that the diagnostic ranges vary by age and sex. The widest ranges tend to be in the age groups where there is the greatest expectation of underenumeration, i.e. young adults and elderly females. This is plausible as one would expect the greatest variation where there was the greatest uncertainty over the enumeration.

There is a clear example of a restricted diagnostic range in Figure 3 for the 25 to 29 year-old age range. The unrestricted diagnostic range equals 43% of the midpoint compared to an upper limit for this age range of 30%. Therefore the diagnostic range has been re-calculated as 30% of the midpoint and placed evenly around the midpoint.

The quantitative quality assurance process will involve visual inspection of graphs such as those contained in Figures 3 to 8, with similar comparisons for other indicators such as old and young dependency ratios.

Figure 3 : Southampton diagnostic ranges – males

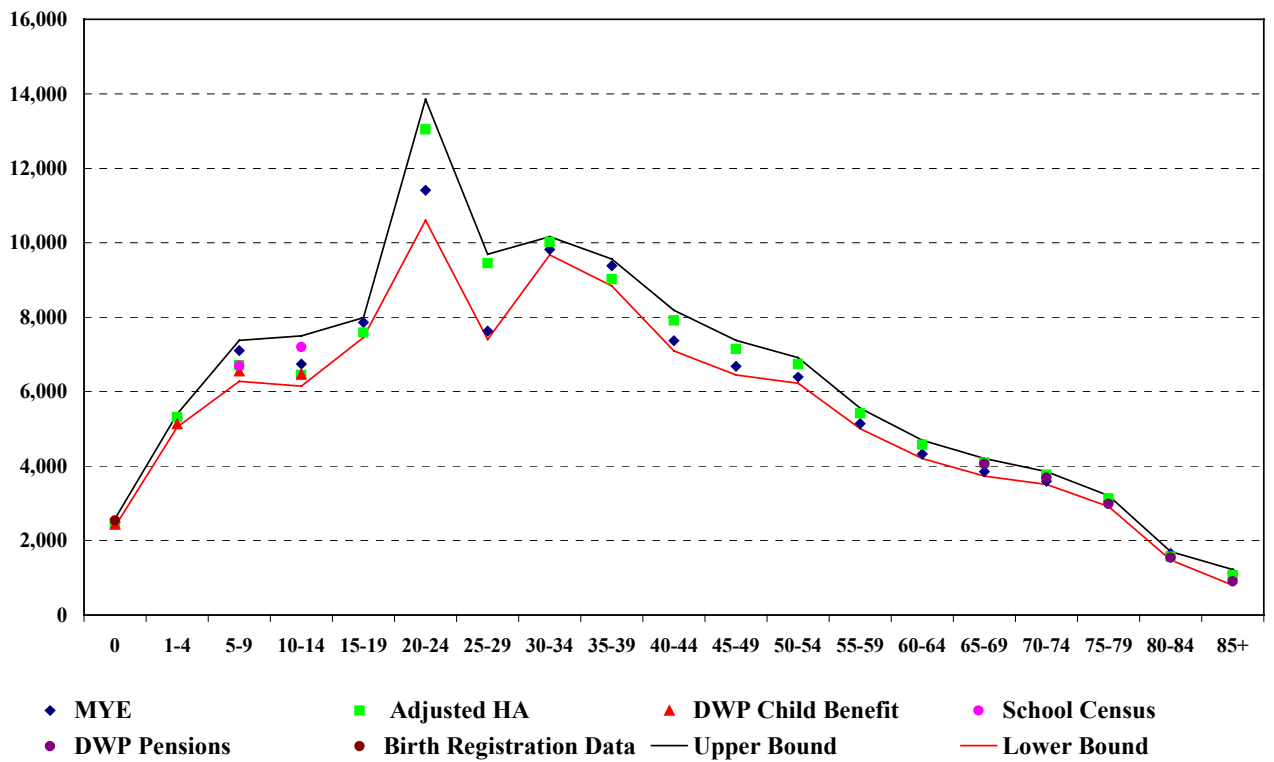


Figure 4 : Southampton ONC estimates - males

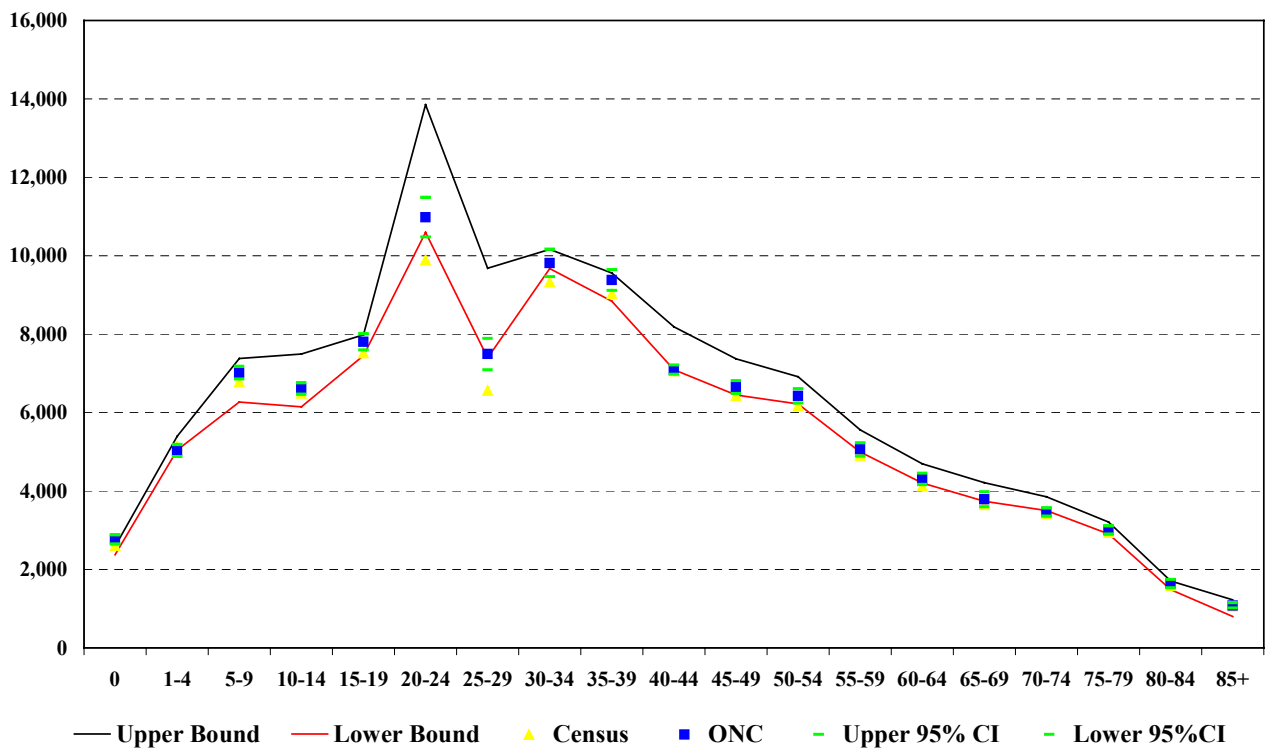


Figure 5 : Southampton diagnostic ranges - females

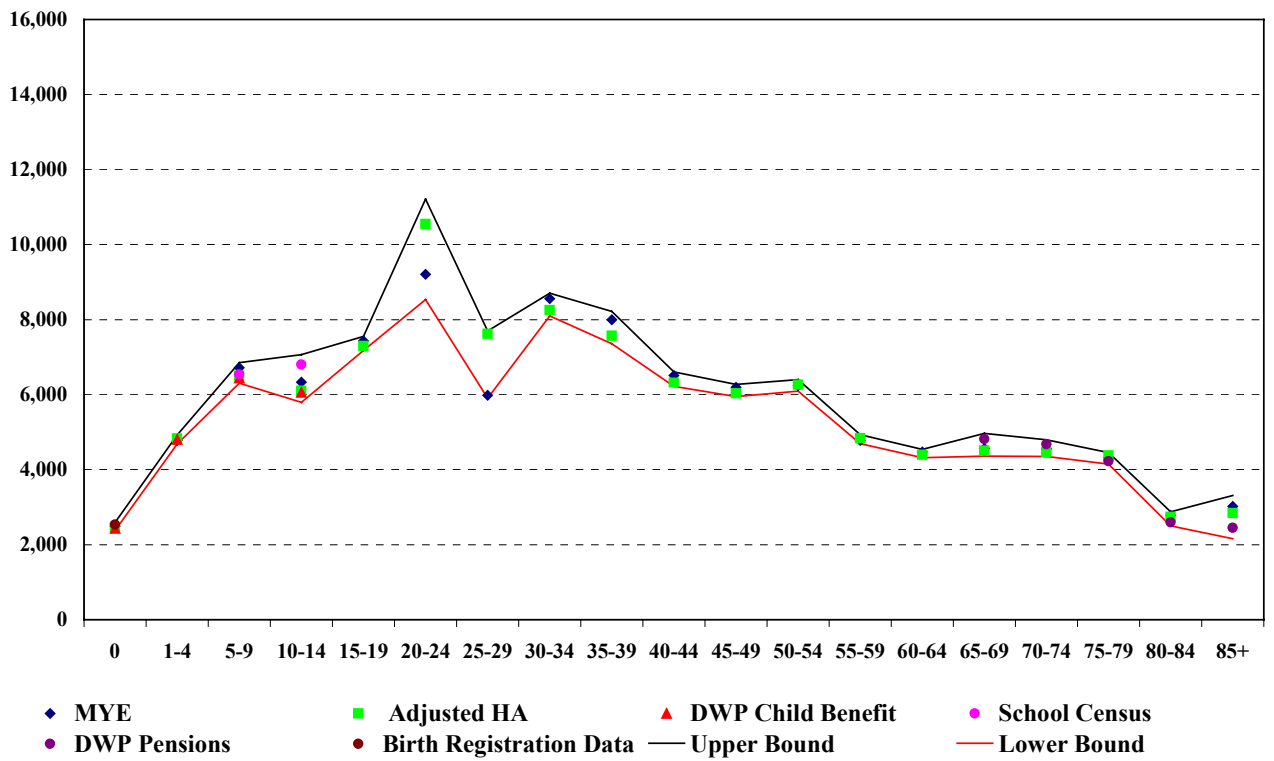


Figure 6 : Southampton ONC estimates - females

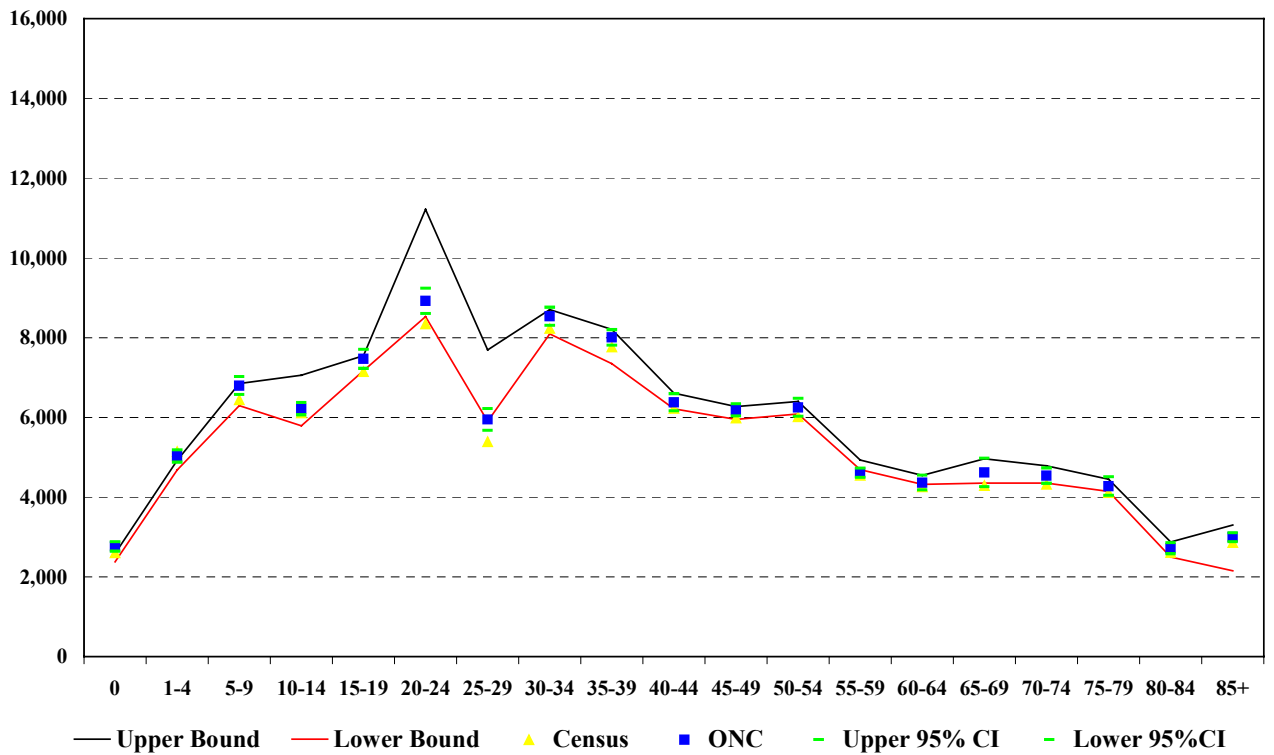


Figure 7 : Southampton diagnostic ranges – sex ratio

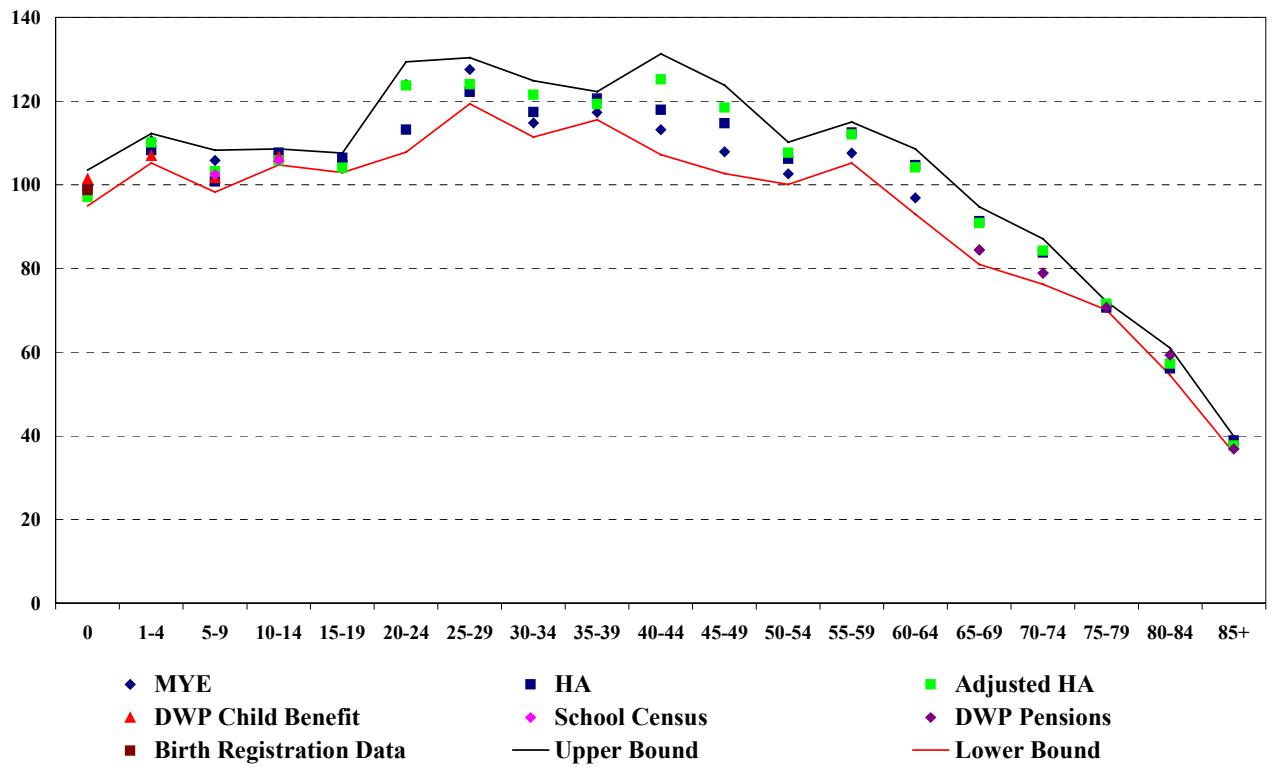
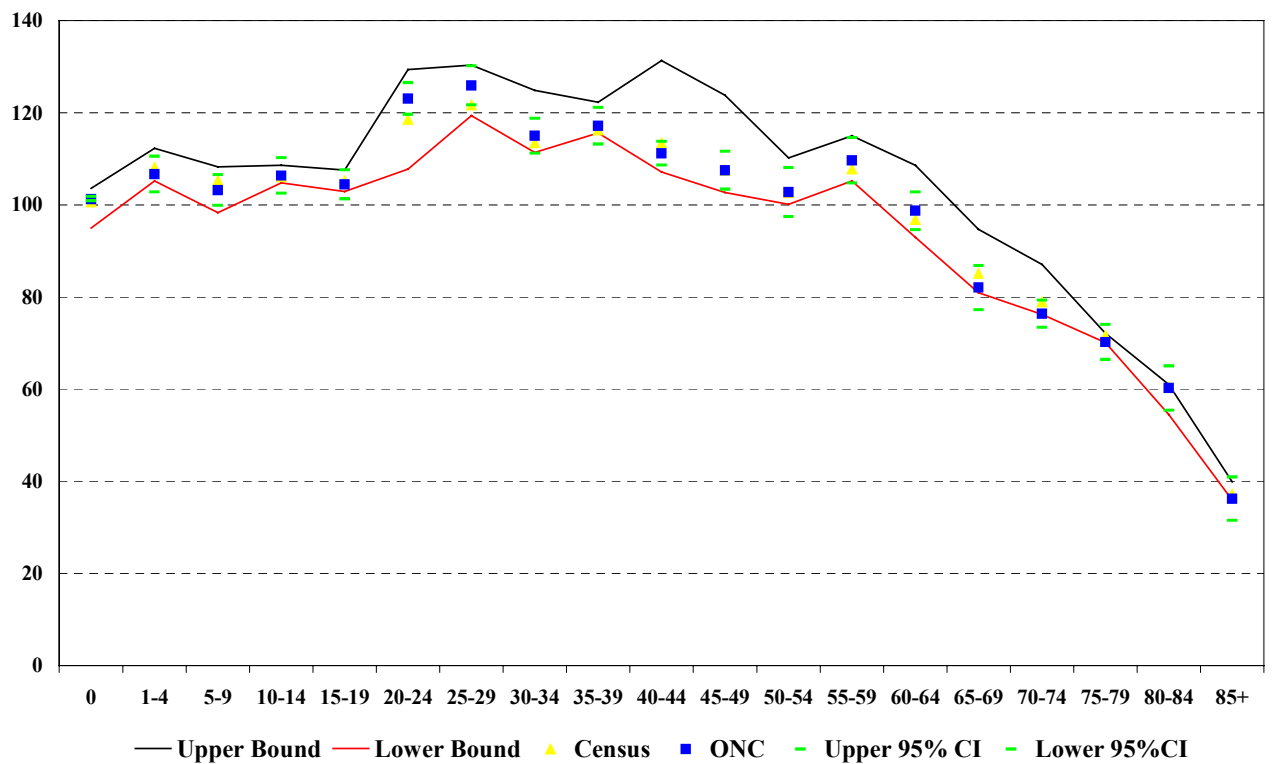


Figure 8 : Southampton ONC estimates – sex ratio



4.1.2 Qualitative quality assurance

This second stage of sub-national quality assurance will involve a systematic assessment of the following sources of qualitative information:

- information from the quantitative quality assurance procedures described in 4.1.1 (e.g. graphs, tables of differences, extent to which diagnostic ranges are exceeded);
- the unadjusted patient records count in cases where the diagnostic range has been restricted;
- information from the ONC estimation procedures (e.g. model parameters, off-diagonal components of the dual system estimators);
- comparators for specific sub-groups prone to underenumeration (e.g. DASA data on home armed forces, HESA data on students in higher education);
- past feedback received by ONS from LADs on the rolled-forward demographic estimates;
- information from the field, both Census (Census Field Management Information System - FMIS) and CCS (Team Reporting and Communication System – TRACS); and
- details of the adjustments made to the 1991 Census estimates.

Further detail on the sources of qualitative information available is outlined in Appendix B.

The data above will be available to the assessors at the same time as, and will be used in conjunction with, the quantitative data. The overall objective is to look for a body of evidence on which to accept (or reject) an ONC estimate. It should be stressed that there can be no ‘black box’ process for this stage of the ONC process. Instead the broad range of evidence will be considered.

For example, if the initial ONC estimates are broadly in agreement with the quantitative comparators, the qualitative evidence suggests that the Field Managers were largely happy and feedback from LADs since 1991 is in line with all the other information, then the estimates would be accepted. If, on the other hand, the opposite pertained, then the estimates would be rejected and the contingency described in section 5.1 invoked.

It should be noted that it will be possible to accept the ONC estimates for some age-sex groups within an LAD while rejecting others. The contingency will be invoked only for the age-sex groups that are rejected. It should also be noted that the philosophy will be that one or more ONC estimates could potentially fail the pre-determined diagnostics but still be accepted.

4.1.3 Supplementary quality assurance

The third stage of the sub-national quality assurance process will follow the ONC imputation and update processes. It will involve separate comparisons of ONC estimates for population counts with relevant comparative data: by single year of age; by local health authority; and for specific population subgroups. Any LADs or DGs failing this stage of the quality assurance will need to re-enter the imputation process.

Single Years of Age

ONC estimates for single years of age will be compared to figures drawn from the MYEs and the unadjusted HA patient register counts (with armed forces added). The distribution of single years of age within each five year age-sex group will be calculated from these comparators for each LAD and DG. Figures 9 and 10 overleaf illustrate example distributions for an LAD for selected ages (the analysis will be conducted for all single years of age). Distributions from the ONC estimates will be plotted alongside these comparators.

Figure 9 : Southampton distribution of single years of age – males

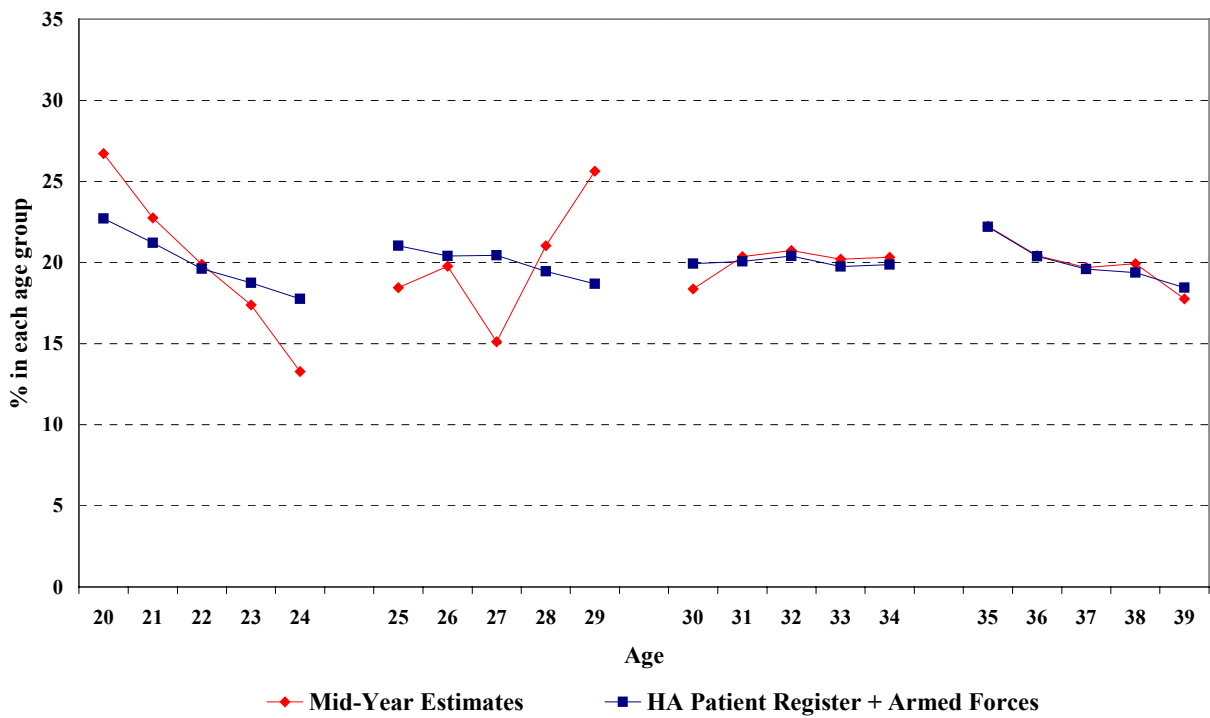
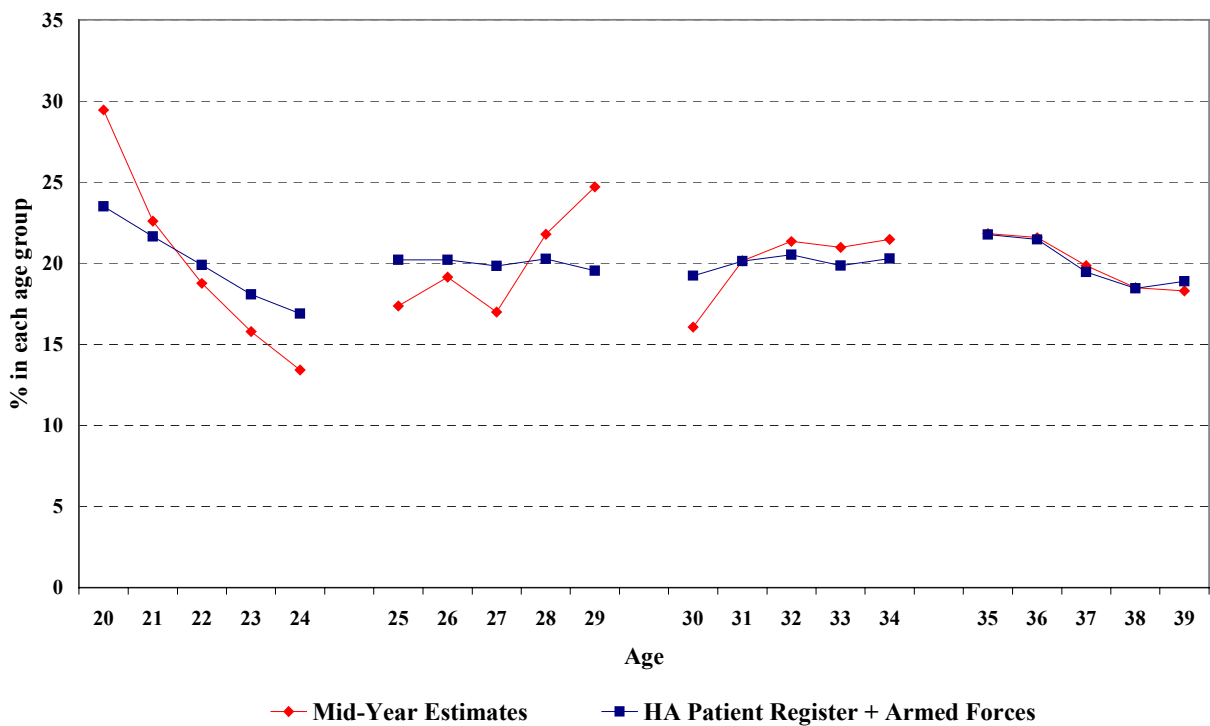


Figure 10 : Southampton distribution of single years of age – females



Health Authorities (HAs)

The proposed process to quality assure HAs is similar to the quantitative process used to check the ONC estimates at LAD and DG level. The comparators to be used in this stage of the quality assurance process, MYEs and adjusted patient register counts, will again be input into the automated system prior to receiving the ONC estimates and diagnostic ranges will be pre-calculated. The same method used for LADs and DGs will be used at the HA level to calculate a diagnostic range, defined as:

the midpoint of the range of the different comparators plus or minus the range itself

The quantitative quality assurance process at HA level is illustrated in Figures 11 and 12 overleaf for Southampton and South West Hampshire and gives an illustration of the procedure for male and female counts. The example uses mid-1999 demographic data in addition to the adjusted patient register count.

Similarly to the diagnostic ranges at an LAD level, as depicted by Figures 3 to 8, it can be seen that the ranges in these charts vary by age and sex. These diagnostic ranges have also been found to vary by HA. It is therefore proposed that the diagnostic ranges are restricted at the HA level using the values proposed for the LAD level restriction.

Population Subgroups

Finally at this stage, quality assurance will be carried out on the ONC estimates for population subgroups for which we have access to accurate and reputable comparative data. This specifically refers to students, home armed forces personnel and foreign armed forces personnel and their dependents. The sources of the comparator data are detailed below. Comparisons will be drawn for each of these groups for each LAD and DG, by sex and single year of age.

Student population counts are available from the Higher Education Statistics Agency (HESA). The only geographical aggregation available is defined by the location of the institution of study and not by the students' term-time addresses. This may result in differences between the ONC estimates and HESA data, especially in London and other large metropolitan areas.

Population counts for home armed forces are available from the Defence Analytical Services Agency (DASA) via P&D.

Population counts for foreign armed forces and their dependents are available from the United States Air Force (USAF) via P&D.

Figure 11 : Southampton and S.W. Hampshire Health Authority diagnostic range – males

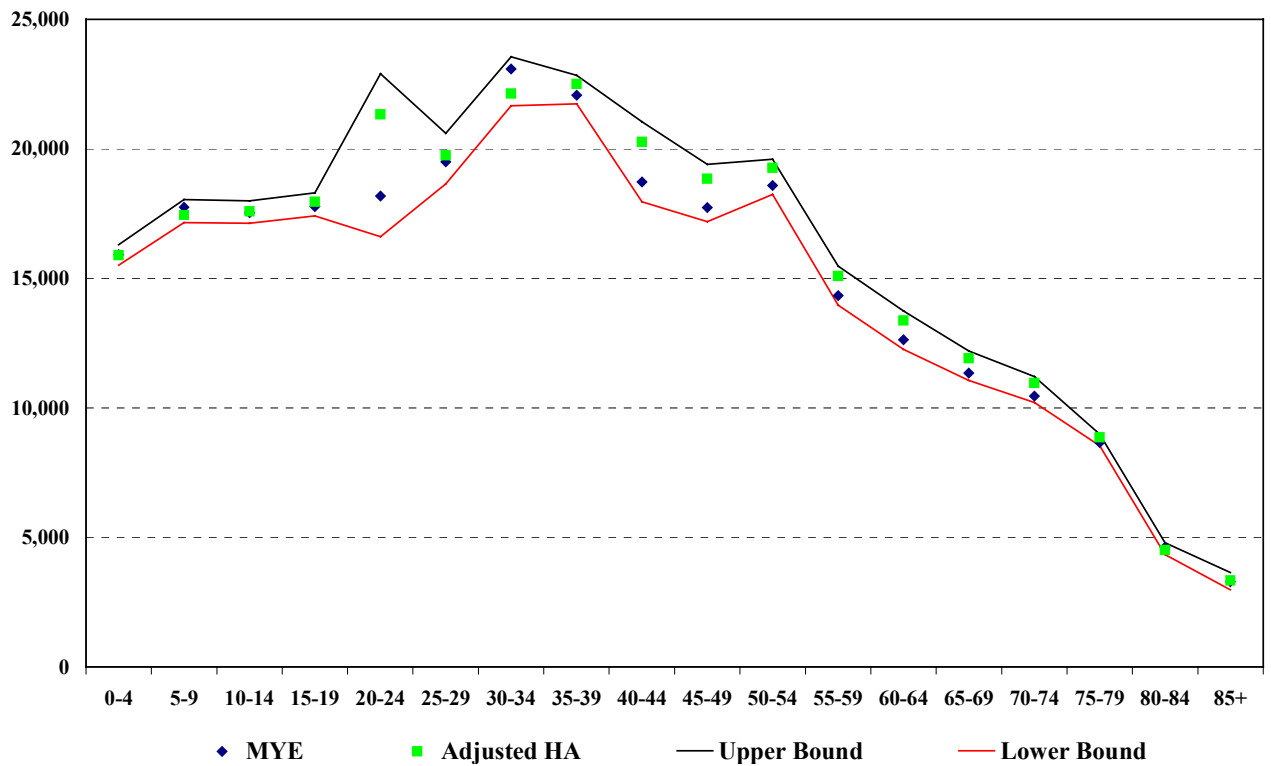
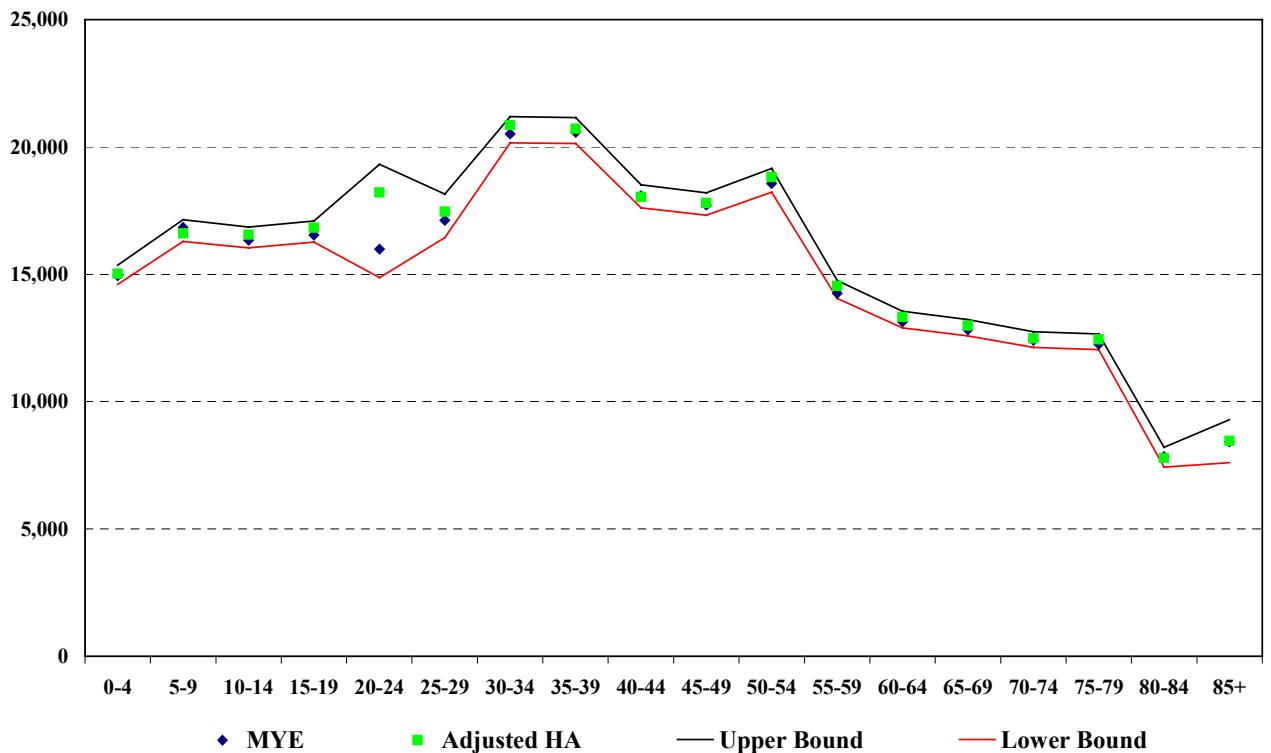


Figure 12 : Southampton and S.W. Hampshire Health Authority diagnostic range – females



4.1.4 Schedule for sub-national quality assurance and contingency

The quality assurance for each age-sex group will progress sequentially through the DGs and their constituent LADs as follows:

- If the ONC estimates for DG A are accepted, consider the constituent LADs (a_1 to a_x):
 - if the ONC estimates for LADs (a_1 to a_x) are accepted, move on to DG B;
 - if the ONC estimates for one or more LADs (a_1 to a_x) are not accepted, make adjustments at the LAD level and repeat the quality assurance of DG A.
- If the ONC estimates for DG A are not accepted, consider the constituent LADs (a_1 to a_x):
 - identify the LADs (a_1 to a_x) for which the ONC estimates are not accepted, make adjustments and repeat the quality assurance of DG A.

4.2 Detailed regional quality assurance procedures

The regional quality assurance procedures are the same as the quantitative stage of the sub-national procedures, as detailed in section 4.1.1. Quality assurance will only be conducted for a region once all ONC estimates for LADs within the region have been accepted. The comparator data will be created by aggregating across the appropriate LADs from the sub-national process. Diagnostic ranges will then be constructed from these aggregations, subject to the same restrictions. There will be no restriction of diagnostic ranges at the regional level.

It is proposed to use the regions as defined by NUTS level 3 within London and NUTS level 1 outside London.

4.3 Detailed national quality assurance procedures

Once the ONC estimates for every DG have been generated, quality assured and (if necessary) adjusted, they will be summed to produce the national ONC population estimates. These will be compared against the rolled-forward national demographic estimates for which plausibility bounds have already been estimated².

The national ONC population estimates will be accepted if they fall within the plausibility bounds of the rolled forward estimate. If they do not, however, the sub-national quality assurance results will be re-examined for systematic patterns in the ONC estimates falling above or below the corresponding demographic estimates.

It should be noted that cumulative national comparisons of DG level indicators will be compiled as the sub-national estimates pass through the quality assurance process. Any systematic patterns should be identified long before the last DG passes through quality assurance.

² For details see ONC Steering Committee Paper ONS(ONC(SC))99/05, available on request from ONS.

5. THE CONTINGENCY STRATEGY

This section describes the strategy to be used to adjust the ONC estimates if they are deemed to have failed the quality assurance process.

5.1 Sub-national adjustment: borrowing strength

If an ONC estimate is rejected for an LAD or a DG, the contingency is to make adjustments at the LAD level. There are no other data sets that are reliable and consistent enough to be substituted for the rejected ONC estimates. Therefore the contingency is to use information about similar LADs that have already passed quality assurance to make the adjustments to the rejected ONC estimates. This process is called ‘borrowing strength’ and the proposed approach is outlined in Appendix D. The new estimates produced by this process will need to pass the same quality assurance process as the initial ONC estimates.

The initial method for selecting LADs from which to borrow strength involved using the *ONS classification of Local Authorities* to identify the five most similar areas in terms of socio-economic and demographic characteristics for each and every LAD in England and Wales. This classification, published by the Methods and Quality Division of ONS, combines 37 variables from the 1991 Census to calculate a ‘distance’ between each and every other LAD in Great Britain.

As some LADs will have changed since 1991, and as plausibility and acceptability of the process is crucial to the ONC process, a consultation exercise was undertaken with local authorities in the winter of 2000/1 whereby they were given a list of the closest fifteen LADs to their own and invited to comment on whether the closest five were acceptable to them for borrowing strength or whether alternatives were preferred.

Further changes to these proposed areas for borrowing strength have been made in line with the Census processing priority order. These changes have been made in order to avoid an LAD for which the contingency has been invoked having to be put on hold for a significant length of time until all of the ‘borrowing strength’ LADs have passed through quality assurance.

The results of the consultation and amendments made as a result of the Census processing priority order have been included in the final choice of comparator areas for England and Wales, as detailed in Appendix E³. It should, however, be noted that strength will only be borrowed from LADs for which the initial ONC estimates have passed the quality assurance procedures without requiring any adjustment. In the event that one or more comparator areas do not meet this condition, alternative areas will be sought where the condition is met, using the list of fifteen closest LADs from the ONS Classification of Local Authorities and Health Authorities.

There is a possibility that the practice of borrowing strength may not work as effectively for children aged under one as for other age groups. This age group is known to commonly suffer from underenumeration in censuses. If there is underenumeration across all geographical areas, the contingency strategy would be ineffective as the areas from which we aimed to borrow strength may have suffered underenumeration themselves. We will be closely monitoring the results for this age group and may need to consider an alternative contingency strategy if borrowing strength appears to be ineffective.

³ The consultation exercise revealed some extremely useful comparator areas from which to borrow strength. Every effort has been made to accommodate these comparator areas but due to constraints imposed by the Census processing priority order minor amendments have been made to the proposed areas.

5.2 National adjustment: estimation based upon demographic information

The national ONC estimates are formed by summing the accepted sub-national estimates. If evidence suggests that adjustment is required, it is likely to be because the degree of dependence between the Census and CCS collection procedures was too high. A diagnostic would be, for example, that all estimates were a little low (or high). It should be stressed that the risk of this happening is assessed to be extremely low as it is believed to be extremely unlikely that the CCS would fail to detect underenumeration everywhere.

The contingency strategy for adjustment of the estimates at the national level is based on an adjustment to the dual system estimator (DSE), the basic tool used to make the ONC estimates (see A Guide to the One Number Census). The strategy is similar to that used in 1991 in England and Wales (see Heady et al, 1995) when the unadjusted Census counts exhibited implausible sex ratios. Plausible sex ratios were developed based on previous censuses. In a similar situation in 2001, target sex ratios might be arrived at by imputing forwards from those for 1961, 1971, 1981 and 1991.

The DSE makes estimates at the DG level based on the elements of the table below. By assuming independence between the Census and the CCS, the DSE estimates the number of people missed by both surveys.

	In CCS	Missed by CCS	
In Census	n_{11i}	n_{10i}	n_{1+i}
Missed by Census	n_{01i}		
	n_{+1i}		

If target sex ratios were chosen as described earlier, either at the national or the sub-national level, an adjustment could be made using the following formula:

$$\hat{T}_g^a = \hat{T}_g + \frac{\sum_d \left\{ \frac{\sum_s \left(\frac{n_{10i} n_{01i}}{n_{11i}} \right) X_{dg}}{\sum_s n_{1+i}} \right\}}{\sum_g \sum_d \left\{ \frac{\sum_s \left(\frac{n_{10i} n_{01i}}{n_{11i}} \right) X_{dg}}{\sum_s n_{1+i}} \right\}} (\hat{T}^a - \hat{T})$$

where: g represents a Design Group;

d represents a category of the Hard to Count (HtC) index;

X is the national unadjusted Census count for a particular age group of the male population;

\hat{T} is the national ONC estimate for a particular age group of the male population; and

\hat{T}^a is the target based on sex ratio analysis with the appropriate female population

In the event that there is no evidence of a sex-specific dependence then some other demographic information would be used, for example an agreed population count. In this unlikely event, the formula would be similar to that above.

6. REFERENCES

Bailey, S. et al (1999), *'The ONS classification of local and health authorities of Great Britain: revised for authorities in 1999'*, Office for National Statistics publication.

Charlton, J. & Chappell, R. (1999), *'Uncertainty Intervals for the 2001 National Demographic Estimates'*, ONS(ONC(SC))99/05.

Charlton, J. & Chappell, R. (2000), *'Uncertainty Intervals for National Demographic Estimates – Update'*, ONC(PB)00/06.

Cruddas, M. & Diamond, I. (2000), *'A Quality Assurance and Contingency Strategy for the One Number Census'*, ONS(ONC(SC))00/04.

Diamond, I. & Wright, E. (2000), *'Taking Forward the ONC Quality Assurance and Contingency Strategy'*, ONS(ONC(SC))00/18.

Heady, P., Smith, S. & Avery, V. (1994), *'1991 Census Validation Survey: Coverage Report'*, London HMSO.

Wright, E. (2000), *'A Quality Assurance and Contingency Strategy for the One Number Census'*, ONS Census Advisory Group Paper (00)16.

Appendix A

Comparators to be used in the ONC quality assurance process

This appendix describes in detail the comparators that will be used in the quality assurance process.

1. Demographic estimates

Rolled-forward mid-year population estimates (MYEs) are produced every year by the Population Estimates Unit (PEU) of Population & Demography (P&D) Division within ONS. The MYEs are produced by age and sex for each LAD in England and Wales, and these demographic estimates will be used as one of the main comparators for all age groups in the ONC quality assurance procedures both nationally and sub-nationally. However, because the estimates have been rolled forward from the 1981 Census (using births, deaths, estimates of migration, and estimated underenumeration for the 1991 Census), they are subject to a degree of error. Plausibility bounds have therefore been estimated for the demographic estimates at a national level (see Charlton and Chappell 1999, 2000).

The rolled-forward MYEs for 2001 will not be available to feed into the sub-national ONC quality assurance process (due to many of the constituent components that make up the estimates not being available in time). Alternative demographic estimates will therefore be required for use in ONC quality assurance procedures at both sub-national (DG, LAD and regional) and national levels:

Sub-national level

ONC estimates for the first England and Wales DG should be quality assured around September 2001. It is currently proposed that published 2000 MYEs will be used in this process. It is also proposed that the 2000 MYEs be extrapolated forward to mid-2001 to allow for average annual population change between mid-1991 and mid-2000. These extrapolations are expected to become available in October 2001, at which time they will be treated as an additional comparator data set.

National level

The final rolled-forward 2001 MYEs for England and Wales as a whole are not likely to be available until early July 2002. It is therefore proposed that the Government Actuary's Department (GAD) 2000-based population projections for 2001 are used as the provisional national demographic estimate until the final 2001 MYEs are available.

2. Birth registration data

The civil registration system records all new births in the population, and this will therefore be a key source of data when quality assuring ONC estimates for children aged under one year (a group of the population which censuses worldwide seem to undercount to a greater extent). ONS's methods will be used for adjusting the registration data on births at both national and sub-national levels for infant deaths and migration to produce a high quality comparator for use in the ONC quality assurance procedures.

3. DWP child benefit data

The Benefits Agency administer the Child Benefit Claimant Register which holds information on all persons claiming child benefit in the UK and the children for whom the benefit is claimed. As child benefit is almost universally taken up for children in the UK, this administrative register is potentially a good source of information on those aged under 16 (the benefit can only be claimed for those children aged 16 and over who remain in full-time 'school-type' education). In order to aggregate these records and use them as a comparator in ONC quality assurance procedures, certain problems need to be borne in mind and overcome.

- Many of the postcodes on the records are either missing, contain errors, or are out of date. It is therefore necessary to validate the postcodes against address details using postcoding software before any data is aggregated geographically.
- New-born children can take up to three months to appear on the Child Benefit register, due to delays in claims being made and the information subsequently being added to the register. It is therefore necessary to obtain an additional extract from the register approximately three months after the reference date required to obtain information on children born on or before the reference date for whom benefit has subsequently been claimed and to add these records to the extract relating to the reference date.

ONS are liaising with DWP and Oxford University to obtain 'clean' child benefit data for August 2000 for which the above problems have been addressed.

4. DWP retirement pensions data

The Benefits Agency administers the Retirement Pension Register that holds information on all persons claiming a state retirement pension in the UK. Almost all persons aged 65 or over are entitled to claim some form of state retirement pension, be it as a recipient of a full contributory pension, a partner of such a recipient, a recipient of a non-contributory pension, or a combination of these options. This administrative register is potentially a good source of information on those aged 65 and over. However there are again problems that need to be overcome and issues that need to be borne in mind if the records are to be aggregated and used as a comparator in ONC quality assurance procedures:

- In common with the Child Benefit Register, many of the postcodes are either missing, contain errors, or out of date and it is therefore necessary to validate these before any data are aggregated geographically.
- To ensure maximum coverage of the population aged 65 and over without duplication, records relating to each of the different types of pension (as well as benefits such as Severe Disability Allowance and Incapacity Benefit) need to be extracted and linked by National Insurance number.

ONS are again liaising with DSS and Oxford University to obtain 'clean' retirement pension data for May 2000 for which the above problems have been overcome.

5. HA patient register data

Patient registers administered by individual health authorities provide the most comprehensive administrative source in terms of coverage of the whole population. Previous work conducted by ONS, however, concluded that data derived from these registers were unsuitable to be used alone for producing population estimates due to:

- coverage differences with the resident population, as certain groups such as armed forces personnel are excluded from patient registers; and
- errors caused by delays in people who have died or moved out of a health authority being removed from the register, duplicate entries and people having more than one NHS number.

It is believed, however, that these data provide a useful additional source of population estimate as they are based on more recent data than the MYEs and do include a high proportion of the population resident in an area. An adjustment will be made to address the issues above (see stages 1 and 2 of section 4.1.1).

6. School census data

The School Census is an annual count of all children attending educational establishments, including schools which are privately funded. In England, information relating to the 1 January is collected from local authorities by DfES each year, whilst in Wales, Scotland and Northern Ireland this role is carried out by the appropriate devolved government authority and has a different reference date. ONS are currently liaising with DfES to establish how School Census data might be used in the quality assurance procedures for 5-14 year olds in 2001.

One significant problem with this data set is that the data relate to place of study rather than place of residence and therefore there is the problem of children living in one LAD/DG/region/country and attending a school in another. For this reason, it is likely that less weight will be placed upon School Census data in the quality assurance procedures.

7. Population subgroup data

Comparative information is available to quality assure the ONC estimates for three specific population subgroups:

- students in higher education provided by the Higher Education Statistics Agency (HESA);
- home armed forces personnel provided by the Defence Analytical Services Agency (DASA) via P&D;
- foreign armed forces personnel and their dependents are available from the United States Air Force (USAF) via P&D.

Appendix B

Sources of qualitative information

1. Parameters from ONC estimation process

Data will be collected throughout the ONC estimation process.

2. Census/CCS information sources

Information	Source
<u>Census</u>	
Census Field Information, e.g. forms delivered, forms collected, refusals.	Field Management Information System (FMIS) feeding into: dedicated field Lotus Notes database
Detailed Census field information	Enumerator Record Books (ERBs)
Checks done by Lockheed Martin Checks done by ONS Information about problems encountered	Data Quality Management Programme (DQMP)
Summary of results for each LAD fed into Lotus Notes Database	Data Quality Monitoring System (DQMS)
Issues that could lead to a request for change (RFC) or a datafile amendment (DFA) recorded on Lotus Notes Database	Data Quality Reviewing Procedure (DQRP)
Information on where enumerators have 'doubled up' on workloads	Payroll
Cumulative Postback Response rates by area	CenIntel
Information on number and type of calls to Census Helpline	CenIntel
Information on where Census forms were posted out (rather than delivered by enumerators): both a) planned (e.g. foot & mouth areas) b) unplanned (e.g. calls to helpline)	
Information on Direct Returns	Direct Returns database
Some enumerators staying on in field up until 28 May 2001	Data Collection Development
Creation of Emergency EDs where the workload for an enumerator was greater than originally planned	Geography Database

General geography problems such as out of date AP, results of ERBs or Maps, old map backgrounds etc.	ERBs, (Census Geography Notes database)
Census Query Resolution – give us an idea of whether an area was throwing up lots of problems	Database of queries
Enumerator questionnaires/debriefing? - CAMs debriefed only	Data Collection Development
Issues arising in processing (including TOAST)	Operational Processing on CENEXT1
<u>CCS</u>	
CCS Field Information - e.g. households identified, interviews achieved, refusals, etc.	Team Reporting & Communication System (TRACS)
Detailed CCS Field Information	Property Listing Sheets
Information on occurrence of foot & mouth restrictions in sample areas	Field checks
Problems identified early by Team Managers	Geography Field checks (on TRACS)
Information on where interviewers have "doubled up" on workloads & information on problems encountered in the field	Debriefing questionnaire
Problems with processing CCS data	Database maintained by ONC
Information on location of SSD interviewers	

3. Administrative data on specific subgroups

ONC estimates for specific subgroups (in particular students and the armed forces) will be compared with data from relevant administrative sources (HESA for students, DASA for British armed forces and USAF for American armed forces and their dependents).

4. Local authority feedback on past population estimates

P&D to produce profiles of each LAD. Profiles to include mid year population estimates from 1991 onwards; average annual change since mid 1991; natural change since mid 1991; change in migration since mid 1991; annual estimates of net migration; post 1991 estimated error of rolled forward population estimate; significant presence of difficult to estimate groups; boundary changes involving a net movement of at least 100 people; details of any communication between each LAD and P&D.

5. Information on the 1991 Census

Information gathered on the adjustments made in the 1991 Census and the rebasing of population estimates.

Appendix C

Formal process of quality assuring ONC estimates

The formal sub-national quality assurance process will commence September 2001 and will involve weekly meetings. Data for approximately four DGs will be available each week and the quality assurance process will be undertaken for each of these DGs and their constituent LADs. A list of attendees to these weekly meetings is outlined below:

Andy Teague	Deputy Director Census, ONS
Ian Diamond	Southampton University
Jennet Woolford	Project Manager ONC team, ONS
Roma Chappell	Population and Demography Division, ONS
Craig Duncan	SRO, Population Estimates Unit, ONS
Jim Newman	SRO, Quality Assurance, One Number Census, ONS

Minutes will be taken at every meeting and placed on the Notes Database.

It is proposed that Ian Diamond will attend a Scotland and a Northern Ireland quality assurance meeting and a representative from each of Scotland and Northern Ireland will attend one of the quality assurance meetings in England and Wales to ensure the consistency of the quality assurance process across the UK.

Appendix D

Borrowing strength methodology

Should the quality assurance procedures indicate that the ONC estimates for an LAD need to be adjusted, the basic contingency strategy will be to use information on underenumeration from demographically similar areas.

In the case where the evidence suggests that the ONC estimates for an LAD are too low (or high), the strategy is as follows. It should be noted that this might occur for one or more Hard to Count or demographic sub-groups (in which case adjustment could be restricted to only those sub-groups affected).

1. For LAD 'A' in DG 'X' the ONC estimate has a ratio estimate:

$$A \quad \text{ONC} = 1.01 \text{Census} \quad (1)$$

where *Census* is the Census count.

2. In five demographically similar LADs that have passed quality assurance, *B-F*, the ratio estimates are:

$$B \quad \text{ONC} = 1.03 \text{Census} \quad (2)$$

$$C \quad \text{ONC} = 1.02 \text{Census} \quad (3)$$

$$D \quad \text{ONC} = 1.04 \text{Census} \quad (4)$$

$$E \quad \text{ONC} = 1.03 \text{Census} \quad (5)$$

$$F \quad \text{ONC} = 1.02 \text{Census} \quad (6)$$

3. Taking the weighted average of these five comparator areas gives:

$$\text{ONC} = 1.03 \text{Census} \quad (7)$$

4. LAD *A* is then re-estimated using this new ratio estimate and the quality assurance procedure is repeated for both LAD *A* and DG *X*.

It should be noted that one could expect different levels of dependence, say, for men and women. Hence it would not be sensible to make a uniform adjustment or one could end up with an erroneous sex ratio. Therefore, adjustments will be made separately for each age-sex and Hard to Count group.

Appendix E

Proposed areas for borrowing strength

The following pages give details of the proposed comparator areas for each LAD in England and Wales. It is expected that it will be these LADs from which strength will be borrowed if the quality assurance procedures indicate that the ONC estimates for any particular LAD require further adjustment.

The proposed comparator areas highlighted on the following pages have used the *ONS classification of Local and Health Authorities* to identify the five most similar areas in terms of socio-economic and demographic characteristics.

A consultation exercise was held with statistical liaison officers in local government to see whether the five selected similar areas were acceptable. Some revisions have been made following this consultation and these changes are shown in red

Further revisions were also required to address the fact that the LADs will be processed in a set order over a period of several months. If the contingency does need to be invoked for an LAD, it would be impractical to borrow strength from an LAD that was some way down the processing order. This could introduce excessive delays and backlogs of LADs waiting to pass through the contingency process. Changes to address this issue are shown in purple.

Note : These revisions only apply for borrowing strength. The process to estimate adjusted patient register counts (detailed in 4.1.1, Stage 2) uses the five most similar areas as defined by the *ONS classification of Local and Health Authorities*.

These comparator areas will only be used if the ONC estimates in the comparator LADs have passed the ONC quality assurance procedures without requiring any further adjustment (i.e. the CCS is thought to have worked well in the comparator LADs). Should this condition not be met for one or more of the comparator LADs, alternative areas will be sought for which the socio-economic and demographic characteristics are also similar to the LAD requiring adjustment, but where the condition is met.

APPENDIX E: AREAS FOR BORROWING STRENGTH

AREAS FROM WHICH TO BORROW STRENGTH IN ENGLAND & WALES

DESIGN GROUP LOCAL AUTHORITY	1	2	3	4	5
MID LINCOLNSHIRE					
BOSTON	KINGS LYNN & WEST NORFOLK	FENLAND	BRECKLAND	OSWESTRY	SOUTH HOLLAND
EAST LINDSEY	NORTH NORFOLK	NORTH CORNWALL	KINGS LYNN & WEST NORFOLK	NORTH DEVON	WEST SOMERSET
# LINCOLN	DARLINGTON NORWICH	SOUTHAMPTON IPSWICH	PLYMOUTH CAMBRIDGE	BRISTOL CITY OF OXFORD	SALFORD GLOUCESTER
# NORTH KESTEVEN	PURBECK	EAST RIDING OF YORKSHIRE	WEST LINDSEY	SOUTH NORFOLK	BRECKLAND
# SOUTH HOLLAND	BOSTON	KINGS LYNN & WEST NORFOLK	FENLAND	RYDALE	EDEN NORTH SHROPSHIRE
# SOUTH KESTEVEN	WEST WILTSHIRE	MENDIP	MELTON	ASHFORD	BABERGH
WEST LINDSEY	HEREFORDSHIRE, COUNTY OF	NORTH SHROPSHIRE	FOREST OF DEAN	EAST RIDING OF YORKSHIRE	NORTH DEVON
CAMBRIDGESHIRE					
CAMBRIDGE	OXFORD	RICHMOND UPON THAMES	CHELTENHAM	READING	KINGSTON UPON THAMES
EAST CAMBRIDGESHIRE	MID SUFFOLK	NORTH WILTSHIRE	MELTON	SOUTH KESTEVEN	WYCHAVON
# FENLAND	KINGS LYNN & WEST NORFOLK	BRECKLAND	BOSTON	OSWESTRY	CREWE & NANTWICH SEDGEMOOR
# PETERBOROUGH	NORTHAMPTON	GLOUCESTER	TELFORD & WREKIN	WELLINGBOROUGH	BLYTH VALLEY LINCOLN
SOUTH CAMBRIDGESHIRE	VALE OF WHITE HORSE	SOUTH OXFORDSHIRE	EAST HAMPSHIRE	WEST BERKSHIRE	AYLESBURY VALE
NORTH ANGLIA					
BROADLAND	SOUTH NORFOLK	TEWKESBURY	FAREHAM	BROMSGROVE	NORTH SOMERSET
# GREAT YARMOUTH	DOVER	DARLINGTON KERRIER	WAVENEY	THANET	SHEPWAY
KINGS LYNN & WEST NORFOLK	BRECKLAND	FENLAND	BOSTON	OSWESTRY	NORTH DEVON
NORTH NORFOLK	WEST SOMERSET	WEST DORSET	EAST LINDSEY	EAST DEVON	KINGS LYNN & WEST NORFOLK
WEST ANGLIA					
BABERGH	STROUD	WYCHAVON	MENDIP	WEST WILTSHIRE	SOUTH KESTEVEN
# BRECKLAND	KINGS LYNN & WEST NORFOLK	FENLAND	SOUTH SOMERSET	SEDGEMOOR	NORTH DEVON
FOREST HEATH	CHERWELL	GOSPORT	RUSHMOOR	KENNET	RICHMONDSHIRE HUNTINGDONSHIRE
MID SUFFOLK	EAST CAMBRIDGESHIRE	WYCHAVON	BABERGH	MENDIP	MELTON
ST EDMUNDSBURY	WEST WILTSHIRE	SOUTH KESTEVEN	RUGBY	NORTH WILTSHIRE	EAST NORTHAMPTONSHIRE
SOUTH NORFOLK & EAST SUFFOLK					
# IPSWICH	WORCESTER	GLOUCESTER	LEEDS BRISTOL CITY OF	SOUTHAMPTON	CARLISLE PLYMOUTH
# NORWICH	LINCOLN	BRISTOL, CITY OF	SOUTHAMPTON	SHEFFIELD PLYMOUTH	PORTSMOUTH
SOUTH NORFOLK	STRATFORD ON AVON	BROADLAND	WYCHAVON	BABERGH	TEWKESBURY
# SUFFOLK COASTAL	NORTH DORSET	COTSWOLD	PURBECK	SALISBURY	HARROGATE SHREWSBURY & ATCHAM
# WAVENEY	GREAT YARMOUTH	GBARBOROUGH FENLAND	NORTH DEVON	SEDGEMOOR	ALLERDALE KINGS LYNN & WEST NORFOLK
NORTHERN ESSEX					
# BRAINTREE	ASHFORD	SOUTH KESTEVEN KETTERING	WEST WILTSHIRE	MAIDSTONE	NORTH WARWICKSHIRE
# COLCHESTER	ASHFORD	MAIDSTONE	BEDFORD	BRAINTREE	SHREWSBURY & ATCHAM
# TENDRING	ISLE OF WIGHT	ARUN	CONWAY TORBAY	THANET	SHEPWAY
# UTTLESFORD	EAST HAMPSHIRE	HARBOROUGH WINDSOR & MAIDENHEAD	SOUTH NORTHAMPTONSHIRE	SOUTH OXFORDSHIRE	SOUTH CAMBRIDGESHIRE
WESTERN ESSEX					
BASILDON	GRAVESHAM	THURROCK	MEDWAY	NORTHAMPTON	STEVENAGE
BRENTWOOD	TANDRIDGE	EPSOM & EWELL	THREE RIVERS	SEVENOAKS	MOLE VALLEY
# EPPING FOREST	THREE RIVERS	SEVENOAKS	HERTSMERE	BRENTWOOD	MAIDSTONE
# HARLOW	STEVENAGE	CRAWLEY	BASILDON	THURROCK	CHESTER LE STREET NORTHAMPTON
# THURROCK	MEDWAY	BASILDON	GRAVESHAM	NORTHAMPTON	TAMESIDE SWINDON
EASTERN ESSEX					
# CASTLE POINT	ROCHFORD	GEDLING EPPING FOREST	HAVERING	SOLI HULL BROADLAND	MALDON
# CHELMSFORD	EAST HERTFORDSHIRE	WOKING	EASTLEIGH	MAIDSTONE	TONBRIDGE & MALLING
# MALDON	BABERGH	STROUD	LICHFIELD WYCHAVON	TONBRIDGE & MALLING	DAVENTRY
# ROCHFORD	CASTLE POINT	SOLI HULL THREE RIVERS	BROADLAND	EPPING FOREST	MALDON
# SOUTHEND-ON-SEA	HASTINGS	WORTHING	SHEPWAY	CANTERBURY	ADUR
NORTH CHESHIRE					
HALTON	HARTLEPOOL	REDCAR & CLEVELAND	MIDDLESBROUGH	ST HELENS	DONCASTER
# MACCLESFIELD	RUSHCLIFFE	WINDSOR & MAIDENHEAD	STRATFORD ON AVON	MONMOUTHSHIRE	WINCHESTER CONGLETON
WARRINGTON	BURY	CHORLEY	WORCESTER	HIGH PEAK	STOCKPORT
SOUTH CHESHIRE					
# CHESTER	SHREWSBURY & ATCHAM LANCASTER	TYNEDALE WINCHESTER	TRAFFORD NEWCASTLE-UNDER-LYME	EAST RIDING OF YORKSHIRE GWYNEDD	TAUNTON-DEANE CHARNWOOD
# CONGLETON	LICHFIELD MALDON	HARBOROUGH NORTH SHROPSHIRE	BABERGH BROMSGROVE	DAVENTRY SEFTON	WYCHAVON MONMOUTHSHIRE
# CREWE & NANTWICH	EAST-STAFFORDSHIRE TRAFFORD	OSWESTRY STAFFORD	SEDGEMOOR KIRKLEES	NEWARK & SHERWOOD WARWICK	HAVANT STOKE-ON-TRENT
# ELLESMERE PORT & NESTON	FLINTSHIRE	NEWCASTLE-UNDER-LYME WREXHAM	BASSETLAW WIGAN	WARRINGTON	CREWE & NANTWICH WEST LANCASHIRE
# VALE ROYAL	FLINTSHIRE	WARRINGTON	HIGH PEAK	NEWCASTLE-UNDER-LYME WEST LANCASHIRE	MENDIP NORTH WEST LEICESTERSHIRE

Local authorities marked with a '#' have had one or more amendments made.
 Amendments resulting from the consultation exercise are shown in red plain text.
 Amendments resulting from the processing priority order are shown in purple italics.

APPENDIX E: AREAS FOR BORROWING STRENGTH

SHROPSHIRE & HEREFORDSHIRE						
	BRIDGENORTH	WYCHAVON	DERBYSHIRE DALES	NORTH SHROPSHIRE	STRATFORD ON AVON	FOREST OF DEAN
	HEREFORDSHIRE, COUNTY OF	NORTH DEVON	MID DEVON	WEST LINDSEY	NORTH SHROPSHIRE	NORTH DORSET
	NORTH SHROPSHIRE	HEREFORDSHIRE, COUNTY OF	WEST LINDSEY	BRIDGNORTH	NORTH DORSET	MID DEVON
	OSWESTRY	SEDEGMOOR	HEREFORDSHIRE, COUNTY OF	KINGS LYNN & WEST NORFOLK	CREWE & NANTWICH	FENLAND
#	SHREWSBURY & ATCHAM	TAUNTON DEANE	EAST RIDING OF YORKSHIRE STAFFORD	ASHFORD	SOUTH KESTEVEN	CHESTER
#	SOUTH SHROPSHIRE	RYEDALE NORTH CORNWALL	POWYS	TORRIDGE	WEST DEVON	NORTH SHROPSHIRE
	TELFORD & WREKIN	NUNEATON & BEDWORTH	WELLINGBOROUGH	PETERBOROUGH	TAMWORTH	REDDITCH
GLOUCESTERSHIRE						
#	CHELTENHAM	YORK POOLE	TAUNTON DEANE	BATH & NORTH EAST SOMERSET	EXETER	TRAFFORD BRISTOL, CITY OF
#	COTSWOLD	NORTH DORSET	SUFFOLK COASTAL	RUTLAND PURBECK	CHICHESTER	HAMBLETON WEST DORSET
#	FOREST OF DEAN	WEST LINDSEY SEDGEMOOR	NEWARK & SHERWOOD BABERGH	MENDIP	WYRE FOREST STROUD	SOUTH SOMERSET
#	GLOUCESTER	WORCESTER SOUTHAMPTON	NORTHAMPTON BRISTOL, CITY OF	SWINDON	IPSWICH WATFORD	PETERBOROUGH HAVANT
#	STROUD	BABERGH MALDON	WYCHAVON SOUTH SOMERSET	TEWKESBURY	MENDIP	WEST WILTSHIRE
#	TEWKESBURY	STROUD	STAFFORD MAIDSTONE	WEST WILTSHIRE	BABERGH TEST VALLEY	WYCHAVON FAREHAM
WORCESTERSHIRE						
	BROMSGROVE	LICHFIELD	STRATFORD ON AVON	HARBOROUGH	FAREHAM	SOUTH STAFFORDSHIRE
	MALVERN HILLS	STRATFORD ON AVON	CHICHESTER	MONMOUTHSHIRE	DERBYSHIRE DALES	SOUTH NORFOLK
	REDDITCH	TAMWORTH	TELFORD & WREKIN	WELLINGBOROUGH	MILTON KEYNES	NORTHAMPTON
#	WORCESTER	GLOUCESTER	KETTERING	YORK SWINDON	WARRINGTON	BURY IPSWICH
	WYCHAVON	BABERGH	STROUD	STRATFORD ON AVON	BRIDGNORTH	DAVENTRY
	WYRE FOREST	NORTH WEST LEICESTERSHIRE	SOUTH DERBYSHIRE	AMBER VALLEY	NORTH WARWICKSHIRE	RUGBY
WEST STAFFORDSHIRE						
	NEWCASTLE UNDER LYME	FLINTSHIRE	CHESTERFIELD	BASSETLAW	NORTH EAST DERBYSHIRE	AMBER VALLEY
	STAFFORD	TEWKESBURY	MAIDSTONE	STROUD	BABERGH	SHREWSBURY & ATCHAM
#	STOKE ON TRENT	REDCAR & CLEVELAND CHESTERFIELD	ROTHERHAM NORTH LINCOLNSHIRE	ST HELENS	HALTON	WAKEFIELD NEWCASTLE UNDER LYME
EAST STAFFORDSHIRE						
	CANNOCK CHASE	NORTH WARWICKSHIRE	NUNEATON & BEDWORTH	FLINTSHIRE	TELFORD & WREKIN	EREWASH
	EAST STAFFORDSHIRE	CREWE & NANTWICH	HAVANT	EREWASH	WYRE FOREST	KETTERING
	LICHFIELD	SOUTH STAFFORDSHIRE	BROMSGROVE	CONGLETON	DAVENTRY	SOLIHULL
	SOUTH STAFFORDSHIRE	LICHFIELD	BROMSGROVE	TONBRIDGE & MALLING	BLABY	MALDON
	STAFFORDSHIRE MOORLANDS	SOUTH DERBYSHIRE	NORTH WEST LEICESTERSHIRE	WYRE FOREST	AMBER VALLEY	FOREST OF DEAN
	TAMWORTH	REDDITCH	TELFORD & WREKIN	CANNOCK CHASE	NUNEATON & BEDWORTH	WELLINGBOROUGH
DALES & NORTH DERBYSHIRE						
	BOLSOVER	MANSFIELD	BARNLEY	ASHFIELD	BASSETLAW	ROTHERHAM
	CHESTERFIELD	WAKEFIELD	NEWCASTLE UNDER LYME	ROTHERHAM	DARLINGTON	MANSFIELD
	DERBYSHIRE DALES	BRIDGNORTH	MONMOUTHSHIRE	STRATFORD ON AVON	EAST RIDING OF YORKSHIRE	WYCHAVON
	HIGH PEAK	WARRINGTON	BURY	CHORLEY	SOUTH DERBYSHIRE	RUGBY
	NORTH EAST DERBYSHIRE	NEWARK & SHERWOOD	NEWCASTLE UNDER LYME	NORTH WARWICKSHIRE	BROXTOWE	NORTH WEST LEICESTERSHIRE
	SOUTH DERBYSHIRE	NORTH WEST LEICESTERSHIRE	NORTH WARWICKSHIRE	WYRE FOREST	HINCKLEY & BOSWORTH	STAFFORDSHIRE MOORLANDS
EAST DERBYSHIRE						
	AMBER VALLEY	NORTH WEST LEICESTERSHIRE	WYRE FOREST	SOUTH DERBYSHIRE	EREWASH	NEWCASTLE UNDER LYME
	DERBY	KIRKLEES	BOLTON	PRESTON	CALDERDALE	TAMESIDE
	EREWASH	KETTERING	AMBER VALLEY	DUDLEY	NUNEATON & BEDWORTH	EAST STAFFORDSHIRE
NORTH NOTTINGHAMSHIRE						
#	ASHFIELD	NUNEATON & BEDWORTH	BOLSOVER	MANSFIELD	EREWASH	WIGAN
	BASSETLAW	NEWARK & SHERWOOD	NORTH LINCOLNSHIRE BOLSOVER	NEWCASTLE UNDER LYME	FLINTSHIRE CHESTERFIELD	ALLERDALE NORTH WEST LEICESTERSHIRE
	GEDLING	BROXTOWE	STOCKPORT	RUGBY	SOUTH RIBBLE	SOLIHULL
	MANSFIELD	WAKEFIELD	WIGAN	DONCASTER	BOLSOVER	ROTHERHAM
#	NEWARK & SHERWOOD	FOREST OF DEAN AMBER VALLEY	BASSETLAW	NORTH EAST DERBYSHIRE HIGH PEAK	NORTH WEST LEICESTERSHIRE WYRE FOREST	WEST LINDSEY EAST STAFFORDSHIRE
SOUTH NOTTINGHAMSHIRE						
#	BROXTOWE	GEDLING	RUGBY	CHARNWOOD	SOUTH DERBYSHIRE	KETTERING
	NOTTINGHAM	SALFORD	LINCOLN SHEFFIELD	SOUTH TYNESIDE MANCHESTER	SUNDERLAND COVENTRY	NEWCASTLE UPON TYNE
	RUSHCLIFFE	MID SUSSEX	MACCLESFIELD	HORSHAM	TANDRIDGE	GUILDFORD
CENTRAL LEICESTERSHIRE						
	CHARNWOOD	HINCKLEY & BOSWORTH	RUGBY	OADBY & WIGSTON	BROXTOWE	SOUTH DERBYSHIRE
	LEICESTER	BLACKBURN WITH DARWEN	BIRMINGHAM	COVENTRY	ROCHDALE	OLDHAM
	OADBY & WIGSTON	BLABY	CHARNWOOD	HINCKLEY & BOSWORTH	RUGBY	GEDLING
OUTER LEICESTERSHIRE						
	BLABY	OADBY & WIGSTON	HINCKLEY & BOSWORTH	SOUTH GLOUCESTERSHIRE	SOUTH STAFFORDSHIRE	CHARNWOOD
	HARBOROUGH	DAVENTRY	SOUTH NORTHAMPTONSHIRE	BROMSGROVE	UTTLESFORD	LICHFIELD
	HINCKLEY & BOSWORTH	CHARNWOOD	SOUTH DERBYSHIRE	BLABY	WYRE FOREST	EAST NORTHAMPTONSHIRE
	MELTON	SOUTH KESTEVEN	WEST WILTSHIRE	EAST NORTHAMPTONSHIRE	MENDIP	EAST CAMBRIDGESHIRE
	NORTH WEST LEICESTERSHIRE	SOUTH DERBYSHIRE	WYRE FOREST	NORTH WARWICKSHIRE	AMBER VALLEY	NEWARK & SHERWOOD
#	RUTLAND	WINCHESTER	HAMBLETON SOUTH OXFORDSHIRE	COTSWOLD	EAST HAMPSHIRE	BABERGH

Local authorities marked with a '#' have had one or more amendments made.
 Amendments resulting from the consultation exercise are shown in red plain text.
 Amendments resulting from the processing priority order are shown in purple italics.

APPENDIX E: AREAS FOR BORROWING STRENGTH

WARWICKSHIRE EA					
NORTH WARWICKSHIRE	SOUTH DERBYSHIRE	NORTH WEST LEICESTERSHIRE	WYRE FOREST	BRAINTREE	NEWARK & SHERWOOD
NUNEATON & BEDWORTH	ASHFIELD	EREWASH	TELFORD & WREKIN	WELLINGBOROUGH	CANNOCK CHASE
RUGBY	WEST WILTSHIRE	BROXTOWE	CHARNWOOD	KETTERING	WYRE FOREST
STRATFORD ON AVON	WYCHAVON	SOUTH NORFOLK	MALVERN HILLS	BROMSGROVE	BABERGH
WARWICK	BATH & NORTH EAST SOMERSET	STROUD	NORTH HERTFORDSHIRE	BEDFORD	STAFFORD
COVENTRY & SOLIHULL					
COVENTRY	OLDHAM	BOLTON	ROCHDALE	PRESTON	TAMESIDE
SOLIHULL	LICHFIELD	STOCKPORT	THREE RIVERS	STAFFORD	GEDLING
BIRMINGHAM EA					
BIRMINGHAM	BRADFORD	WOLVERHAMPTON	PRESTON	BLACKBURN WITH DARWEN	COVENTRY
SANDWELL & WALSALL					
SANDWELL	WOLVERHAMPTON	WALSALL	BIRMINGHAM	TAMESIDE	DERBY
WALSALL	WOLVERHAMPTON	SANDWELL	DUDLEY	KIRKLEES	WREXHAM
DUDLEY & WOLVERHAMPTON					
DUDLEY	EREWASH	EAST STAFFORDSHIRE	WYRE FOREST	HAVANT	NEWCASTLE UNDER LYME
WOLVERHAMPTON	SANDWELL	WALSALL	BIRMINGHAM	DERBY	KIRKLEES
OXON					
# CHERWELL	HUNTINGDONSHIRE	WEST OXFORDSHIRE	NORTH WILTSHIRE	BASINGSTOKE & DEANE	MID BEDFORDSHIRE <i>AYLESBURY VALE</i>
# OXFORD	CAMBRIDGE	READING	BRISTOL CITY OF	CARDIFF <i>NORWICH</i>	EXETER
SOUTH OXFORDSHIRE	VALE OF WHITE HORSE	EAST HAMPSHIRE	SOUTH CAMBRIDGESHIRE	WINDSOR & MAIDENHEAD	HORSHAM
VALE OF WHITE HORSE	SOUTH OXFORDSHIRE	SOUTH CAMBRIDGESHIRE	EAST HAMPSHIRE	WEST BERKSHIRE	WEST OXFORDSHIRE
WEST OXFORDSHIRE	NORTH WILTSHIRE	TEST VALLEY	MID BEDFORDSHIRE	WEST BERKSHIRE	VALE OF WHITE HORSE
NORTHANTS					
# CORBY	SEDFIELD <i>ASHFIELD</i>	TELFORD & WREKIN	TAMESIDE <i>TORFAEN</i>	OLDHAM <i>NUNEATON & BEDWORTH</i>	HARLOW
DAVENTRY	HARBOROUGH	SOUTH NORTHAMPTONSHIRE	WYCHAVON	MELTON	LICHFIELD
EAST NORTHAMPTONSHIRE	WEST WILTSHIRE	MELTON	MENDIP	SOUTH KESTEVEN	SOUTH DERBYSHIRE
KETTERING	WELLINGBOROUGH	RUGBY	EREWASH	WEST WILTSHIRE	WORCESTER
NORTHAMPTON	SWINDON	PETERBOROUGH	GLOUCESTER	WORCESTER	WELLINGBOROUGH
SOUTH NORTHAMPTONSHIRE	DAVENTRY	HARBOROUGH	EAST HAMPSHIRE	MID BEDFORDSHIRE	SOUTH CAMBRIDGESHIRE
WELLINGBOROUGH	KETTERING	RUGBY	TELFORD & WREKIN	NORTHAMPTON	EREWASH
MILTON KEYNES, BEDFORD & HUNTINGDONSHIRE					
BEDFORD	COLCHESTER	RUGBY	WARWICK	MAIDSTONE	NORTH HERTFORDSHIRE
HUNTINGDONSHIRE	MID BEDFORDSHIRE	NORTH WILTSHIRE	AYLESBURY VALE	WEST OXFORDSHIRE	CHERWELL
MILTON KEYNES	NORTHAMPTON	REDDITCH	PETERBOROUGH	BRACKNELL FOREST	CHERWELL
MID & SOUTH BEDFORDSHIRE & LUTON					
# LUTON	SLOUGH	PETERBOROUGH	TELFORD & WREKIN	OLDHAM <i>NORTHAMPTON</i>	TAMWORTH
MID BEDFORDSHIRE	AYLESBURY VALE	HUNTINGDONSHIRE	WEST BERKSHIRE	WEST OXFORDSHIRE	NORTH WILTSHIRE
SOUTH BEDFORDSHIRE	EASTLEIGH	SOUTH GLOUCESTERSHIRE	BRAINTREE	MID BEDFORDSHIRE	CHARNWOOD
BUCKINGHAMSHIRE					
AYLESBURY VALE	MID BEDFORDSHIRE	WEST BERKSHIRE	TEST VALLEY	BASINGSTOKE & DEANE	HUNTINGDONSHIRE
CHILTERN	SOUTH BUCKS	WAVERLEY	MOLE VALLEY	ELMBRIDGE	TANDRIDGE
SOUTH BUCKINGHAMSHIRE	CHILTERN	MOLE VALLEY	TANDRIDGE	WAVERLEY	WINDSOR & MAIDENHEAD
WYCOMBE	AYLESBURY VALE	EAST HAMPSHIRE	WEST BERKSHIRE	TEST VALLEY	MID BEDFORDSHIRE
NORTH & WEST HERTFORDSHIRE					
DACORUM	NORTH HERTFORDSHIRE	WELWYN HATFIELD	AYLESBURY VALE	BASINGSTOKE & DEANE	MAIDSTONE
# NORTH HERTFORDSHIRE	DACORUM	WELWYN HATFIELD	MAIDSTONE	TEST VALLEY	BRAINTREE
# ST ALBANS	GUILDFORD	WINDSOR & MAIDENHEAD	MID SUSSEX	WOKING	RUSHLEFFE <i>SOUTH OXFORDSHIRE</i>
STEVENAGE	HARLOW	CRAWLEY	BASILDON	NORTHAMPTON	SWINDON
# WATFORD	HILLINGDON	WORCESTER <i>SWINDON</i>	NORTHAMPTON	READING	SUTTON
SOUTH & EAST HERTFORDSHIRE					
BROXBOURNE	SOUTH GLOUCESTERSHIRE	DARTFORD	EASTLEIGH	MAIDSTONE	SOUTH BEDFORDSHIRE
EAST HERTFORDSHIRE	CHELMSFORD	WOKING	HORSHAM	AYLESBURY VALE	WEST BERKSHIRE
HERTSMERE	THREE RIVERS	REIGATE & BANSTEAD	MAIDSTONE	CHELMSFORD	TUNBRIDGE WELLS
THREE RIVERS	SEVENOAKS	HERTSMERE	TUNBRIDGE WELLS	REIGATE & BANSTEAD	TANDRIDGE
WELWYN HATFIELD	DACORUM	NORTH HERTFORDSHIRE	BATH & NORTH EAST SOMERSET	MAIDSTONE	RUGBY
CENTRAL LONDON					
CAMDEN	WESTMINSTER	HAMMERSMITH & FULHAM	KENSINGTON & CHELSEA	ISLINGTON	WANDSWORTH
KENSINGTON & CHELSEA	WESTMINSTER	CAMDEN	HAMMERSMITH & FULHAM	WANDSWORTH	HARINGEY
WESTMINSTER	CAMDEN	KENSINGTON & CHELSEA	HAMMERSMITH & FULHAM	WANDSWORTH	ISLINGTON
ISLINGTON, HACKNEY & TOWER HAMLETS					
# HACKNEY	SOUTHWARK	ISLINGTON <i>NEWHAM</i>	LAMBETH	HARINGEY	LEWISHAM <i>TOWER HAMLETS</i>
# ISLINGTON	SOUTHWARK	LAMBETH	HARINGEY	HAGKNEY <i>WESTMINSTER</i>	CAMDEN
# TOWER HAMLETS	HACKNEY	NEWHAM	SOUTHWARK	MANCHESTER <i>GREENWICH</i>	ISLINGTON

Local authorities marked with a '#' have had one or more amendments made.
 Amendments resulting from the consultation exercise are shown in red plain text.
 Amendments resulting from the processing priority order are shown in purple italics.

APPENDIX E: AREAS FOR BORROWING STRENGTH

	LAMBETH & SOUTHWARK				
#	LAMBETH	SOUTHWARK	ISLINGTON	HARINGEY	LEWISHAM CAMDEN
	SOUTHWARK	ISLINGTON	LAMBETH	HACKNEY	LEWISHAM
	HAMMERSMITH, FULHAM & WANDSWORTH				
#	HAMMERSMITH & FULHAM	WANDSWORTH	CAMDEN	HARINGEY KENSINGTON & CHELSEA	LAMBETH ISLINGTON
#	WANDSWORTH	HAMMERSMITH & FULHAM	HARINGEY CAMDEN	LEWISHAM WESTMINSTER	MERTON
	EALING & HOUNSLOW				
#	EALING	HOUNSLOW	BRENT	WALTHAM FOREST	MERTON ENFIELD
#	HOUNSLOW	EALING	HILLINGDON	ENFIELD	CROYDON
	RICHMOND & KINGSTON UPON THAMES & MERTON				
#	KINGSTON UPON THAMES	SUTTON	RICHMOND UPON THAMES	BROMLEY	BARNET EPSOM & EWELL
#	MERTON	CROYDON	ENFIELD	READING KINGSTON UPON THAMES	REDBRIDGE
#	RICHMOND UPON THAMES	KINGSTON UPON THAMES	BARNET	BROMLEY	ST-ALBANS ELMBRIDGE
	SUTTON & CROYDON				
#	CROYDON	MERTON	SUTTON	ENFIELD	BEXLEY
#	SUTTON	HILLINGDON	HERTSMERE BROMLEY	CROYDON	BEXLEY
	BROMLEY & LEWISHAM				
#	BROMLEY	SUTTON	HERTSMERE	BRENTWOOD	KINGSTON UPON THAMES
#	LEWISHAM	GREENWICH	HARINGEY	WALTHAM FOREST	LAMBETH
	GREENWICH & NEWHAM				
#	GREENWICH	WALTHAM FOREST	LEWISHAM	NEWCASTLE-UPON-TYNE BARKING & DAGENHAM	NOTTINGHAM NEWHAM
#	NEWHAM	LEICESTER GREENWICH	BIRMINGHAM HACKNEY	WALTHAM FOREST TOWER HAMLETS	MANCHESTER BARKING & DAGENHAM
	BARKING & DAGENHAM, REDBRIDGE & WALTHAM				
#	BARKING & DAGENHAM	KINGSTON UPON HULL, CITY OF WALTHAM FOREST	GREENWICH	TAMESIDE NEWHAM	SALFORD BRENT
#	REDBRIDGE	ENFIELD	HARROW	CROYDON	MERTON
#	WALTHAM FOREST	GREENWICH	EALING	LEWISHAM	MERTON BRENT
	HARINGEY & BRENT				
#	BRENT	EALING NEWHAM	WALTHAM FOREST SOUTHWARK	HOUNSLOW LAMBETH	HARINGEY
#	HARINGEY	LEWISHAM	LAMBETH WALTHAM FOREST	HAMMERSMITH & FULHAM BRENT	WANDSWORTH GREENWICH
	BARNET & ENFIELD				
#	BARNET	KINGSTON UPON THAMES	HARROW	CROYDON	HERTSMERE
#	ENFIELD	CROYDON	REDBRIDGE	HILLINGDON	BEXLEY HOUNSLOW
	HARROW & HILLINGDON				
#	HARROW	REDBRIDGE	BARNET	HILLINGDON	CROYDON
#	HILLINGDON	WATFORD ENFIELD	SUTTON	DARTFORD MERTON	WORCESTER HARROW
	BEXLEY & HAVERING				
#	BEXLEY	HAVERING	SUTTON	DARTFORD	HILLINGDON
#	HAVERING	BEXLEY	DARTFORD	EPPING FOREST	BROXBORNE SUTTON
	NORTH TYNE & WEAR				
	ALNWICK	NORTH DEVON	DOVER	PURBECK	KINGS LYNN & WEST NORFOLK
	BERWICK UPON TWEED	BOSTON	ALNWICK	KINGS LYNN & WEST NORFOLK	ALLERDALE
	BLYTH VALLEY	CHESTER LE STREET	WAKEFIELD	STOCKTON ON TEES	PETERBOROUGH
	CASTLE MORPETH	MONMOUTHSHIRE	TYNEDALE	WINCHESTER	MALVERN HILLS
	NORTH TYNESIDE	SHEFFIELD	GATESHEAD	DARLINGTON	SALFORD
	TYNEDALE	HAMBLETON	CHESTER	MONMOUTHSHIRE	SHREWSBURY & ATCHAM
	WANSBECK	DERWENTSIDE	WEAR VALLEY	BARNSELY	SEDGEMOOR
	CUMBRIA				
	ALLERDALE	CREWE & NANTWICH	OSWESTRY	BASSETLAW	SEDGEMOOR
	BARROW IN FURNESS	HYNDBURN	BURNLEY	CALDERDALE	PENDLE
	CARLISLE	YORK	WORCESTER	CREWE & NANTWICH	KETTERING
	COPELAND	ALLERDALE	ELLESMERE PORT & NESTON	NORTH EAST LINCOLNSHIRE	BASSETLAW
	EDEN	RYEDALE	MID DEVON	NORTH SHROPSHIRE	HEREFORDSHIRE, COUNTY OF
	SOUTH LAKELAND	CRAVEN	TEIGNBRIDGE	EAST RIDING OF YORKSHIRE	WEST DORSET
	NEWCASTLE & GATESHEAD				
	GATESHEAD	SOUTH TYNESIDE	NORTH TYNESIDE	SALFORD	SHEFFIELD
	NEWCASTLE UPON TYNE	SALFORD	NORTH TYNESIDE	SOUTH TYNESIDE	SHEFFIELD
	SOUTH TYNESIDE & SUNDERLAND				
	SOUTH TYNESIDE	SUNDERLAND	GATESHEAD	SALFORD	NORTH TYNESIDE
	SUNDERLAND	SOUTH TYNESIDE	SALFORD	GATESHEAD	DONCASTER
					WANSBECK
					BARNSELY

Local authorities marked with a '#' have had one or more amendments made.
 Amendments resulting from the consultation exercise are shown in red plain text.
 Amendments resulting from the processing priority order are shown in purple italics.

APPENDIX E: AREAS FOR BORROWING STRENGTH

DURHAM					
CHESTER LE STREET	BLYTH VALLEY	WAKEFIELD	WIGAN	DARLINGTON	BURY
DERWENTSIDE	WEAR VALLEY	WANSBECK	TORFAEN	SEDGEFIELD	RHONDDA, CYNON, TAFF
DURHAM	SWANSEA	CHESTER LE STREET	NORTH EAST DERBYSHIRE	WEST LANCASHIRE	BURY
EASINGTON	BLAENAU GWENT	MERTHYR TYDFIL	SEDGEFIELD	CAERPHILLY	SUNDERLAND
SEDGEFIELD	TORFAEN	WEAR VALLEY	DERWENTSIDE	WANSBECK	CAERPHILLY
TEESDALE	ALLERDALE	DERBYSHIRE DALES	EDEN	NORTH DEVON	RYEDAILE
WEAR VALLEY	DERWENTSIDE	TORFAEN	SEDGEFIELD	WANSBECK	HARTLEPOOL
TEES VALLEY					
# DARLINGTON	GREAT YARMOUTH	NEWPORT DERBY	WAKEFIELD	BOLTON	DOVER LEEDS
# HARTLEPOOL	WEAR VALLEY	DONCASTER BLACKBURN WITH DARWEN	RHONDDA, CYNON, TAFF KINGSTON UPON HULL	WANSBECK MIDDLESBROUGH	BARNESLEY NOTTINGHAM
# MIDDLESBROUGH	HARTLEPOOL	HALTON KNOWSLEY	SUNDERLAND LIVERPOOL	REDCAR & CLEVELAND MANCHESTER	SALFORD NOTTINGHAM
# REDCAR & CLEVELAND	STOCKTON ON TEES	ST-HELENS HALTON	NEWPORT KINGSTON UPON HULL	ROTHERHAM NEWCASTLE UPON TYNE	DONCASTER WEAR VALLEY
# STOCKTON ON TEES	NEWPORT BOLTON	ROTHERHAM BRADFORD	DONCASTER OLDHAM	BLYTH VALLEY REDCAR & CLEVELAND	WIGAN ROCHDALE
COUNTY OF NORTH YORKSHIRE					
CRAVEN	SOUTH LAKELAND	EAST RIDING OF YORKSHIRE	TEIGNBRIDGE	MID DEVON	NORTH DEVON
HAMBLETON	TYNEDALE	MONMOUTHSHIRE	RUTLAND	MID SUFFOLK	STRATFORD ON AVON
HARROGATE	TUNBRIDGE WELLS	NORTH SOMERSET	BATH & NORTH EAST SOMERSET	TAUNTON DEANE	SHREWSBURY & ATCHAM
RICHMONDSHIRE	KENNET	SALISBURY	SUFFOLK COASTAL	ASHFORD	ALNWICK
RYEDAILE	SOUTH SHROPSHIRE	EDEN	NORTH SHROPSHIRE	HEREFORDSHIRE, COUNTY OF	POWYS
SCARBOROUGH	CONWY	ISLE OF WIGHT	LANCASTER	SHEPWAY	CARRICK
SELBY	MELTON	BRAINTREE	EAST CAMBRIDGESHIRE	ASHFORD	NORTH WARWICKSHIRE
NORTH LANCASHIRE					
BLACKPOOL	TORBAY	THANET	SCARBOROUGH	HASTINGS	LANCASTER
FYLDE	LEWES	NORTH SOMERSET	CHICHESTER	NEW FOREST	TEIGNBRIDGE
LANCASTER	SCARBOROUGH	SHEPWAY	CARRICK	CANTERBURY	DOVER
RIBBLE VALLEY	DERBYSHIRE DALES	CONGLETON	STRATFORD ON AVON	MACCLESFIELD	MONMOUTHSHIRE
WYRE	ADUR	TEIGNBRIDGE	LEWES	EAST RIDING OF YORKSHIRE	ISLE OF WIGHT
WEST LANCASHIRE					
CHORLEY	WARRINGTON	BURY	SOUTH RIBBLE	KETTERING	RUGBY
PRESTON	BOLTON	DERBY	BRADFORD	LEEDS	ROCHDALE
SOUTH RIBBLE	CHORLEY	GEDLING	KETTERING	BROXTOWE	CHARNWOOD
WEST LANCASHIRE	NEWARK & SHERWOOD	HAVANT	FLINTSHIRE	WARRINGTON	CHORLEY
EAST LANCASHIRE					
BLACKBURN WITH DARWEN	PENDLE	BRADFORD	COVENTRY	OLDHAM	BURNLEY
BURNLEY	HYNDBURN	PENDLE	OLDHAM	COVENTRY	TAMESIDE
HYNDBURN	BURNLEY	PENDLE	BARROW IN FURNESS	CALDERDALE	TAMESIDE
PENDLE	HYNDBURN	BURNLEY	BLACKBURN WITH DARWEN	COVENTRY	OLDHAM
ROSSENDALE	BURY	CALDERDALE	WELLINGBOROUGH	BOLTON	CHORLEY
# BRADFORD EA					
# BRADFORD	PRESTON	BIRMINGHAM	KIRKLEES <i>COVENTRY</i>	BLACKBURN WITH DARWEN <i>WOLVERHAMPTON</i>	BOLTON
LEEDS EA					
LEEDS	IPSWICH	SOUTHAMPTON	PRESTON	CALDERDALE	DARLINGTON
EAST RIDING & YORK					
EAST RIDING OF YORKSHIRE	WEST LINDSEY	SHREWSBURY & ATCHAM	PURBECK	SEDGEMOOR	HEREFORDSHIRE, COUNTY OF
YORK	WORCESTER	CARLISLE	CHELTENHAM	SHREWSBURY & ATCHAM	KETTERING
HULL & NORTH LINCOLNSHIRE					
# KINGSTON UPON HULL	HARTLEPOOL <i>SALFORD</i>	BARKING & DAGENHAM	NOTTINGHAM	LIVERPOOL	HALTON
# NORTH EAST LINCOLNSHIRE	DONCASTER	COPELAND	DARLINGTON <i>DERBY</i>	BOLTON	WIGAN
NORTH LINCOLNSHIRE	BASSETLAW	FLINTSHIRE	NEWCASTLE UNDER LYME	ELLESMERE PORT & NESTON	NEWARK & SHERWOOD
DONCASTER & ROTHERHAM					
DONCASTER	BARNESLEY	ROTHERHAM	MANSFIELD	WAKEFIELD	WIGAN
ROTHERHAM	WAKEFIELD	BARNESLEY	DONCASTER	MANSFIELD	WIGAN
BARNESLEY & WAKEFIELD					
BARNESLEY	DONCASTER	ROTHERHAM	MANSFIELD	BOLSOVER	WAKEFIELD
WAKEFIELD	MANSFIELD	ROTHERHAM	WIGAN	CHESTERFIELD	DONCASTER
CALDERDALE & KIRKLEES EA					
CALDERDALE	KIRKLEES	TAMESIDE	BOLTON	DERBY	ROSSENDALE
KIRKLEES	CALDERDALE	DERBY	BOLTON	BRADFORD	PRESTON
NORTH GREATER MANCHESTER					
BURY	WARRINGTON	CHORLEY	STOCKPORT	WORCESTER	TRAFFORD
OLDHAM	ROCHDALE	TAMESIDE	BOLTON	COVENTRY	BURNLEY
ROCHDALE	OLDHAM	BOLTON	TAMESIDE	COVENTRY	PRESTON

Local authorities marked with a '#' have had one or more amendments made.
 Amendments resulting from the consultation exercise are shown in red plain text.
 Amendments resulting from the processing priority order are shown in purple italics.

APPENDIX E: AREAS FOR BORROWING STRENGTH

BOLTON & WIGAN					
BOLTON	ROCHDALE	OLDHAM	TAMESIDE	PRESTON	WIGAN
WIGAN	WAKEFIELD	MANSFIELD	BOLTON	DONCASTER	BRIDGEND
ST HELENS & SEFTON					
ST HELENS	DONCASTER	WREXHAM	WIGAN	ROTHERHAM	WAKEFIELD
SEFTON	WIRRAL	LANCASTER	TRAFFORD	SWANSEA	VALE OF GLAMORGAN, THE
LIVERPOOL EA					
LIVERPOOL	KNOWSLEY	KINGSTON UPON HULL, CITY OF	MANCHESTER	MIDDLESBROUGH	NOTTINGHAM
WIRRAL & KNOWSLEY					
KNOWSLEY	LIVERPOOL	KINGSTON UPON HULL, CITY OF	MIDDLESBROUGH	HARTLEPOOL	HALTON
WIRRAL	SEFTON	LANCASTER	SWANSEA	CARDIFF	DARLINGTON
SALFORD & TRAFFORD					
SALFORD	SOUTH TYNESIDE	GATESHEAD	SUNDERLAND	NORTH TYNESIDE	SHEFFIELD
TRAFFORD	STOCKPORT	BURY	CHESTER	WARRINGTON	SHREWSBURY & ATCHAM
MANCHESTER EA					
MANCHESTER	NOTTINGHAM	LIVERPOOL	NEWCASTLE UPON TYNE	MIDDLESBROUGH	GREENWICH
STOCKPORT & TAMESIDE					
STOCKPORT	TRAFFORD	GEDLING	BURY	SOLI HULL	CHORLEY
TAMESIDE	OLDHAM	BOLTON	ROCHDALE	WIGAN	WAKEFIELD
SHEFFIELD EA					
SHEFFIELD	NORTH TYNESIDE	DARLINGTON	GATESHEAD	LEEDS	SALFORD
COUNTY OF CORNWALL & SCILLY					
CARADON	KERRIER	WEST LINDSEY	NORTH CORNWALL	NORTH DEVON	CARRICK
CARRICK	TEIGNBRIDGE	CONWY	SCARBOROUGH	LANCASTER	CARADON
KERRIER	CARADON	RESTORMEL	CARRICK	PEMBROKESHIRE	DENBIGHSHIRE
NORTH CORNWALL	TORRIDGE	POWYS	CARADON	PEMBROKESHIRE	EAST LINDSEY
PENWITH	GWYNEDD	CARRICK	SCARBOROUGH	KERRIER	CONWY
RESTORMEL	KERRIER	CARADON	ISLE OF ANGLESEY	OSWESTRY	NORTH CORNWALL
NORTH DEVON					
EAST DEVON	ROTHER	WEST DORSET	ARUN	NORTH NORFOLK	TEIGNBRIDGE
EXETER	WEYMOUTH & PORTLAND	BRISTOL, CITY OF	CHELTENHAM	YORK	PORTSMOUTH
MID DEVON	HEREFORDSHIRE, COUNTY OF	POWYS	WEST LINDSEY	NORTH DEVON	NORTH SHROPSHIRE
NORTH DEVON	HEREFORDSHIRE, COUNTY OF	SEDGEMOOR	WEST LINDSEY	KINGS LYNN & WEST NORFOLK	SOUTH SOMERSET
TORRIDGE	NORTH CORNWALL	SOUTH SHROPSHIRE	POWYS	NORTH DEVON	MID DEVON
WEST DEVON	SOUTH HAMS	SOUTH SHROPSHIRE	MID DEVON	POWYS	NORTH CORNWALL
SOUTH DEVON & TEIGNBRIDGE					
PLYMOUTH	SOUTHAMPTON	WEYMOUTH & PORTLAND	PORTSMOUTH	LINCOLN	BRISTOL, CITY OF
SOUTH HAMS	WEST DEVON	TEIGNBRIDGE	CARRICK	CHICHESTER	WEST DORSET
TEIGNBRIDGE	PURBECK	CARRICK	WEST DORSET	NORTH DEVON	NEW FOREST
TORBAY	THANET	ISLE OF WIGHT	SCARBOROUGH	CONWY	SHEPWAY
COUNTY OF SOMERSET					
# MENDIP	<i>BABERGH SEDGEMOOR</i>	<i>SOUTH KESTEVEN ASHFORD</i>	SOUTH SOMERSET	WEST WILTSHIRE	STROUD
# SEDGEMOOR	SOUTH SOMERSET	NORTH DEVON	HEREFORDSHIRE, COUNTY OF	OSWESTRY CARADON	MENDIP
# SOUTH SOMERSET	SEDGEMOOR	MENDIP	HEREFORDSHIRE, COUNTY OF	BRECKLAND WEST WILTSHIRE	NORTH DEVON
# TAUNTON DEANE	SHREWSBURY & ATCHAM PURBECK	SALISBURY	BATH & NORTH EAST SOMERSET	TEIGNBRIDGE	CANTERBURY
# WEST SOMERSET	NORTH NORFOLK ROTHER	WEST DORSET	EAST DEVON	EAST LINDSEY TORRIDGE	NORTH CORNWALL
AVON					
# BATH & NORTH EAST SOMERSET	WARWICK NORTH SOMERSET	TAUNTON DEANE	SHREWSBURY & ATCHAM SALISBURY	TUNBRIDGE WELLS	LEWES
# NORTH SOMERSET	NEW FOREST	WEALDEN	LEWES	HARROGATE BATH & NORTH EAST SOMERSET	TUNBRIDGE WELLS
# SOUTH GLOUCESTERSHIRE	EASTLEIGH	<i>SOUTH BEDFORDSHIRE TONBRIDGE & MALLING</i>	MAIDSTONE	BLABY TEST VALLEY	BASINGSTOKE & DEANE
BRISTOL EA					
# BRISTOL, CITY OF	SOUTHAMPTON	WEYMOUTH & PORTLAND PLYMOUTH	LEEDS PORTSMOUTH	READING NEWCASTLE UPON TYNE EXETER	DARLINGTON SHEFFIELD HASTINGS
WILTSHIRE					
# KENNET	RICHMONDSHIRE ASHFORD	NORTH WILTSHIRE	WEST OXFORDSHIRE	SALISBURY	EAST CAMBRIDGESHIRE TEST VALLEY
# NORTH WILTSHIRE	WEST OXFORDSHIRE	TEST VALLEY	WEST WILTSHIRE	HUNTINGDONSHIRE EAST HAMPSHIRE	EAST CAMBRIDGESHIRE AYLESBURY VALE
# SALISBURY	TAUNTON DEANE	SUFFOLK COASTAL BATH & NORTH EAST SOMERSET	SHREWSBURY & ATCHAM PURBECK	KENNET	TUNBRIDGE WELLS
# WEST WILTSHIRE	<i>SOUTH KESTEVEN STROUD</i>	MENDIP	NORTH WILTSHIRE	ST EDMUNDSBURY ASHFORD	RUGBY EAST NORTHAMPTONSHIRE SOUTH SOMERSET

Local authorities marked with a '#' have had one or more amendments made.
 Amendments resulting from the consultation exercise are shown in red plain text.
 Amendments resulting from the processing priority order are shown in purple italics.

APPENDIX E: AREAS FOR BORROWING STRENGTH

WESSEX						
#	NEW FOREST	NORTH SOMERSET	LEWES	PURBECK	WEALDEN	EAST DORSET
#	EAST DORSET	WEALDEN	NEW FOREST	NORTH SOMERSET	CHICHESTER	MALVERN HILLS LEWES
#	NORTH DORSET	HEREFORDSHIRE, COUNTY OF MENDIP	PURBECK	SOUTH SOMERSET	COTSWOLD	WEST DORSET
#	PURBECK	TEIGNBRIDGE	EAST RIDING OF YORKSHIRE CHICHESTER	NORTH DORSET	NEW FOREST	NORTH KESTEVEN TAUNTON DEANE
#	WEST DORSET	CHICHESTER	NORTH DORSET	TEIGNBRIDGE	EAST DEVON	NORTH NORFOLK PURBECK
#	WEYMOUTH & PORTLAND	DOVER	PLYMOUTH	SHEPWAY	LANCASTER HASTINGS	BRISTOL, CITY OF
SOUTH EAST DORSET & ISLE OF WIGHT						
#	BOURNEMOUTH	TORBAY	SHEPWAY	EASTBOURNE	WORTHING	CANTERBURY
#	CHRISTCHURCH	ARUN	ROTHER	EAST DEVON	FYLDE WORTHING	RYLDE WORTHING
#	ISLE OF WIGHT	GONNAY THANET	SCARBOROUGH CARRICK	TORBAY	TENDRING	SHEPWAY
#	POOLE	NEW FOREST	NORTH SOMERSET	WEST WILTSHIRE	LEWES	ADUR
EASTLEIGH, SOUTHAMPTON & TEST VALLEY						
#	EASTLEIGH	SOUTH GLOUCESTERSHIRE	CHELMSFORD BASINGSTOKE & DEANE	MAIDSTONE	SOUTH BEDFORDSHIRE TEST VALLEY	TONBRIDGE & MALLING
#	SOUTHAMPTON	BRISTOL, CITY OF	PLYMOUTH	IPSWICH	LEEDS HASTINGS	LINCOLN WEYMOUTH & PORTLAND
#	TEST VALLEY	WEST OXFORDSHIRE WEST BERKSHIRE	NORTH WILTSHIRE	EAST HAMPSHIRE	AYLESBURY VALE TONBRIDGE & MALLING	MAIDSTONE
SOUTH HAMPSHIRE						
#	FAREHAM	TONBRIDGE & MALLING	RUNNYMEDE	BROMSGROVE MAIDSTONE	TEST VALLEY	TEWKESBURY
#	GOSPORT	NORTHAMPTON SWINDON	MEDWAY	WORCESTER BRISTOL, CITY OF	GLOUCESTER	PETERBOROUGH PLYMOUTH
#	HAVANT	CREWE & NANTWICH SEDGEMOOR	EAST STAFFORDSHIRE	WYRE FOREST	KETTERING	CHORLEY SWALE
#	PORTSMOUTH	PLYMOUTH	BRISTOL, CITY OF	IPSWICH WEYMOUTH & PORTLAND	EXETER	LINCOLN SOUTHAMPTON
NORTH HAMPSHIRE						
#	BASINGSTOKE & DEANE	AYLESBURY VALE BRACKNELL FOREST	MID BEDFORDSHIRE SOUTH GLOUCESTERSHIRE	WEST BERKSHIRE	DACORUM EASTLEIGH	TEST VALLEY
#	EAST HAMPSHIRE	SOUTH OXFORDSHIRE HORSHAM	SOUTH CAMBRIDGESHIRE NORTH WILTSHIRE	TEST VALLEY	VALE OF WHITE HORSE MID SUSSEX	WEST BERKSHIRE
#	HART	SURREY HEATH	WOKINGHAM	SOUTH CAMBRIDGESHIRE WEST BERKSHIRE	EAST HAMPSHIRE	VALE OF WHITE HORSE WINDSOR & MAIDENHEAD
#	RUSHMOOR	CHERWELL GOSPORT	BRACKNELL FOREST	WATFORD SWINDON	BASINGSTOKE & DEANE	FOREST HEATH READING
#	WINCHESTER	WAVERLEY	RUTLAND WINDSOR & MAIDENHEAD	SOUTH OXFORDSHIRE TUNBRIDGE WELLS	MOLE VALLEY	STRATFORD ON AVON EAST HAMPSHIRE
SWINDON & WEST BERKSHIRE						
#	READING	WATFORD	BRISTOL, CITY OF	NORTHAMPTON EXETER	WORCESTER SWINDON	CROYDON CHELTENHAM
#	SWINDON	NORTHAMPTON CHERWELL	WORCESTER MEDWAY	GLOUCESTER	WATFORD	CRAWLEY
#	WEST BERKSHIRE	AYLESBURY VALE	VALE OF WHITE HORSE	MID BEDFORDSHIRE EAST HERTFORDSHIRE	WEST OXFORDSHIRE	EAST HAMPSHIRE
EAST BERKSHIRE						
#	BRACKNELL FOREST	BASINGSTOKE & DEANE	AYLESBURY VALE	DACORUM	MID BEDFORDSHIRE CHERWELL	HUNTINGDONSHIRE RUSHMOOR
#	SLOUGH	LUTON WATFORD	HOUNSLOW MEDWAY	PETERBOROUGH SWINDON	CRAWLEY	BRADFORD
#	WINDSOR & MAIDENHEAD	SOUTH OXFORDSHIRE	HORSHAM	EAST HERTFORDSHIRE	GUILDFORD	ST ALBANS
#	WOKINGHAM	HART	SURREY HEATH	SOUTH CAMBRIDGESHIRE SOUTH OXFORDSHIRE	WEST BERKSHIRE	VALE OF WHITE HORSE
NORTHERN SURREY						
#	ELMBRIDGE	WAVERLEY	MOLE VALLEY	TANDRIDGE	RUSHCLIFFE WINCHESTER	WINDSOR & MAIDENHEAD
#	EPSOM & EWELL	BRENTWOOD MOLE VALLEY	MID SUSSEX	REIGATE & BANSTEAD	TANDRIDGE	GUILDFORD
#	RUNNYMEDE	FAREHAM	HORSHAM	EAST HERTFORDSHIRE SPELTHORNE	MAIDSTONE	REIGATE & BANSTEAD
#	SPELTHORNE	RUNNYMEDE	SOUTH GLOUCESTERSHIRE	EASTLEIGH	BROADLAND MAIDSTONE	ERRING FOREST FAREHAM
#	SURREY HEATH	HART	WOKINGHAM	SOUTH CAMBRIDGESHIRE SOUTH OXFORDSHIRE	EAST HAMPSHIRE	WINDSOR & MAIDENHEAD
#	WOKING	CHELMSFORD WEST BERKSHIRE	EAST HERTFORDSHIRE MID SUSSEX	AYLESBURY VALE	REIGATE & BANSTEAD	GUILDFORD
SOUTHERN SURREY						
#	GUILDFORD	REIGATE & BANSTEAD	TUNBRIDGE WELLS	MID SUSSEX	HORSHAM	WINDSOR & MAIDENHEAD
#	MOLE VALLEY	WAVERLEY	TANDRIDGE	SOUTH BUCKS ELMBRIDGE	WINCHESTER	BRENTWOOD EPSOM & EWELL
#	REIGATE & BANSTEAD	GUILDFORD	HORSHAM	MID SUSSEX	TANDRIDGE	TUNBRIDGE WELLS
#	TANDRIDGE	MOLE VALLEY	BRENTWOOD WAVERLEY	MID SUSSEX	SEVENOAKS	REIGATE & BANSTEAD
#	WAVERLEY	WINCHESTER	MOLE VALLEY	ELMBRIDGE	TANDRIDGE	RUSHCLIFFE WINDSOR & MAIDENHEAD
NORTH SUSSEX						
#	CHICHESTER	WEST DORSET	MALVERN HILLS COTSWOLD	TEIGNBRIDGE	PURBECK	NEW FOREST
#	CRAWLEY	STEVENAGE	SWINDON	NORTHAMPTON MEDWAY	WATFORD	HARLOW DARTFORD
#	HORSHAM	MID SUSSEX	REIGATE & BANSTEAD	EAST HAMPSHIRE	GUILDFORD	TUNBRIDGE WELLS
#	MID SUSSEX	HORSHAM	REIGATE & BANSTEAD	TANDRIDGE	RUSHCLIFFE SEVENOAKS	GUILDFORD
SOUTH SUSSEX						
#	ADUR	WYRE CANTERBURY	LEWES	POOLE	TAUNTON DEANE	ARUN
#	ARUN	CHRISTCHURCH	TENDRING LEWES	EAST DEVON	WORTHING	ROTHER
#	BRIGHTON & HOVE	SOUTHEND ON SEA CHELTENHAM	BOURNEMOUTH	HASTINGS	EXETER	EASTBOURNE
#	WORTHING	EASTBOURNE	ARUN	SOUTHEND ON SEA LEWES	BOURNEMOUTH	ADUR
COUNTY OF EAST SUSSEX						
#	EASTBOURNE	WORTHING	BOURNEMOUTH	ARUN	THANET	SOUTHEND ON SEA SHEPWAY
#	HASTINGS	THANET	WEYMOUTH & PORTLAND	SOUTHAMPTON	SOUTHEND ON SEA PLYMOUTH	SHEPWAY
#	LEWES	NEW FOREST	NORTH SOMERSET	CANTERBURY	FYLDE TAUNTON DEANE	BATH & NORTH EAST SOMERSE
#	ROTHER	EAST DEVON	ARUN	CHRISTCHURCH	TENDRING WEST DORSET	GONNAY CHICHESTER
#	WEALDEN	NORTH SOMERSET	NEW FOREST	EAST DORSET	SOUTH NORFOLK LEWES	CHICHESTER

Local authorities marked with a '#' have had one or more amendments made.
 Amendments resulting from the consultation exercise are shown in red plain text.
 Amendments resulting from the processing priority order are shown in purple italics.

APPENDIX E: AREAS FOR BORROWING STRENGTH

SOUTHERN KENT						
#	ASHFORD	SOUTH KESTEVEN MAIDSTONE	BRAINTREE WEST WILTSHIRE	SHREWSBURY & ATCHAM NORTH WILTSHIRE	MENDIP	COLCHESTER SEDGEMOOR
#	MAIDSTONE	TONBRIDGE & MALLING	TEST VALLEY	CHELMSFORD TUNBRIDGE WELLS	EASTLEIGH	ASHFORD
#	SEVENOAKS	THREE RIVERS TONBRIDGE & MALLING	TANDRIDGE	MID SUSSEX	BRENTWOOD HORSHAM	TUNBRIDGE WELLS
#	TONBRIDGE & MALLING	MAIDSTONE	FAREHAM	CHELMSFORD EAST HAMPSHIRE	EAST HERTFORDSHIRE WEST BERKSHIRE	TEST VALLEY
#	TUNBRIDGE WELLS	GUILDFORD	HARROGATE MID SUSSEX	THREE RIVERS NORTH SOMERSET	REIGATE & BANSTEAD	HORSHAM
NORTHERN KENT						
#	DARTFORD	HILLINGDON GRAVESHAM	BROXBOURNE MAIDSTONE	BEXLEY SWINDON	WORCESTER MEDWAY	WATFORD EASTLEIGH
#	GRAVESHAM	SWALE	BURY DARTFORD	BASILDON HAVANT	MEDWAY	WARRINGTON ASHFORD
#	MEDWAY	SWALE	NORTHAMPTON SWINDON	THURROCK DARTFORD	GRAVESHAM	BASILDON GOSPORT
#	SWALE	GRAVESHAM	EAST STAFFORDSHIRE HAVANT	WARRINGTON ASHFORD	MEDWAY	CREWE & NANTWICH BRAINTREE
EASTERN KENT						
#	CANTERBURY	SHEPWAY	LEWES	TAUNTON DEANE	TEIGNBRIDGE	LANCASTER CARRICK
#	DOVER	SHEPWAY	GREAT YARMOUTH TAUNTON DEANE	WEYMOUTH & PORTLAND	DARLINGTON CARADON	LANCASTER ASHFORD
#	SHEPWAY	DOVER	CANTERBURY	LANGCASTER ISLE OF WIGHT	SCARBOROUGH TEIGNBRIDGE	THANET
#	THANET	TORBAY	SHEPWAY	ISLE OF WIGHT	HASTINGS	SCARBOROUGH DOVER
EAST WALES						
#	BLAENAU GWENT	EASINGTON TORFAEN	MERTHYR TYDFIL	WEAR VALLEY NEATH PORT TALBOT	CAERPHILLY	RHONDDA, CYNON, TAFF
#	MONMOUTHSHIRE	BABERGH	HAMBLETON MACCLESFIELD	MALVERN HILLS	TYNEDALE WYCHAVON	DERBYSHIRE DALES
#	POWYS	SOUTH SHROPSHIRE	NORTH CORNWALL	MID DEVON	TORRIDGE	HEREFORDSHIRE, COUNTY OF
#	TORFAEN	SEDFIELD NEWPORT	CAERPHILLY	WEAR VALLEY WIGAN	DERWENTSIDE RHONDDA, CYNON TAFF	BRIDGEND
WELSH VALLEYS						
#	CAERPHILLY	RHONDDA, CYNON, TAFF	TORFAEN	BRIDGEND	NEATH PORT TALBOT	WIGAN
#	MERTHYR TYDFIL	RHONDDA, CYNON, TAFF	CAERPHILLY	EASINGTON TORFAEN	BLAENAU GWENT	HARTLEPOOL NEATH PORT TALBOT
#	RHONDDA, CYNON, TAFF	CAERPHILLY	MERTHYR TYDFIL	WEAR VALLEY BRIDGEND	TORFAEN	NEATH PORT TALBOT
CARDIFF & NEWPORT						
#	CARDIFF	BRISTOL, CITY OF	WIRRAL	VALE OF GLAMORGAN, THE	TRAFFORD	SEFTON
#	NEWPORT	STOCKTON-ON-TEES TORFAEN	SWANSEA	DARLINGTON ROCHDALE	DONCASTER SALFORD	BRIDGEND
#	VALE OF GLAMORGAN, THE	CHESTER	TRAFFORD COLCHESTER	SHREWSBURY & ATCHAM	WEST LANCASHIRE CARDIFF	CANTERBURY
SWANSEA, BRIDGEND & PORT TALBOT						
#	BRIDGEND	WIGAN	NEATH PORT TALBOT	SWANSEA	CAERPHILLY	MANSFIELD
#	NEATH PORT TALBOT	BRIDGEND	CAERPHILLY	BARNSELY TORFAEN	RHONDDA, CYNON, TAFF	DONCASTER SWANSEA
#	SWANSEA	NEWPORT	BRIDGEND	WIRRAL	STOCKTON-ON-TEES SEFTON	DARLINGTON ST HELENS
WEST WALES						
#	CARMARTHENSHIRE	DENBIGHSHIRE	PEMBROKESHIRE	NORTH CORNWALL	ISLE OF ANGLESEY	EAST LINDSEY
#	CEREDIGION	POWYS	SOUTH HAMS	WEST DEVON	PEMBROKESHIRE	NORTH CORNWALL
#	GWYNEDD	ISLE OF ANGLESEY	PENWITH	PEMBROKESHIRE	CARRICK	KERRIER
#	ISLE OF ANGLESEY	PEMBROKESHIRE	GWYNEDD	KERRIER	RESTORMEL	NORTH CORNWALL
#	PEMBROKESHIRE	ISLE OF ANGLESEY	NORTH CORNWALL	GWYNEDD	KERRIER	CARADON
NORTH EAST WALES						
#	CONWY	DENBIGHSHIRE	ISLE OF WIGHT	SCARBOROUGH SHEPWAY	CARRICK	TORBAY
#	DENBIGHSHIRE	CONWY	CARRICK	ISLE OF WIGHT	SCARBOROUGH SHEPWAY	KERRIER
#	FLINTSHIRE	NEWCASTLE UNDER LYME	ELLESMERE PORT & NESTON	VALE ROYAL	NORTH WARWICKSHIRE	NEWARK & SHERWOOD
#	WREXHAM	WAKEFIELD CREWE & NANTWICH	WIGAN	ST HELENS	ALLERDALE BRIDGEND	NEWCASTLE UNDER LYME

Local authorities marked with a '#' have had one or more amendments made.
 Amendments resulting from the consultation exercise are shown in red plain text.
 Amendments resulting from the processing priority order are shown in purple italics.