

## Technical Report - Rural Services Series

### Introduction

This is the technical report for the Rural Services Series (RSS) distance-to-services analysis completed by the Department for the Environment, Food and Rural Affairs (Defra) Rural Statistics Unit (York) for the Commission for Rural Communities (CRC). The analysis is based upon the shortest straight-line distances between all households in England and a set of specific services.

### Input Data

#### Postcodes/number of households

- This was taken from Gridlink data using the nearest preceding quarter available:
  1. For RSS 2009 analysis, Gridlink, 2008 was used
  2. For RSS 2008 analysis, Gridlink, 2007 was used
  3. For RSS 2007 analysis, Gridlink, 2006 was used
  4. For RSS 2006 analysis, Gridlink, 2005 was used
  5. For RSS 2005 analysis, Gridlink, 2004 was used
  6. For RSS 2000 analysis, Gridlink, 2000 was used
- The Gridlink datasets include the Postcode, an Address-count (i.e. the number of households for that postcode), Country-code (for England, Scotland, Wales, etc) and the Grid-reference for the postcode.
- For the purposes of these analyses, only Household-Postcodes in England, with an Address-count (i.e. with households) and which also had a valid grid-reference were used.

Location of service outlets

- Service outlet point location data was supplied by a range of organisations, however, not all services are analysed each year (see table below).

Service	Abbreviation	Supplier	2000	2005	2006	2007	2008	2009
Banks and building societies	BB	Retail Locations						
Cashpoints (all)	CAall	LINK						
Cashpoints (free)	CAfree	LINK						
GP surgeries (all sites)	GPall	Binleys						
GP surgeries (principal sites)	GPprince	Binleys						
Jobcentres	JO	Department for Work and Pensions						
NHS Dentists	NHSDE	NHS Business Services Authority						
Petrol stations	PE	Catalist						
Post offices	PO	Post Office Ltd						
Primary schools	PR	Edubase						
Public houses	PH	Point X (LandMark)						
Secondary schools	SE	Edubase						
Supermarkets	SU	Retail Locations						
Convenience stores	CStores	Retail Locations						
Hospitals	Hosps	Binleys						

Analysis has been completed for this year

Analysis has not been completed for this year

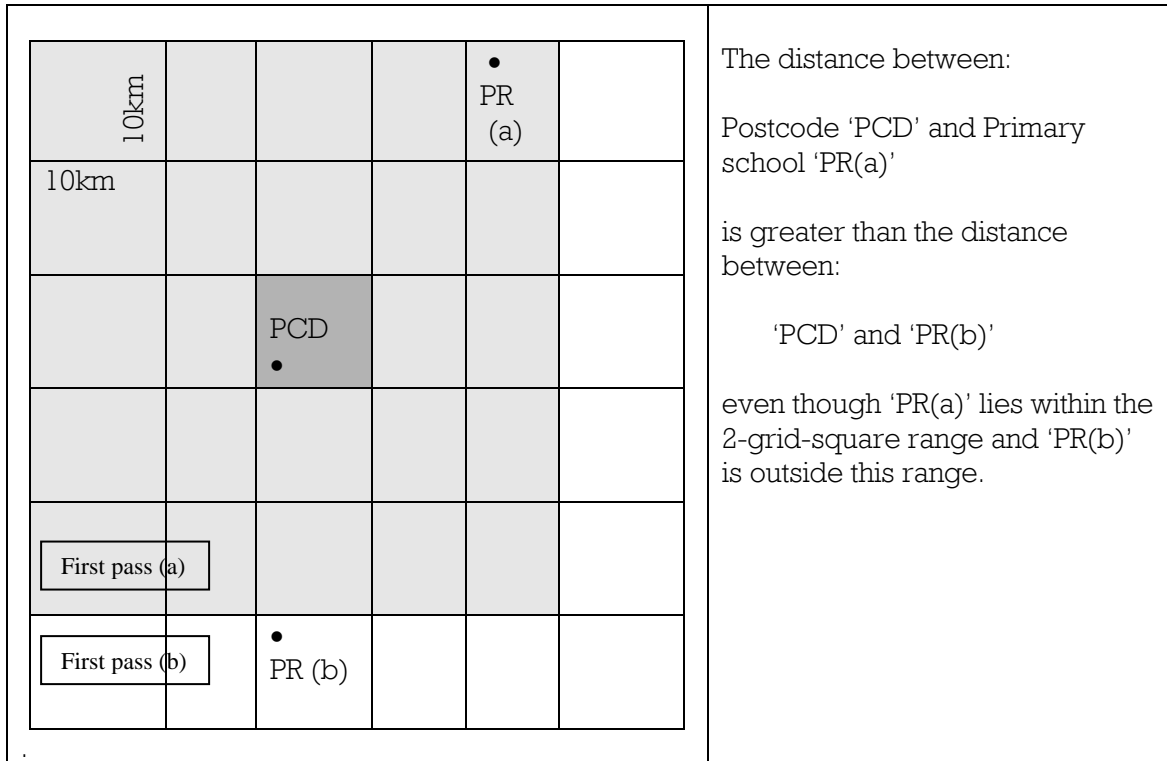
## Methodology

### Stage 1

- Prior to analysis, service outlets were assigned grid-references, based on their postcode, using either:
  - Gridlink
  - Suppliers own geo-referencing
- Any service outlets with postcodes that could not be matched to Gridlink (i.e. those which were absent, incomplete or incorrect) were not included in the analysis.
- Only service outlets in England were used. In some border regions, the closest outlet of a given service to a particular postcode may be in Scotland or Wales. As a result, the availability of a service type may be underestimated in these areas and further investigation of the availability of non-English service outlets may be required.

### Stage 2

- The distance between a postcode (i.e. a set of households) and a service, (e.g. 'PR' Primary Schools), was then calculated from their respective grid-references, as follows:
  - a) First Pass:  
The distance between every postcode and all those services within a 2-grid-square range was calculated. The nearest service was then identified.
  - b) As a service just outside a 2-grid-square range could be closer to a postcode than a service within the range (see diagram below), a second calculation was made using a 3-grid-square range for those services where the minimum-distance was greater than 20 km.
  - c) Second Pass:  
Where no services were in the first pass, the range was increased to 5 grid-squares, with a corresponding check at 6 grid-squares. This process was repeated with increasingly wider ranges until a service was identified for each postcode.



Stage 3

- The results from this analysis gave the minimum-distance between each postcode (set of households) and the nearest outlet of a particular service type (Post office, jobcentre etc.).
- For each postcode the number of households in the postcode (the address-count) was assigned to a band e.g. 0-2km, >2-4km, etc. using the minimum distance value. The bands used were as follows:

- 0-2.0km
- >2.0-4.0km
- >4.0-6.0km
- >6.0-8.0km
- >8.0-10.0km
- >10.0-12.0km
- >12.0-14.0km
- >14.0-16.0km
- >16.0-18.0km
- >18.0-20.0km
- >20.0km

#### Stage 4

- Using ArcMap (GIS mapping software) each postcode was mapped to a Census Output Area (COA) and other geographical levels, including:
  - Government Office Region
  - Local Authority District/Unitary Authority
  - Ward
  - Middle Super Output Area
  - Lower Super Output Area
- For further information about the geographies listed above, please refer to:

[www.statistics.gov.uk/geography/beginners\\_guide.asp](http://www.statistics.gov.uk/geography/beginners_guide.asp)

#### Stage 5

- Using the geographical information that was assigned to each postcode in stage 4, the results were then aggregated to COA.
- Each COA was then tagged with the appropriate category from the Rural and Urban Definition 2004 as below:

Morphology	Context	2 class
Urban>10K	Less sparse	Urban
Town and fringe	Less sparse	Rural
Village	Less sparse	Rural
Hamlet and isolated dwellings	Less sparse	Rural
Urban>10K	Sparse	Urban
Town and fringe	Sparse	Rural
Village	Sparse	Rural
Hamlet and isolated dwellings	Sparse	Rural

- For more information about the definition, please refer to:

[www.statistics.gov.uk/geography/nrudp.asp](http://www.statistics.gov.uk/geography/nrudp.asp)

#### Stage 6

- Summary figures were produced by aggregating, for example, to rural and urban area and by GOR.