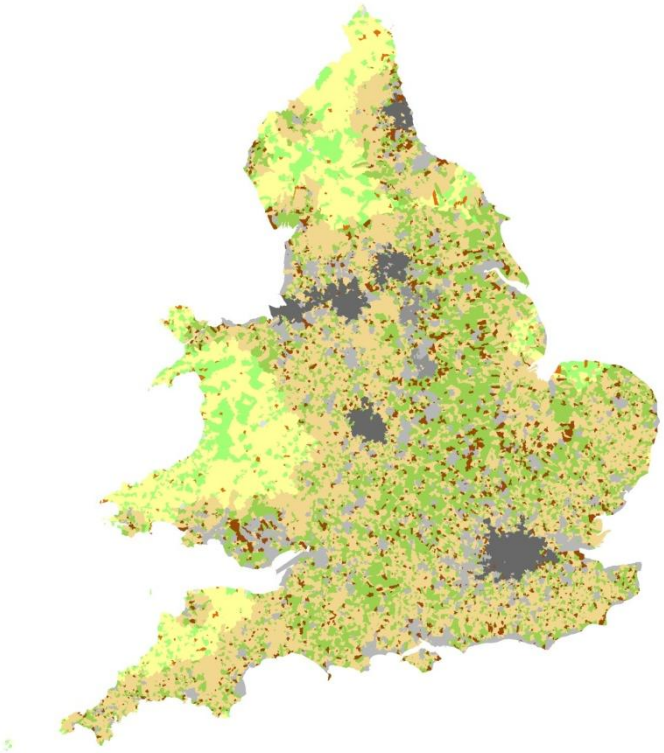
Department for Environment Food & Rural Affairs

Department for Communities and Local Government

Office for National Statistics

Llywodraeth Cymru Welsh Government

The 2011 Rural-Urban Classification For Small Area Geographies: A User Guide and Frequently Asked Questions (v1.0)



Published on 28th August 2013

Authors: Peter Bibby, Department of Town and Regional Planning, University of Sheffield and Paul Brindley, School of Computer Science, University of Nottingham

Government Statistical Service

With thanks to the Steering Group:

Bill South (ONS), Stephen Hall (Defra), Monika Krzykawska (Defra), Justin Martin (Defra), Simon Roberts (DCLG) and Stuart Neil (Welsh Government).

Contents

1. The 2011 Rural-Urban Classification For Small Area Geographies: A User Guide

1.1 The Rural-Urban Classification categorises a range of statistical and administrative units on the basis of physical settlement and related characteristics. This document is concerned with that part of the classification which categorises certain small statistical units in accordance with a two-dimensional typology based on settlement form and settlement context. This is referred to as 'the Rural Urban Classification for small area geographies' or RUC for short and is concerned with Output Areas (OAs) - the smallest areas for which data are available from the 2001 and 2011 Censuses- together with agglomerations of OAs referred to as Super Output Areas (SOAs) defined at two geographic levels: Lower Layer Super Output Areas (LSOAs) and Middle Layer Super-Output Areas (MSOAs). That part of the classification concerned with higher level geographies is not discussed here.

1.2 This document outlines

- the content of RUC and its spatial and temporal scope,
- guidance on assessing its appropriateness for different purposes, and
- guidance on issues arising in using RUC to examine change over time.

1.3 In its original form, RUC was developed for a consortium of government agencies for use with the 2001 Census and revised following the 2011 Census for a similar consortium including the Department of Communities and Local Government (DCLG), the Department of Environment, Food and Rural Affairs (Defra), the Office of National Statistics (ONS) and the Welsh Government (WG). The two versions of the classification (distinguished as RUC2001 and RUC2011where necessary) employ the same underlying methodology and hence are broadly comparable. Differences in detail underlie changed assignments in some areas, however, whose extent and implications are discussed in Section 3.

1.4 RUC in itself includes *no* statistical data, but provides categorical attributes for the members of these specific sets of statistical units. A very large range of statistical data items is readily available at OA level from the population censuses of 2001 and 2011. A much wider range of data is available at LSOA and MSOA level, examples of which can be found on the Neighbourhood Statistics website (http://neighbourhood.statistics.gov.uk).

1.5 Following principles set out in a review of urban and rural definitions (see DCLG 2006), the 'urban' domain comprises all physical settlements with a population of 10,000 or more. If the majority of the population of a particular OA live in such a settlement, that OA is deemed 'urban'; all other OAs are deemed 'rural'. Assignments of LSOAs and MSOAs to urban or rural categories are made by reference to the category to which the majority of their constituent OAs are assigned. The implications of these protocols depend on how physical settlements are individuated. (See section 2).

1.6 Within RUC2011, Output Areas are assigned to one of four urban or six rural categories:

Urban:	Major Conurbation	(A1)
Urban:	Minor Conurbation	(B1)
Urban:	City and Town	(C1)
Urban:	City and Town in a Sparse Setting	(C2)
Rural:	Town and Fringe	(D1)
Rural:	Town and Fringe in a Sparse Setting	(D2)
Rural:	Village	(E1)
Rural:	Village in a Sparse Setting	(E2)
Rural:	Hamlets and Isolated Dwellings	(F1)
Rural:	Hamlets and Isolated Dwellings in a Sparse Setting	(F2)

1.7 For analytical purposes it is useful to appreciate that this set of ten types arises from a cross-classification of two categorical variables concerned respectively with settlement *form* and settlement *context* (characterised by distinguishing two crude levels of population sparsity):

		Urban			Rural		
		Major Conurbation	Minor Conurbation	City and Town	Town and Fringe	Village	Hamlets & Isolated Dwellings
Sparse?	No	A1	B1	C1	D1	E1	F1
	Yes	..	..	C2	D2	E2	F2

1.8 The typology constructed by bringing distinctions of form and context together at the OA level is illustrated in Figure 1 and mapped as Figure 2. RUC2011 provides a finer subdivision of the urban domain than its predecessor, introducing the two conurbation types. (These groups are easily re-aggregated if compatibility with RUC2001 is required). Given the definitions used, conurbations are not found in sparse contexts.

1.9 At the LSOA and MSOA scales, however, settlement form tends to be more homogeneous and so a narrower range of eight types is recognized:

Urban:	Major Conurbation
Urban:	Minor Conurbation
Urban:	City and Town
Urban:	City and Town in a Sparse Setting
Rural	Town and Fringe
Rural	Town and Fringe in a Sparse Setting
Rural	Village and Dispersed
Rural	Village and Dispersed in a Sparse Setting

1.10 The distribution of statistical units across the categories of the typology at the three scales is shown in Tables 1a-1c.

Figure 1: RUC2011 Typology; Output Area Level

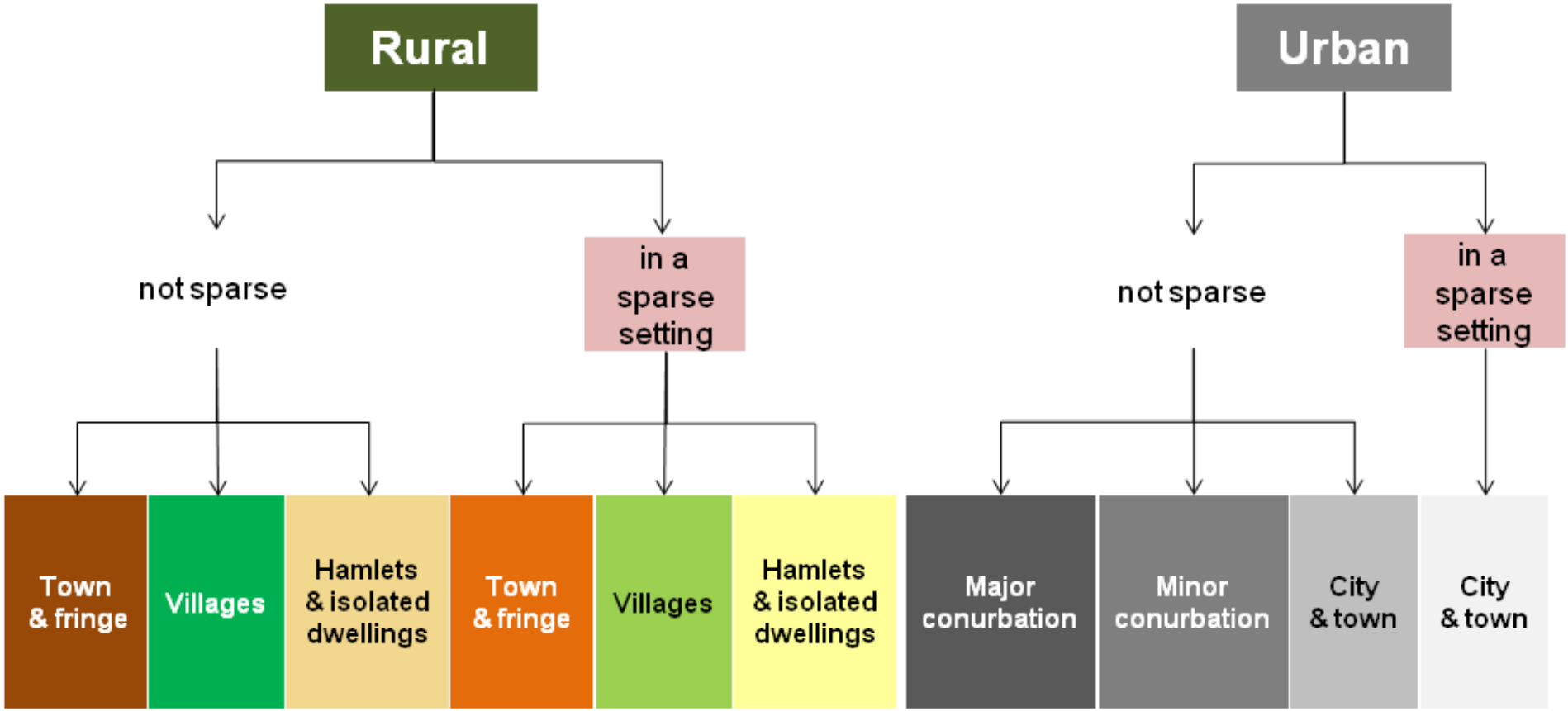


Table 1a: Distribution of 2011 Census Output Areas between Categories; RUC2011

OA Class	Frequency	%
Urban: Major Conurbation	59,199	32.6
Urban: Minor Conurbation	6,277	3.5
Urban: City and Town	81,004	44.7
Urban: City and Town in a Sparse Setting	490	0.3
Rural: Town and Fringe	15,850	8.7
Rural: Town and Fringe in a Sparse Setting	1,044	0.6
Rural: Village	9,646	5.3
Rural: Village in a Sparse Setting	1,042	0.6
Rural: Hamlets and Isolated Dwellings	5,969	3.3
Rural: Hamlets and Isolated Dwellings in a Sparse Setting	887	0.5

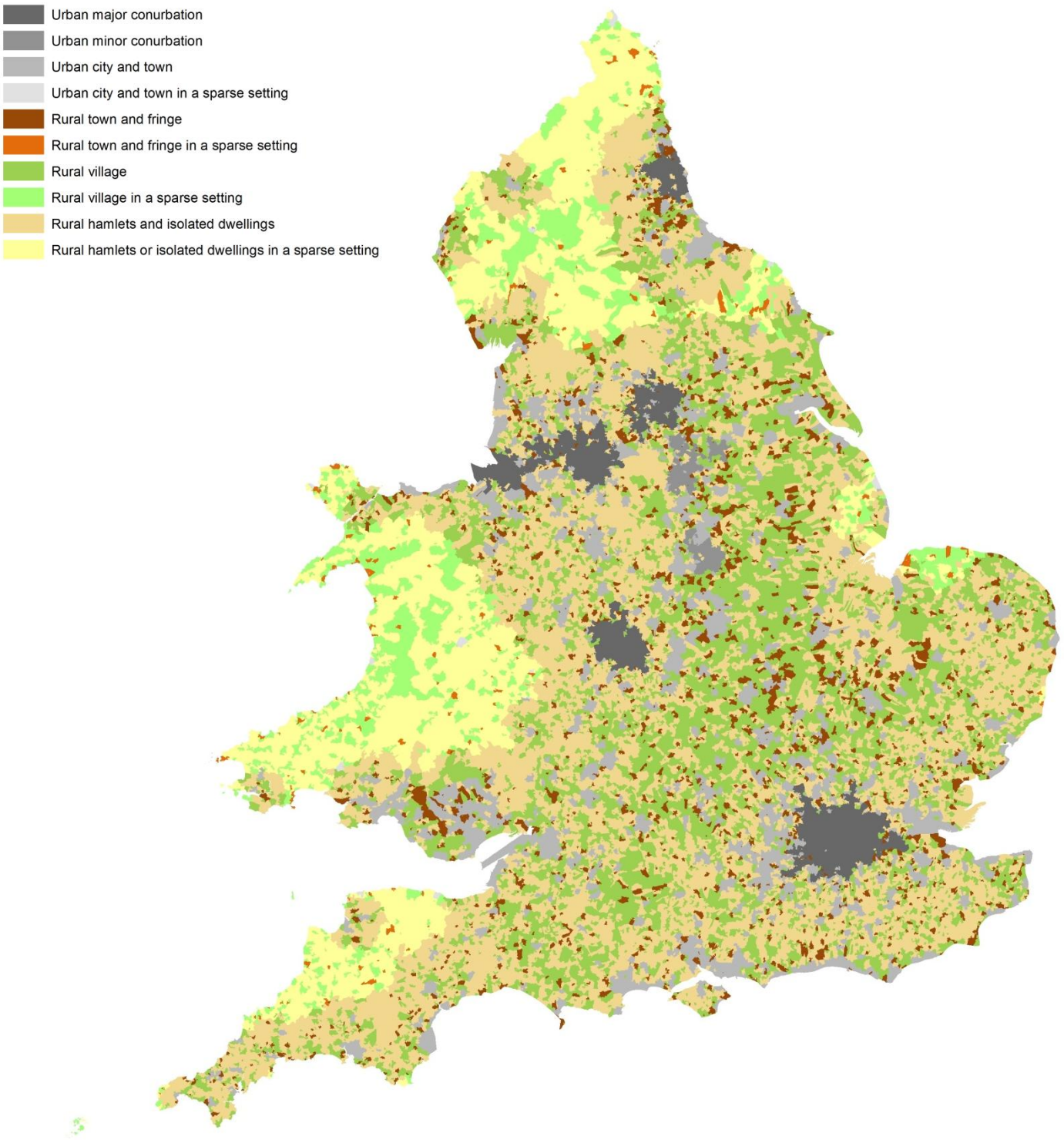
Table 1b: Distribution of 2011 LSOAs between Categories; RUC2011

LSOA Class	Frequency	%
Urban: Major Conurbation	11,523	33.2
Urban: Minor Conurbation	1,208	3.5
Urban: City and Town	15,724	45.3
Urban: City and Town in a Sparse Setting	94	0.3
Rural: Town and Fringe	3,189	9.2
Rural: Town and Fringe in a Sparse Setting	197	0.6
Rural: Village and Dispersed	2,490	7.2
Rural: Village and Dispersed in a Sparse Setting	328	0.9

Table 1c: Distribution of 2011 MSOAs between Categories; RUC2011

MSOA Class	Frequency	%
Urban: Major Conurbation	2,399	33.3
Urban: Minor Conurbation	249	3.5
Urban: City and Town	3,206	44.5
Urban: City and Town in a Sparse Setting	21	0.3
Rural: Town and Fringe	645	9.0
Rural: Town and Fringe in a Sparse Setting	29	0.4
Rural: Village and Dispersed	566	7.9
Rural: Village and Dispersed in a Sparse Setting	86	1.2

Figure 2: England &Wales; 2011 Census Output Areas: RUC2011 Typology



2 Assessing Fitness for Varying Purposes

2.1 RUC is designed to assist examination of social and economic variation with respect to the physical character of the settlements in which residents typically live and to population sparsity. Its prime motivation is to assist exploration of the particularities of rural areas. To assess whether RUC is likely to be appropriate for the user's particular purpose its fundamental basis must be understood: within RUC, rurality is simply a matter of settlement form rather than the economic function or the character or use of the land.

2.2 RUC takes no explicit account of economic function. This may render it inappropriate for some purpose, but it allows the economic functions of a rural domain (defined simply on the basis of settlement form) to be measured rather than presumed.

2.3 More critically in practice, RUC takes no explicit account of any aspect of the land cover typical of a statistical unit other than settlement. RUC is not intended for the classification of land or land parcels. Statistical units are assigned to categories within the typology on the basis of the physical character of the settlements in which residents typically live, but this may indicate little about land cover across that unit. For the reasons elaborated below RUC is not well-suited, for example, to applications intended to support the administration of agro-environment schemes or to analyse their take up.

2.4 More generally, to assess whether RUC is likely to be appropriate for a particular purpose it is also important to understand the implications of

- the nature of the units which it classifies (OAs, LSOAs, MSOAs),
- the manner in which physical settlements are individuated and their populations enumerated, and
- the manner in which settlement type and population sparsity are defined

Implications of the Scale and Configuration of Statistical Units

2.5 The assignments made within RUC cannot be understood without some consideration of the geographic scale and configuration of the *units* that are being classified. Census Output Areas provide an exhaustive coverage of England and Wales and are designed (algorithmically) so that each includes a roughly equal number of households. One implication of this, given the distribution of population is that most OAs cover a small part of an urban area. A further implication is that their geographic extent varies very widely, and in thinly settled localities, OAs will be geographically large tracts of land with scant physical development. Intuitively one might imagine that units of that *size* might be characterised by dispersed settlement, but the specific *configuration* of OAs means that this need not be the case. Absence of residential land cover can be directly inferred from the geographic size of a particular Output Area, but the nature of the land cover or the distribution of the dwelling stock across the area cannot.

2.6 The design of Output Areas does not ensure that their boundaries are consonant with underlying topographic distinctions. Although most OAs fall entirely within urban areas, across the remainder of England and Wales the mosaic of Output Areas might be likened to a jigsaw puzzle which can be put together to provide a topographic map although the shape of individual pieces bears little relation to the topography depicted. As a consequence, an Output Area may include a large tract of unsettled moor, but overlap the edge of an urban area. Under these circumstances the residents of the OA will *typically live* in the urban portion and it will be classified accordingly. From a landscape perspective, this seems perverse. RUC, however, classifies settlements and is designed to support analysis of population and economic activity.

2.7 These considerations have two important implications for the potential user of RUC. The first is the precept already stated that RUC is unlikely to be appropriate on its own for use in applications concerned with land cover. The second is that (outside urban areas with a population of 10,000 or more) an Output Area is likely to include a mixture of settlement types and the definition is concerned with the balance between these types. An Output Area assigned to the village class will not *correspond* to a village; the design of OAs is such that it will include part of a village (sometimes parts of more than one) and other dwellings away from it. The classification of many Output Areas changed between 2001 and 2011 because incremental development changed the balance of settlement types included (see para 3.16).

Implications of the Methods Used to Individuate Settlements

2.8 Drawing a distinction between the urban and rural domains rests on the application of a 10,000 population cut- to physical settlements and hence depends critically on the delimitation of their extent. Delimitation demands specific rules to identity when gaps between parcels of developed land should signal breaks between settlements. The number of settlements identified and their sizes are interdependent; the more settlements are individuated the smaller they will be. Understanding how physical settlements are defined is therefore crucial to the use of the definition.

2.9 RUC uses physical settlement boundaries created by Ordnance Survey (OS) to identify the areas to be considered urban. More specifically, RUC2001 uses 2001 urban settlement boundaries while RUC2011 uses built-up area boundaries for 2011. The latter were created by OS on behalf of the government consortium to underpin 2011 Census outputs. The detailed protocols differ, and these differences are very important for understanding variation over time. In principle, however, both involve aggregation of individual land parcels deemed to be in urban use, subject to a distance cut-off, followed by settlement naming and population assignment. RUC2013 rests on the delimitation of built-up areas generated algorithmically from map data layers held by OS. Parcels of developed land are identified and where the gap between two parcels is less than 200m, they are amalgamated. Individual built-up areas are thus augmented to the point at which no further developed land can be added without infringing the cut-off rule.

2.10 Once such areas are identified by OS, they are assigned names. Several areas represented by disjoint polygons within the OS built-up areas dataset may have been assigned the same name (ie treated as the same individuated settlement) if they are considered to be sufficiently close together. There is a tendency for fewer, larger settlements to be individuated on the basis of 2011 built-up area boundaries than 2001 urban settlement boundaries. This results principally from differences in the way that protocols were applied when the two sets of settlement boundaries were produced. This presents significant problems for applications concerned with variations of rates of growth of different sets of settlements. It is also acknowledged that for many purposes, users might wish to identify distinct settlements *within* urban agglomerations treated as single settlements under the rules used to create the 2011 built-up areas.

The Manner in which Settlement Type and Population Sparsity Are Defined

2.11 To classify settlement form within the rural domain, RUC assigns each individual dwelling in England and Wales to a grid of rectangular cells each 100metres by 100metres. As each cell covers an area of one hectare (10,000 sq metres) they are referred to as hectare cells. Density measures for each cell are calculated at a series of increasing radii around it to construct a 'density profile' for it. The density estimates for different radii (or 'scales') will differ, ie they will be scale-dependent. The pattern of scale-dependent densities differs systematically for different settlement types. On this basis each cell is assigned to a morphological type using a method described by Bibby and Brindley (2013). The different categories of settlement are thus identified on the basis of form, not on the basis of population cut-offs. The sizes of individual rural settlements associated with RUC2001 were catalogued by the Housing Corporation on the basis of the RUC hectare grid and ONS postcode head counts from the 2001 Census.

2.12 Reference to density profiles (that is density measures at a range of geographic scales) is crucial to the recognition of settlements of characteristically different form and extent. Those intending to make sustained use of RUC may find value in gaining a thorough understanding of this aspect of the underlying methodology. All users should be aware that the method does *not* simply assume that different types of settlement have been developed at different densities. The principle underlying the method is entirely compatible with observations of the type that a cul-de-sac comprising 12 dwellings developed at 18 dwellings to the hectare might be found in a village, or a town, or the urban area or at the urban fringe. The method simply exploits the scale-dependence of density estimates.

2.13 Sparsity is also estimated using hectare grids. Within RUC less than one OA in twenty is flagged as sparse; all others being described as less sparse. Identification of 'sparse' OAs rests on three distinct measures of the average number of residential addresses respectively within 10km, 20km and 30km of dwellings within the OA. These three measures are calculated for every OA in England and Wales. If an OA is flagged as 'sparse' its score on each of these three measures falls within the lowest 5% (see Bibby and Brindley 2013).

3 Understanding Change over Time

3.1 Great care is required in using RUC to examine change in settlement form between 2001 and 2011. Users should be aware that ONS replaced the hierarchical system of OA and SOA codes introduced for use with the 2001 Census. More significantly ONS have made adjustments to their configuration which affect 2.6% of 2001 Census OAs. Analysis of physical urbanization and similar topics requires adoption of reporting units that are themselves constant over time, and must take account of two components of change in RUC assignments; first, that resulting from change in the set of (S)OAs in use and second, that involving change in the categories assigned to (S)OAs with constant boundaries.

3.2 When interpreting change in settlement class assignments over time it is critically important

- to distinguish change in the classification of an Output Area (on which more than one distinct settlement may impinge) from 'organic growth' of an entire settlement, and
- to recognize that reported change arises not only from physical change but from 'changes of view' as discussed below.

Understanding Change: Where OAs Have Not Been Re-Configured

3.3 Where Output Area boundaries remain unchanged, changes in settlement class assignment or changes between sparse and less sparse categories may both occur. The former types of change are relatively common, but changes between sparse and less sparse categories are not.

3.4 The extent of change in the dwelling stock involved in *major* settlement expansion implies that a change in the configuration of Output Areas would be required (see below). In aggregate, the scale of rural to urban change captured by the changed status of OAs on constant boundaries is smaller than that associated with the creation of new OAs. Where OA boundaries are static, a change in the morphological class may occur under one of four circumstances:

- i) physical development *within that specific OA* may have triggered a change in settlement type either between urban and rural domains or within the rural domain
- ii) demographic or physical change *within the settlement* with which an OA is associated may have taken that settlement across the 10,000 population threshold triggering a move between urban and rural domains.
- iii) *remote physical change* (ie at a point outside that OA) between 2001 and 2011 may have implied amalgamation of the settlement with which it was associated in 2001 with another thereby crossing the 10,000 population threshold and shifting the OA from the rural to the urban domain. (Less commonly remote physical change entailed severance of settlements and a shift of one or more OAs from the urban to the rural domain) ,
- iv) changes may result from 'change of view' as a result of the rules used to create the 2011 built-up areas rather than physical change.

BOX 1: Circumstances Where Morphological Class of OAs Change Without Boundary Change

i) Change in Output Area Assignment due to Physical Development within the same OA

Physical development within an OA, insufficient to require its splitting, can

- trigger its **movement from the rural to the urban domain** (eg residential development at the fringe of Tiverton triggered changed assignment of E0010667)
- alter the ***balance*** **between rural settlement types** prompting a shift from 'dispersed' to 'village' categories *or vice versa*. As such change tends to reflect a shift in balance between settlement types which impinge on the OA, an assignment from village to dispersed is not perverse
- lead to a shift in morphological class in response to **organic growth of the principal settlement** (though this is less common than shifts in balance).Such cases tend to involve a group of contiguous OAs (eg Baschurch (Shropshire), Chorton Down (Dorset), Easton (South Norfolk), Hellifield (North Yorkshire) and Sutton Lane Ends (Cheshire East).

ii) Change in Output Area Assignment due to Physical Development within a Remote OA

A change in OA assignment may result from *remote* physical change involving

- **rural to urban change** when it contributes to apparent coalescence of settlements treated as separate in 2001 but as a single settlement above the 10,000 population threshold in 2011. (eg all OAs (E001649, E001658, E001659, E001660) in Box (Wiltshire) are now treated as part of neighbouring Corsham.
- (rarely**) urban to rural change** when demolition of property or cessation of urban uses can trigger severs areas previously considered to form a single urban area. The most marked case involves change on asite alongside A446 in OA E00158260 to the North of Coleshill severing Birmingham from Coleshill, and triggering the transfer of that town's 21 OAs from the urban to the rural domain.

iii) Change in Output Area Assignment where an Entire Settlement Crosses the 10,000 Population Threshold

A change in assignment of a contiguous group of OAs occurs when an entire settlement crossed the 10,000 population threshold between 2001 and 2011 involving

- **rural to urban change** in a limited number of settlements including St Blazey in Cornwall, Gillingham in North Dorset, Amesbury in Wiltshire, Cambourne in Cambridgeshire, and Snodland in Kent
- **urban to rural change** with population decline in Ferryhill and Shildon both in County Durham

iv) Change in Output Area Assignment Arising from 'Change of View' Between OS Protocols

A change in assignment of an OA may occur where difference of view of 'gaps' between physical properties between 2001 and 2011 lead to changes in settlement individuation involving

- **rural to urban change** where undeveloped land was considered to form a gap between settlement in 2001 but not in 2011. Such cases are common in and around northern conurbations (eg E00030644, E00030644, E00030645 were treated as a part of the Manchester built-up area in 2011 but as a separate settlement (Broadbottom) in 2001 without any physical development at the gap which in 2001 was considered to separate it
- (less frequently) **urban to rural change** where undeveloped land was considered to form a gap between settlement in 2011 but not in 2011 (eg OA E001050983 very near Bishop Auckland (County Durham))
- **urban to rural change** where a gap between settlement results from a change of view of whether a particular topographic feature should be treated as urban or rural (eg a difference of view of an area of plant at Capenhurst (E00092611) triggers its severance and a change in morphological assignment from urban to dispersed.

3.5 Examples of each of these types of circumstance are provided in Box 1. The first three types all involve physical or demographic change but differ in how far that change may be from that specific OA. Change of assignments between urban and rural divisions are relatively infrequent- with 10% of OAs assigned to a rural category in RUC2001 being assigned to the urban domain under RUC2011 and 0.42% of OAs assigned to an urban category under RUC2001 appearing rural under RUC2011.Nevertheless, it must be understood that in the majority of cases a transfer of an OA to the urban domain does ***not*** result from physical development.

3.6 On the basis of detailed assessment of change at hectare cell level as described in Bibby and Brindley (2013), the reasons for specific urban-rural and rural-urban changes between RUC2001 and RUC2011 are flagged within RUC2011.The overall breakdown of these changes is summarized in Table 2.

Table 2: Reasons for Rural to Urban and Urban to Rural Change between RUC2001 and RUC2011 at OA Level

	Type[1]	**Rural to Urban**		**Urban to Rural**	
		Number	Pct	Number	Pct
Development	i, ii	398	1.07	563	0.39
Threshold	iii	991	2.66	37	0.03
Change of View	iv	2,331	6.25	0	0.00
Not Applicable (No Change)		33,602	90.03	143,486	99.58
Total		**37,322**	**100.00**	**144,086**	**100.00**

Note 1: See Box 1

Understanding Change: Where OAs Have Been Re-Configured

3.7 Creation of new Output Areas by ONS since 2001 has responded primarily to population change. Small numbers of OA boundaries have been adjusted to respect local authority boundary changes, and for other reasons set out in ONS 2012 'Changes to Output Areas and Super Output Areas in England and Wales, 2001 to 2011')
http://www.ons.gov.uk/ons/guide-method/geography/products/census/report--changes-to-output-areas-and-super-output-areas-in-england-and-wales--2001-to-2011.pdf

3.8 Certain Output Areas defined in 2001 have been split in response to significant growth; or (less commonly) have been merged where population has fallen. Across England and Wales, 3,239 OAs defined in 2001 were split (1.8% of the total) creating 9,784 new OAs (5.4% of the 2011 total). Overall, 1,115 OAs from 2001 were merged (0.6% of the total) defining 512 merged units (0.3% of the 2012 total). Look-up tables relating the 2001 and 2011 units are

available; http://www.ons.gov.uk/ons/guide-method/geography/products/census/changes-to-output-areas-and-super-output-areas--2001-to-2011.xls

3.9 Major physical development over the inter-censal decade implied reconfiguration of OAs and in some circumstances a change in RUC settlement class. Given the incidence of residential development, adaptive splitting of 2001 OAs tended to follow urban intensification, generating more than 8,000 new OAs. New 'urban' OAs were carved out of OAs which had already been 'urban' under RUC2001 ,with concentrations found in Greater London and near the cores of major provincial cities. Hence more than four-fifths of new OAs created through splitting involved no change in RUC settlement class.

3.10 Far less frequently, adaptive splitting of OAs implied change in RUC settlement class. Rather more than 500 new 'urban' OAs under RUC2011 were created out of previously 'rural' OAs. Substantial groups of such OAs are associated with significant urban extensions- of Swindon, Peterborough, Milton Keynes and Rugby, for example. Overall, just over 5% of *all* new OAs created by splitting form part of the urban domain in 2011 but derive from a rural 'parent.' This component or rural to urban change thus exceeds the number of OAs on unchanged boundaries which passed from the rural to urban divisions as a direct result of physical development (see Table 2).

3.11 It should not, however, be assumed that a change in settlement classification will occur wherever OAs treated as 'rural' under RUC2001 were split. Most new OAs created by splitting 'rural' units remained in the rural domain. In total, 512 OAs considered 'rural' under RUC2001 were split, creating 1,587 new OAs of which 1039 remained in the rural division. Moreover, roughly two thirds of this subset of new OAs belonged to the *same* morphological class as their parent. These include cases in which settlement growth led to the splitting of a 2001 Output Area to create

- new OAs only *some* of which belong to a different morphological category to their parent (eg with urban expansion 09UGDF0001 (a 'village' OA in 2001) was split to form E00173761 (abutting Bedford becoming 'town and fringe' in 2011 and E00173762 (impinging on Biddenham and remaining in the 'village' class), or
- new OAs each of which remained within the same morphological class as its parent (associated with modest growth at 'town' level; at 'village' level and (very rarely) in areas of dispersed settlement).

3.12 Merging of Output Areas (where populations or household stocks fall below specific thresholds) occurs far less frequently than splitting and is rarely associated with a change in RUC morphological assignment. Some 95% of OAs lost through splitting had been assigned under RUC2001 to the same morphological class as their 'child' within RUC2011. The majority of OAs lost through merging had been and remain within the urban domain. Change tends to highlight areas cleared such as west Newcastle, Skelmersdale and Teesside and might perhaps be better thought of as tracking a particular point in the development cycle rather than change in settlement structure.

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Frequently Asked Questions

1. Why is 10,000 population the determination of whether somewhere is rural or urban?

This allows for consistency over time and with other constituent countries of the UK.

Since 1981, a minimum population threshold of 10,000 has been used in England and Wales to distinguish physical settlements (rather than administrative areas) to be considered urban. Although a wide number of cut-offs have been used by different government agencies for specific purposes, a review of urban and rural definitions undertaken for a consortium of government agencies in 2001 recommended the use of the 10,000 threshold. The same threshold is used in Scotland and Northern Ireland – ensuring compatibility of definitions both over time and between countries.

2. Why are some locations that are clearly in the countryside regarded as part of urban areas?

This happens within RUC because of the precise configuration of particular statistical units (Output Areas) and of particular built-up areas.

RUC classifies statistical units (OAs, LSOAs, MSOAs) on the basis of the type of settlement in which their residents typically live. It takes account only of settlement without considering any other aspect of land use or land cover. Output Areas provide an exhaustive coverage of England and Wales. As they are designed so that each includes a roughly equal number of households, many Output Areas will embrace large areas of undeveloped land. Whether settlement included in such units is thinly dispersed across the OA, or (not unusually) concentrated at its edge depends principally on the algorithm used to generate Output Area boundaries. Such an Output Area will in every case be assigned under RUC to the category that appears to reflect the character of the settlement in which its residents live, regardless the extent of open land. In some cases this may be an urban category, where the limits of a particular settlement impinge upon an essentially undeveloped tract of land. From a landscape perspective, this is perverse. RUC, however, classifies settlements and is designed to support analysis of the characteristics of their inhabitants.

The extreme case of OA E00027390 can be used to illustrate how the effect of Output Area definition protocols and OS built-up area protocols combine to generate effects of this type. Most of the dwellings within this OA lie at the limits of the Pennine fringe settlement of Uppermill which is considered to form part of Manchester (in virtue of OS protocols for defining built-up areas). It is because of the narrow gaps between settlements within a long chain that Uppermill is considered urban under these protocols. In virtue of the protocols used to delimit Output Areas, however, the OA in which these particular dwellings lie extends across Saddleworth Moor. The combination of protocols ensures that RUC treats the OA which might be a reasonable description of the typical setting of the dwellings but not of the unpopulated moorland. Extreme cases of this form where OAs have been 'perversely' assigned to the 'urban' domain can be readily identified on the basis of their areal extent.

3. What is the difference between a hamlet and a village?

Hamlets are defined within RUC by reference to a group of farmsteads; villages are identified as a cluster of dwellings (with a specific density profile).

RUC follows the convention used within historical geography of regarding a cluster of three to eight farmsteads as a hamlet (see for example Roberts 1996). In constructing the Rural-Urban definition hamlets have been identified on the basis of the names of properties to which Royal Mail deliver letters (see Bibby and Brindley 2013). Additional properties may augment such a cluster. Hamlets in this sense form an important part of the inherited settlement pattern in some localities, but absent across much of England.

Villages, by contrast, have a clear core and are defined on the basis of a distinctive density profile (as discussed in para 2.11 of the RUC User Guide or more fully in Bibby and Brindley 2013). Occasionally a cluster of farms which would qualify as a hamlet may form part of a group of dwellings sufficiently substantial to satisfy the density profile rules to be regarded as a village and these are treated as villages for the purpose of the definition.

It should be noted that some small clusters of properties are classified neither as hamlets or villages. These include traditional rural settlement forms such as isolated farmsteads with or without additional dwellings, other isolated dwellings and small groups of dwellings such as single terraces associated with former mining or rural industrial activity or more recent forms such as 'retirement villages'.

4. What is meant by the phrase 'in a sparse setting'?

The term 'sparse' is used within RUC to describe broad settlement contexts where the number of households is particularly low. This is done because population sparsity is seen as a potential problem for the delivery of services in rural areas.

The identification of 'sparse' settings rests on estimation of the total number of dwellings within particular distances of a residential address. The number of dwellings or households within 10km of a point might be thought of as a proxy for the economic mass of an area- reflecting the scale of the workforce that might be assembled, or the volume of consumer spending that might be drawn upon. Output Areas where population sparsity might be a potential problem are identified on this basis of the number of dwellings within 10km, 20km and 30km of all residential addresses within the OA. A measure- expressed as a dwelling density- is constructed at each of the three scales. OAs within the fifth percentile on each of these three measures are identified, and where an OA falls within the fifth percentile at all three scales, it is regarded as being in a 'sparse' setting.

5. Why has this Output Area been reclassified as 'urban'?

An Output Area will have been reclassified as urban *either* in response to physical development between 2001 and 2011 *or* because of change in the precise way that built-up areas have been defined by Ordnance Survey.

ONS have created new Output Areas by sub-division where development took place at a significant scale between 2001 and 2011. Where Output Area boundaries have not

themselves changed, they may have been reassigned to the urban category in three types of circumstance (which are distinguished by a flag within RUC2011). The first is where the *balance* of settlement types has changed due to new physical development. This will occur for example where an urban settlement has expanded into an Output Area previously characterised by dispersed settlement, or where the principal settlement component within the OA was part of a neighbouring village. These cases respond to growth on a scale less than that which would demand creation of a new Output Area.

The second type of circumstance (which occurs far more frequently) is where a change of view by Ordnance Survey has brought pre-existing settlement within the urban domain. Both the 2001 and 2011 definitions depend upon detailed OS mapping of 'urban settlements' in 2001 and 'built-up areas' in 2011. While both involve identifying the physical limits of settlements, the detailed protocols used have changed significantly. Moreover, in many cases removal of small gaps between settlements may add a chain of settlements previously regarded as disjoint to the urban domain. For this reason, comparison of areas considered urban in the 2001 and 2011 definitions cannot be used to gauge the extent of physical urbanisation in the inter-censal decade**.**

The third circumstance in which a statistical unit passes from the rural to the urban domain is where the whole settlement upon which it impinges crosses the 10,000 population threshold. Here a whole group of statistical units will pass from the rural to the urban domain without the necessity of physical development in any particular one.

Apparent change in the classification of statistical units may also result from boundary changes. More than 97% of OAs from 2001 persist with new identifiers but unchanged boundaries. The remainder have either been merged to form new ones, or more frequently split in response to population growth (see RUC User Guide Section 3).

6. When does a village become a town?

The distinction between a 'village' and a 'town' is based on settlement *form* rather than population size, the economic function or historic role. Very few *settlements* changed from being in the village class to the town class between 2001 and 2011.

The density profile rules in Bibby and Brindley (2013) imply that where a dwelling forms part of a town there must be at least 500 other dwellings within 800 metres. Where property forms part of a village, there need only be another 35 dwellings within 800 metres (although there are likely to be far more). Of course both these conditions could be found in other contexts but only hold across relatively small areas.

The force of the distinction is that developed and undeveloped parcels maybe intermingled within villages. Areas classified as villages may include dwellings on typically suburban layouts but undeveloped land will always be close at hand. Towns have a core including plots which are fairly densely developed. The recognition of a town within RUC effectively depends on shape. Ribbon development in its strict sense stretching for several kilometres

along a route will only satisfy the rules identifying town where it is complemented by additional housing nearby.

The design of Output Areas is such that those assigned to the town class are likely to comprise dwellings (almost) entirely within a town, whereas those categorised as ‘village’ are likely to include a mix of property in the villages and dwellings in other types of settlement but with the village type predominating.

Although the distinction between a ‘village’ and a town is not based on the population size or the number of dwellings, typical sizes of settlements satisfying the rules are provided in Bibby and Brindley (2013). Rather more than 1300 OAs assigned to the 'village' category under in 2001 were assigned to the town and fringe category in 2011. This usually occurred where a town or city’s fringe expanded into an OA previously assigned to the village class. Rarely did it result from ‘organic growth’ of a village. Where reassignment did *arise* from 'organic growth' of a single settlement a group of contiguous OAs will have been affected. Examples of such localities include Baschurch (Shropshire), Chorton Down (Dorset), Easton (South Norfolk), Hellifield (North Yorkshire) and Sutton Lane Ends (Cheshire East).

7. How do I use the classification to generate statistics?

To generate statistics using RUC, the categorical flags assigned to particular Output Areas and larger geographic units must be joined to substantive statistical data files from the decennial Census or other sources.

RUC provides a series of categorical ‘flags’ which describe the character of particular geographic units used for statistical purposes. The attributes flagged are morphology and sparsity (as discussed in paras 1.5-1.6 of the RUC User Guide) together with indicators of change in category since 2001 and the reason for the changes. The geographic units for which the flags are available are OAs, Lower Layer Super Output Areas (LSOAs), Middle Layer Super Output Areas (MSOAs), and wards. These flags should either be used in tandem with statistical data readily available for these geographic units, or with other data aggregated to these scales.

The 2011 Census represents the largest body of readily available data at Output Area level. A range of other data available at the OA, LSOA and MSOA scales can be found on the Neighbourhood Statistics website (http://neighbourhood.statistics.gov.uk).

8. Can the Classification be used for planning applications?

No. RUC is very unlikely to be useful for this purpose.

The Rural-Urban Classification categorises a series of small area geographic units (such as Output Areas, Lower Layer Super Output Areas, and Middle Layer Super Output Areas). It is designed to identify the types of settlement in which residents of any such area typically live. It is not suitable either for categorising land-cover in those areas or the physical character of parcels of land on which planning consent might be sought.

The Rural-Urban Classification provides a consistent approach to categorising settlement form and population sparsity in England and Wales and deploys its particular nomenclature for that purpose. Local authorities' development plans frequently include policies applying to specific contexts within their jurisdiction which may or may not be explicitly delimited on a proposal map. There is no reason why the definitions of terms referring to settlement type and context used in development should coincide with those used in RUC.

9. Why have some locations become 'more rural'?

A formerly urban Output Area will have been reclassified as rural for one of three reasons: because of a shift in the balance of development that impinges on it; because of a change in the precise way that built-up areas have been defined by Ordnance Survey, or exceptionally because of because of population decline.

The first reason accounts for the largest number of cases and may apply where an Output Area embraces both rural and urban settlement types, but over time new development alters the mix. Such circumstances occur where a geographically large Output Area includes a substantial scatter of dispersed settlement but also a small part of an urban area. In 2001, the number of dwellings in the urban and rural components may have been closely balanced. If in these circumstances the urban edge has remained unchanged while small amounts of new development have occurred across the rest of the Output Area, then the balance may have shifted so that by 2011 the settlement included was predominately rural.

The second type of circumstance in which an Output Area previously regarded as urban may have become rural is very different and very infrequent. The definition of larger physical settlements (as discussed in para 2.9 of the RUC User Guide) rests on settlement definitions provided by Ordnance Survey. While in principle the approach taken to defining urban areas in 2001 and built up areas in 2011 were similar, there were significant differences in implementation which in some circumstances prove critical. In the most extreme cases a change in the assessment of a particular parcel of land made by Ordnance Survey can cause a disjunction between two physical settlements previously treated as contiguous. The most marked example (discussed in 3.22 of the RUC User Guide) is found where the changed view of a particular land parcel severs Coleshill in Warwickshire from the West Midlands conurbation, so that in 2011 it appears as a (rural) town rather than an urban area. In this case the entire group of OAs covering Coleshill is reclassified. A similarly striking case is found at Capenhurst in South Wirral where a changed view of a single land parcel severs a village and an industrial area from Ellesmere Port, once again invoking a change from the urban to rural divisions. A change of view of a related type also leads to the Ordnance Survey severance of North Walney from the built-up area of Barrow-in-Furness, and hence the assignment of North Walney to the rural domain.

The third type of circumstance in which an OA may pass from the urban to the rural domain is found where the population of an entire freestanding settlement fell below the 10,000 population threshold over the inter-censal decade. Under these circumstances all the OAs

which cover a settlement area re-categorised from ‘urban’ to ‘town’. There were two settlements where this occurred – Ferryhill and Shildon – both in County Durham.

10. How is this information used to show how rural a local authority is?

The Rural-Urban Classification for Small Area Geographies is complemented by a classification of larger units. Defra has produced and revised a local authority classification which relies on the proportion of a local authority’s population living in physical settlements of various sizes.

The broader rural component of the local authority classification comprises residents of settlements considered rural under the Rural-Urban Classification
for Small Area Geographies and particular larger settlements with a population up to 30,000 considered to serve the role of market-town to a rural hinterland.