
Socio-economic profile of rural Hampshire 2016

Digital communications

Research & Intelligence,
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Introduction and key findings

1. The rural profile brings together a variety of socio-economic data relating to rural Hampshire, and with the aim of providing a wide ranging evidence base for Hampshire County Council and partners to inform future rural programmes and assist in the targeting of investment and undertake effective action.
2. The profile comprises a number of themed reports covering diverse areas of importance to the future well-being and prosperity of rural Hampshire. The Office for National Statistics Rural Urban Classification (RUC 2011) is linked to the data to achieve a cogent definition describing the rural-urban landscape. The RUC 2011 provides a consistent hierarchical spatial framework based on the make-up of rural-urban populations. Where possible, the smallest geography (output area) is used and aggregated upwards to create a spatial definition that is more precise and, by association, more robust. This approach does however mean that there is no one catch-all rural-urban definition to describe rural Hampshire. See the Appendix for a graphic representation and the Supplementary Report for a fuller description.
3. This report summarises the drive towards nationwide provision of superfast broadband, the Hampshire Superfast Broadband Programme, resolving the final four percent in rural areas and alternative solutions.

Key findings

- A strong digital infrastructure is a key factor in promoting business growth regardless of location, although rural areas are at a disadvantage because of investment costs.
- The combination of commercial roll-out and the Hampshire Superfast Broadband Programme will cover 96% of Hampshire by 2018 and over half a million premises.
- The final 4% are in rural areas where prohibitive costs present challenges for investment. Nonetheless, Hampshire County Council is committed to offering up solutions that facilitate superfast connections in rural areas, such as by satellite links.

Digital infrastructure

4. A robust and innovative digital infrastructure underpins the United Kingdom's (UK) need to stay competitive in a global market. The UK is currently one of the more developed digital economies in the world. Core to advancing the digital economy is building the digital infrastructure, and part of this may see the Government make it a legal right for every home and business in the UK to request fast broadband. Locally, Hampshire County Council recognises that a strong digital infrastructure is a key factor in promoting business growth regardless of location, and this in turn, helps to support strong local economies and sustainable communities. Furthermore, fast internet links provide access to specialist services and remote working, which in turn can reduce travel costs, improve productivity and increase business agility. As a consequence, the internet opens up global markets for both large and small enterprises¹.
5. According to Ofcom, superfast broadband services are now available to 83% of UK premises, of which 46% are covered by the latest 4G mobile services². Superfast broadband is defined by Ofcom as infrastructure supporting download speeds of 30Mbps (megabits per second) or more. While most superfast broadband is delivered by replacing the existing copper cable between the local exchange and the street cabinet with a fibre optic cable, the connection cable between the street cabinet and the home or business is more often made of copper, and hence referred to as fibre to the cabinet (FTTC). Although not widely available there is also limited coverage using fibre optic from the exchange directly to the home or business, and this is referred to commonly as fibre to the premises (FTTP). This type of infrastructure offers an even higher speed that is labelled ultrafast broadband.
6. By 2015 take up of superfast broadband reached approximately 8 million premises, or 27% of all UK premises. This is up from 21% in 2014. Nonetheless, close to 2.4 million (8%) of premises in the UK are unable to receive broadband speeds above 10Mbps. The majority of these premises are in rural areas, where about 1.5 million or 48% of, premises are unable to receive speeds above 10Mbps. Furthermore, many consumers and Small to Medium Enterprises (SMEs) are unable to receive even standard speed broadband. Connectivity in these harder to reach rural areas and the lack of access is seen as hindering rural productivity and growth.

¹ Digital Hampshire A strategy for Hampshire County Council and its partners

²http://stakeholders.ofcom.org.uk/binaries/research/infrastructure/2015/downloads/connected_nations_2015.pdf

7. To oversee the development and investment in the digital infrastructure the Broadband Delivery UK (BDUK), which is part of the Department for Culture, Media and Sport (DCMS), is tasked to deliver the Government's policy on superfast broadband. Given the complexity and scale of the project the superfast broadband roll-out consists of three stages:
 - 1.) Provide superfast broadband coverage to 90% of UK premises by early 2016 and access to basic broadband (2Mbps) for all from December 2015 – "Phase 1"
 - 2.) Provide superfast broadband coverage to 95% of UK premises by the end of 2017 – "Phase 2"
 - 3.) Explore options to provide superfast coverage to the hardest to reach parts of the UK - "the final 5%" (4% in Hampshire)
8. Although Phase 2 is currently scheduled for completion by 2017, the superfast broadband roll-out will not stop when the Government's target of 95% superfast broadband coverage has been met. Further investment may arise in future to extend superfast broadband to as many rural homes and businesses as possible. This could involve smaller providers using a range of technologies that have been used in a number of Market Test Pilots to deliver cost-effective broadband infrastructure in the hardest to reach parts of the UK. Hampshire has benefited from one such pilot. In March 2014, the Government announced that it was accepting innovative bids to deliver broadband to remote communities. A shortlist of eight successful bids reached a feasibility stage. Call Flow Solutions was successful in their bid to deliver broadband service to Hampshire. Call Flow's project had funding of around £1.2 million. The bid offered a range of innovative hybrid engineering techniques and solutions to achieve next generation access delivery in East Hampshire and Winchester. The Call Flow project was completed in March 2016.
9. There are also plans to support the market through the reform of the Electronic Communications Code which governs rights of access to private land, as well as making planning changes, and implementing the EU Broadband Cost Reduction Directive that will require operators to open up their ducts and poles for sharing.
10. In 2015, the Government announced its intention to implement a new broadband Universal Service Obligation (USO)³. This has been legislated in the Digital Economy Bill (2016) to give people the right to request an affordable broadband connection, at a minimum speed, from a designated provider and up to a reasonable cost threshold. In May 2016, the Government

³https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/510148/Broadband_Universal_Service_Obligation.pdf

published its response to the consultation on proposals for a new USO⁴, with the aim of having the USO to be in place by 2020 at the latest.

11. Going forward, it is recognised that ultrafast broadband in the UK is limited, especially via FTTP. In the recently published Strategic Review of Digital Communications by Ofcom, there are new policy aims to make a strategic shift to facilitating ultrafast broadband investment. The Government also announced a Broadband Investment Fund (BIF) in the March 2016 budget to support the roll out of ultrafast broadband by increasing the amount of capital available for investment. The fund will primarily seek to secure private sector investment, although the Government may also invest in the fund on commercial terms. A potential investment of £6 billion in ultrafast and mobile broadband by BT over the next few years was issued in May 2016.
12. Locally, the improvement of broadband capacity and speed is a priority for the County Council. To achieve this aim the County Council is investing a total of £28.4 million of public funds to increase coverage from 80% achieved by the commercial roll-out to more than 95% of premises across Hampshire. The commercially funded rollout of superfast broadband, as conducted by BT and Virgin, aims to reach around 80% of premises. To fill the 15% gap the Hampshire Superfast Broadband Programme builds on this and extends that coverage to 90% of premises by the end of 2015, and with plans in place to reach at least 95%. The Hampshire programme will help to fill the gap in smaller, rural areas that would otherwise most likely be excluded, as the broadband service providers invest in more densely populated neighbourhoods, where there are greater numbers of people to use their services.

Hampshire Superfast Broadband Programme

13. The commercially funded rollout conducted by BT and Virgin has reached around 80% of premises in Hampshire. In addition to this, the Hampshire Superfast Broadband Programme will extend that coverage to approximately 96% of premises in Hampshire, so that at least 94,000 additional premises will be able to access superfast services. However, due to the complexity of this £28.4 million rollout, the programme is being implemented in a number of steps to ensure the most efficient and cost-effective delivery.

⁴ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/523834/Broadband-USO-Gov-Response.pdf

14. The first step is Wave 1 of the programme that represents a £13.8 million investment, £5 million of which was investment from the County Council and its district and borough council partners. This will see coverage extend to 90% of Hampshire. The first wave of investment in Hampshire reached more than 77,000 business and residential premises, whereby access speeds of 24Mbps or higher should be achievable. Of the 77,000 premises, over 40,000 should be able to access speeds in excess of 50Mbps. Delivery of the first part of the programme extending superfast broadband coverage to 90% of the county was completed in April 2016. Many rural businesses have benefited from the programme, including Egg Day Nursery in the village of Sutton Scotney, which saw an uplift in speeds from 7mbps to 39mbps.
15. Wave 2 of the programme began in January 2016. As part of this next wave BT Openreach are upgrading connections to over 34,000 premises across the county between January 2016 and September 2018. Once completed, Wave 2 will make superfast broadband available to more than 95% of premises in Hampshire. Wave 2 has funding of around £16.45 million, and upon completion of Waves 1 and 2 an additional 97,000 premises will have access to superfast broadband. This will bring the total number of Hampshire homes and businesses with access to superfast services to 570,000.
16. The DCMS Innovation Fund Pilot ran alongside Wave 1 and Wave 2 of the Hampshire Superfast Broadband Programme. Delivered by Call Flow Solutions, the pilot had funding of £1.2 million. It was completed in March 2016, connecting 1,700 homes across Winchester and East Hampshire districts through a mixture of technologies, such as radio and fixed wireless. Connected areas include Bramdean, Ropley, Privett, Gundelton and Preshaw. The DCMS Innovation Fund Pilot is a mixture of tailored solutions including fibre to the street cabinets (FTTC), fibre connected directly to premises (FTTP) and fixed wireless technology.
17. DCMS Additional Funding (formerly Rural Community Broadband Fund) of £1 million will extend the coverage to some of the county's hardest to reach areas. As a result of the funding more than 1,500 premises in the New Forest and over 1,800 premises in Test Valley will be able to access superfast broadband. The investment will allow local communities that would otherwise miss out on the advantages of an improved internet connection, to access better broadband speeds. Spatial coverage of the current rollout can be seen in Map 1, while the various funding streams can be found in Table 1.

Table 1: Broadband funding streams

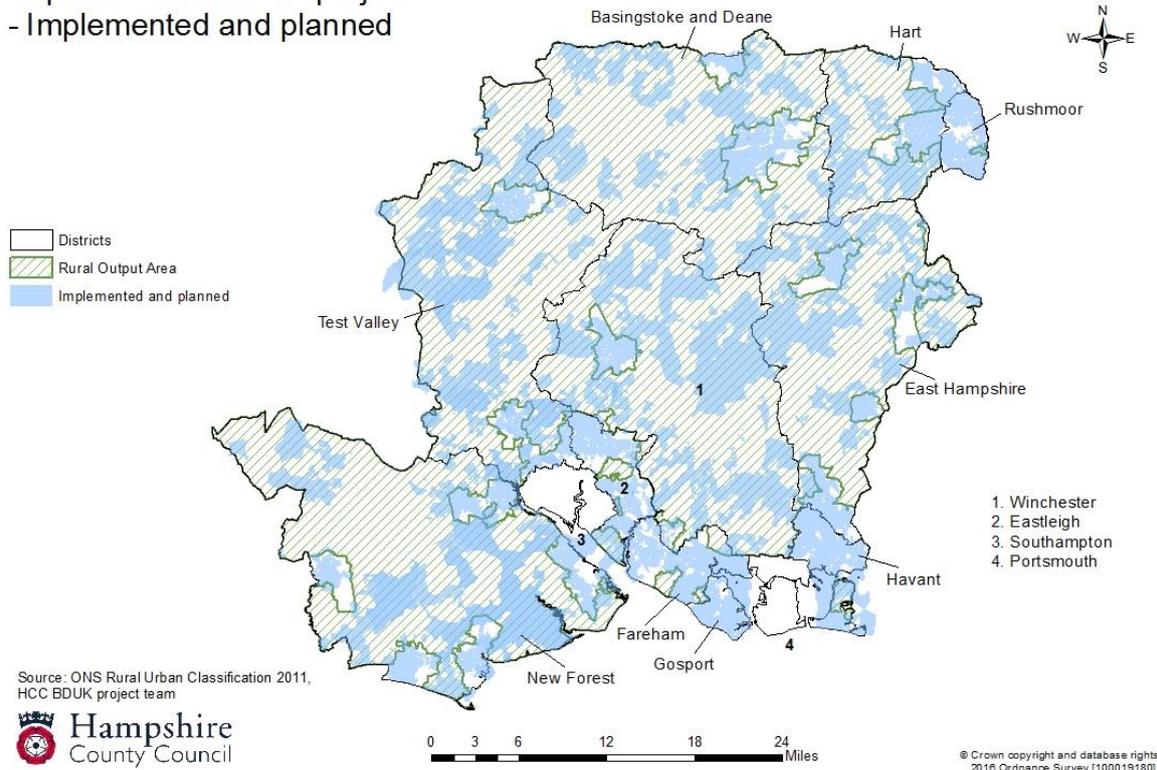
Target	Local Government funding	Central Government funding	BT funding
80% to 90%	£3.75m HCC £1.25m Districts	£5m	£3.8m
RCBF Fund	-	£1m	-
DCMS Innovation Fund	-	£1.2m	-
90% to 95%	£9.2m HCC	£9.2m	£3.8m

Source: HCC

18. Hampshire County Council was allocated £5 million of the original £530 million fund, with this figure match-funded by Hampshire County Council and its district and borough partners. This first wave of the programme has recently been completed. More recently the County Council has been allocated £9.2 million of the second £250 million, which it has also match-funded. Map 1 highlights the areas where coverage has been implemented or is planned. The broadband data is postcode based, hence the odd extension outside the county.

Map 1: Superfast Broadband coverage implemented and planned

Superfast Broadband project
- Implemented and planned



Source: HCC BDUK Project Team

The final four percent

19. At the moment, the funds available in the Hampshire Superfast Broadband Programme will extend superfast broadband coverage to at least 95% of the county by the end of 2018. This will mean that not all premises will get superfast broadband access as part of the commercial roll-out or the additional funding programmes mentioned in the previous section. It is estimated that some 23,000 properties in Hampshire may fall into the final 5% of premises nationally, or 4% in Hampshire, that are too expensive to reach. There are currently no upgrade plans for these properties, although this may change if Government business models and technology solutions come to fruition, and if any additional funding is made available to address these premises.
20. However, the nature of delivering this infrastructure to rural locations may mean some premises served by infrastructure that has been upgraded may be too far away to get Superfast services but will nevertheless still receive speeds of at least 2Mbps.
21. New housing developments are frequently constructed without the infrastructure in place to support superfast broadband services, despite a decent broadband connection being considered as the fifth utility. Hampshire County Council is working to encourage developers to ensure that new build sites are given the infrastructure to support superfast broadband. The Council aims to "retro-fit" property developments built in the last five years, to engage with developers and encourage them to work with the County Council to increase the outreach of the Superfast Broadband project.
22. For businesses not covered by the Superfast Broadband Programme there will be the option of exploring self-funding and other alternative solutions. While this may require investment it will allow businesses to open up to new ventures and opportunities that the global on-line market has to offer. Listed below are a few of the advantages to accessing a faster network connection:
 - Cut costs: work from home and organise video chats and video meetings to save time and travel costs.
 - Be more efficient: no more delays in uploading, connecting and sending will increase productivity.
 - Build better relationships: stay on top of customer and supplier communications.
 - Collaborate: exchange ideas and simultaneously, work on the same projects with multiple colleagues or teams across different locations.

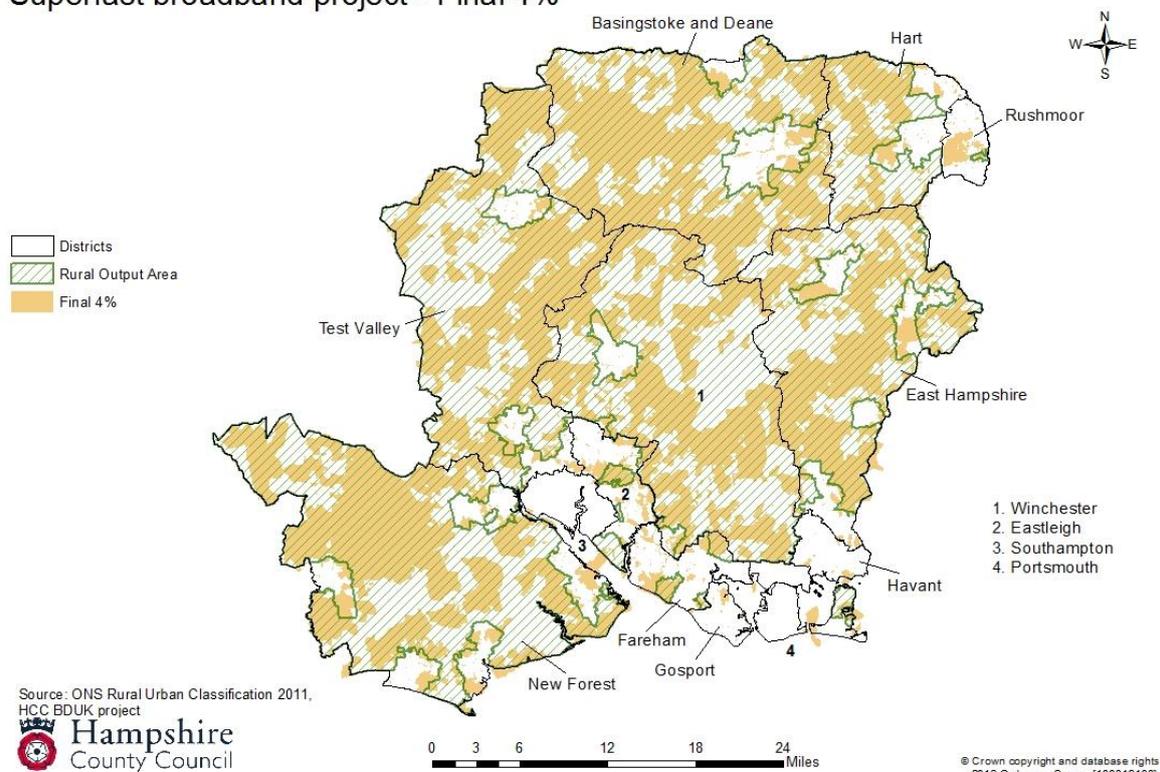
- Access and control your data from anywhere: make the most of cloud computing and safely store, access and edit data in the digital space.
- Go global: access new markets and promote your products worldwide from the comfort of your desk.

23. Case studies can be found using the link below:

<http://www.hampshiresuperfastbroadband.com/business/business-case-studies/>

Map 2: The final four percent

Superfast broadband project - Final 4%



Source: HCC

24. Map 2 highlights those areas that are potentially not covered by the current programme. The final four percent is defined as at least one property in the postcode unable to access superfast broadband. Therefore, some premises in the orange areas may well be connected to superfast broadband. While most of this orange area is in rural areas – as defined by the output area – there are some ‘urban’ areas that are potentially affected. The map should be taken as indicative rather than a precise picture.

Alternative solutions

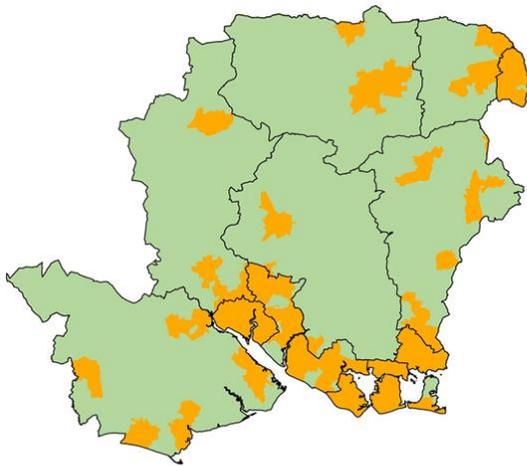
25. The Government now offers a basic broadband subsidy scheme to those customers beyond the reach of superfast roll-out programmes, and who receive less than 2Mbps. The programme includes a 'clawback' mechanism, which could result in additional funds being made available for reinvestment to potentially cover some of the remaining 4% of the county.
26. There are a number of alternatives that can significantly improve current speed or provide a connection. Mobile broadband is often available in areas outside the Superfast Broadband Programme. It is provided through the mobile telephony network and does not require a landline. However, the strength of the connection will depend on the strength of signal in the area. The Government plans to tackle UK rural mobile not-spots and has dedicated a total of £150 million for the Mobile Infrastructure Project (MIP), which was first announced in October 2011. Arqiva has been appointed to build the new site infrastructure, while mobile network operators EE, Telefonica, Three and Vodafone will be providing coverage from the sites and funding their operating costs for the 20-year life of the project. For more details and the coverage map, including benefitting areas of Hampshire, visit: www.gov.uk/government/news/mobile-reception-around-uk-to-get-massive-boost.
27. As the 3G network and the improved 4G coverage in rural areas of Hampshire expands, it might present a viable alternative as a fast home broadband solution. A connection to a mobile network might be achieved by installing an antenna on the roof or simply switching on a router in the living room, achieving speeds of up to 60Mbps on the fastest 4G connections. In areas closer to mobile masts even simpler solutions such as wireless dongles might give residents with reliable connections an opportunity to connect up to 10 devices. However, it is worth mentioning that as with all radio-based systems, 3G and 4G services may be affected by a number of local factors, such as building materials, tree cover and weather conditions.
28. Another alternative is broadband via satellite, and this is probably the most widely available alternative solution as it is accessible nearly everywhere in the county. It uses a satellite dish to provide a two-way access to broadband services. With the technology vastly improving in recent years it might offer speeds of up to 20Mbps. On the downside, it is also a costly alternative with rental charges significantly more expensive than fibre broadband. There are also additional costs involved in arranging installation and in purchasing special hardware including a satellite dish and modem fitted to the home. As

the signal has to travel to and from the satellite latency might be an issue. Therefore, all real time applications and features such as on-line gaming or real-time streaming might not be feasible. This problem will not affect browsing, sending or receiving emails and other basic features.

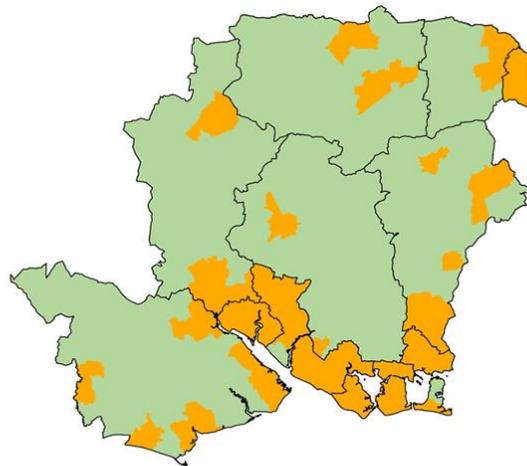
Conclusion

29. Upgrading the UK digital infrastructure will be key to promoting business growth regardless of location. Due to economies of scale and the disparate spread of rural populations these communities are at a disadvantage compared to urban centres because of the prohibitive costs of investing in superfast broadband, let alone ultrafast broadband.
30. In Hampshire, a combination of commercial roll-out will cover 80% of premises. The Hampshire Superfast Broadband Programme will increase this to around 96% by 2018 and to over half a million premises.
31. The outcome for the final 4% excluded from the Superfast Broadband Programme is less certain. Future funding may be a possibility if Government business models and private investment is realised and forthcoming. In the meantime, Hampshire County Council is committed to highlighting alternative solutions in rural areas.

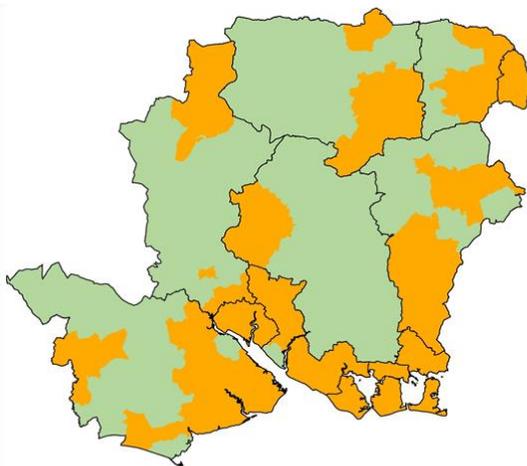
Appendix – Rural Urban Classifications (2011)



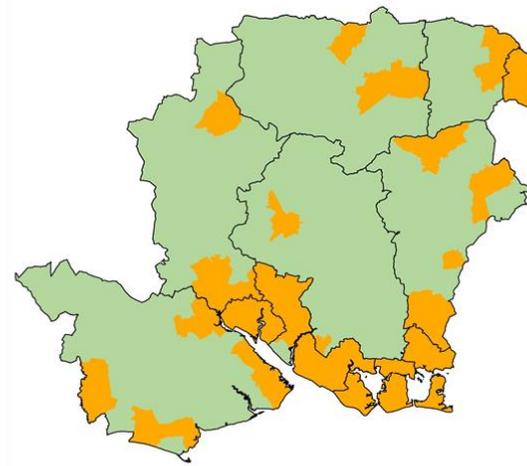
2011 Output Area (OA)



2011 Lower Super Output Area (LSOA)



2011 Middle Super Output Area (MSOA)



2011 Census Ward

**ONS Census Output
(based on resident
population)**

**Census Ward
(based on electoral
population)**

Middle (layer) Super
Output Area (largest
output geography)

2011 Census Ward
(closest in size to
MSOA)

Lower (layer) Super
Output Area

Output Area
(smallest output
geography)

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