



Department for
Science, Innovation
& Technology



Advanced
Wireless
Innovation
Region

How to map mobile coverage in rural areas To improve Connectivity Rural Services Network - 26th February 2025



Introductions & Purpose of the Session



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Streetwave

Why is mobile connectivity important?

- Keeps people connected
- Enables personal independence and public safety
- Increases economic productivity
- Levels the playing field between rural & urban areas
- Supports public sector channel shift & service efficiency
- Critical for people to adopt the latest wireless technology



How is Mobile Connectivity Measured?

- OFCOM Connected Nations Report used to
 - Monitor coverage & performance of broadband & mobile
 - Identify 'not-spots'
- States that where Mobile Signal is stronger than
 - -95dBm (Decibel-milliwatt) - Then voice services will be 'Good' (indoor & in car)
 - -105dBm – Then data services will be 'Good' (indoor & in car)

BUT

- OFCOM relay data provided to it by the industry
- This data is itself largely modelled not measured

Mobile Industry Public Claims

“Our Network covers 99% of the UK”

Mobile Network Operators

EE, Vodafone, Three & O2



Vodafone has gone from strength to strength since it launched its 4G mobile network in 2013, as it now has over 99% UK 4G population coverage across thousands of towns, cities, and villages, and is also rapidly rolling out 5G, with at least 318 UK towns and cities now having coverage.

Three UK Coverage: 99%

O2 Coverage: 98%

O2 Coverage Checker

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2G Good indoors and outdoors.

3G Good indoors and outdoors. Good for mobile broadband.

4G Good indoors and outdoors. Good for mobile broadband.

4G+ Good indoors and outdoors. Good for 4G calling.

5G Sorry. We do not have 5G coverage at this location.

 Good Indoors & Outdoors
 Good Outdoors
 No Service

Coverage Last Updated on 20/12/2024

Google

Powered By Downdetector

Bell's Farm Shop

Map data ©2025 Terms Report a map error

What do Ofcom say?

Ofcom has assessed that in 2024 the MNOs provided 'Good' quality data & voice coverage at the following proportions.

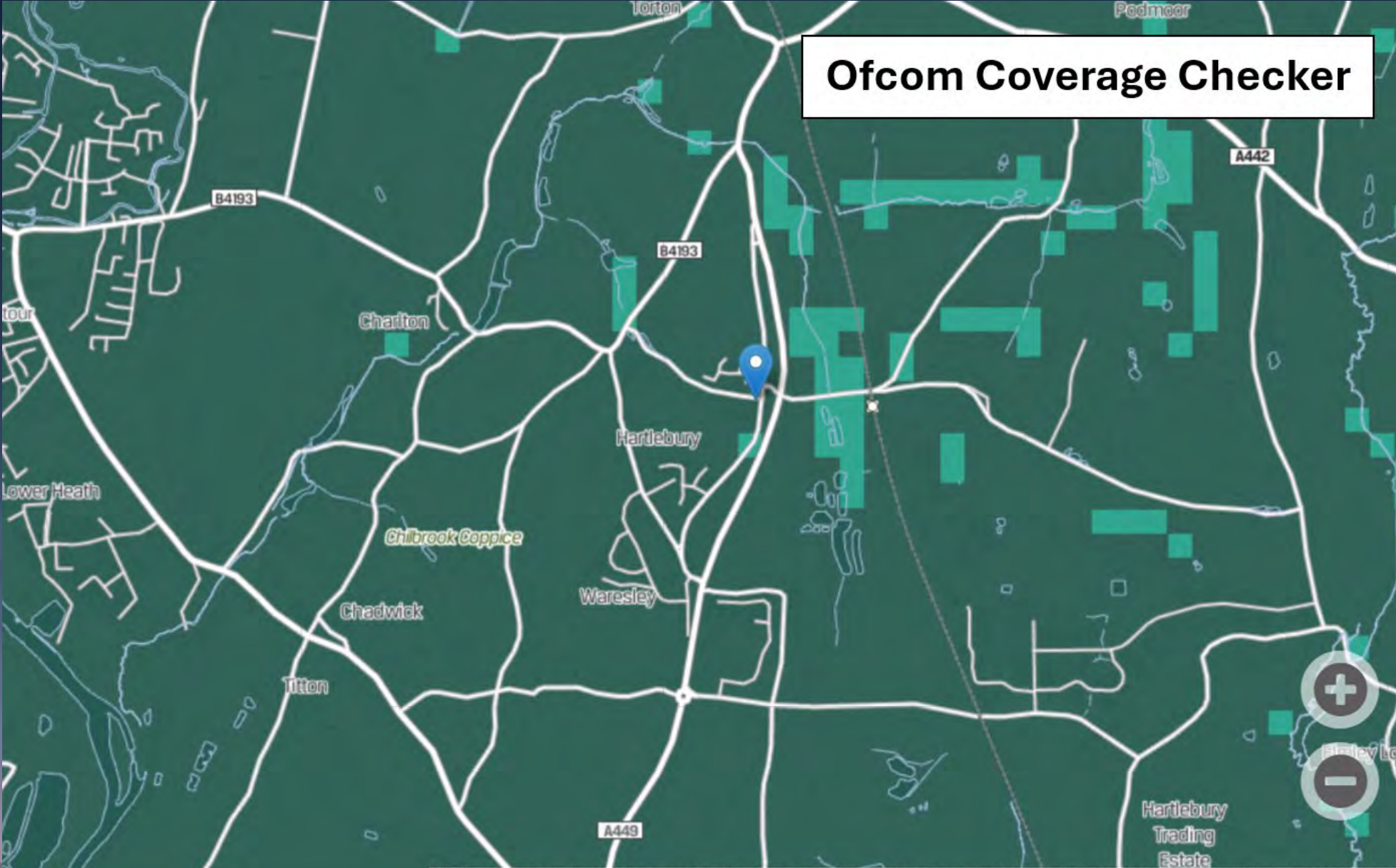
	EE	Three	O2	Vodafone
England	93%	91%	92%	92%
Wales	83%	83%	82%	82%

Source: <https://www.ofcom.org.uk/phones-and-broadband/coverage-and-speeds/cellular-coverage/>

These proportions are only marginally below the MNOs own claims



Ofcom Coverage Checker



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What's the problem?

Every single day councils and members are lobbied by their constituents about poor quality mobile coverage



River Severn Partnership



Our aim is to make the Severn, Wye, Warwickshire Avon and Teme the most vibrant and resilient river network, where an exceptional quality of life, prosperous local economies and an outstanding natural environment is driven by a programme of innovation to reduce flood risk, secure future water resources and improve and deliver shared natural assets.

The area consists of:

- **8,000 Square Miles**
- **3 million people**
- **7 counties** (across Wales, the West Midlands and South West)



Advanced Wireless Innovation Region



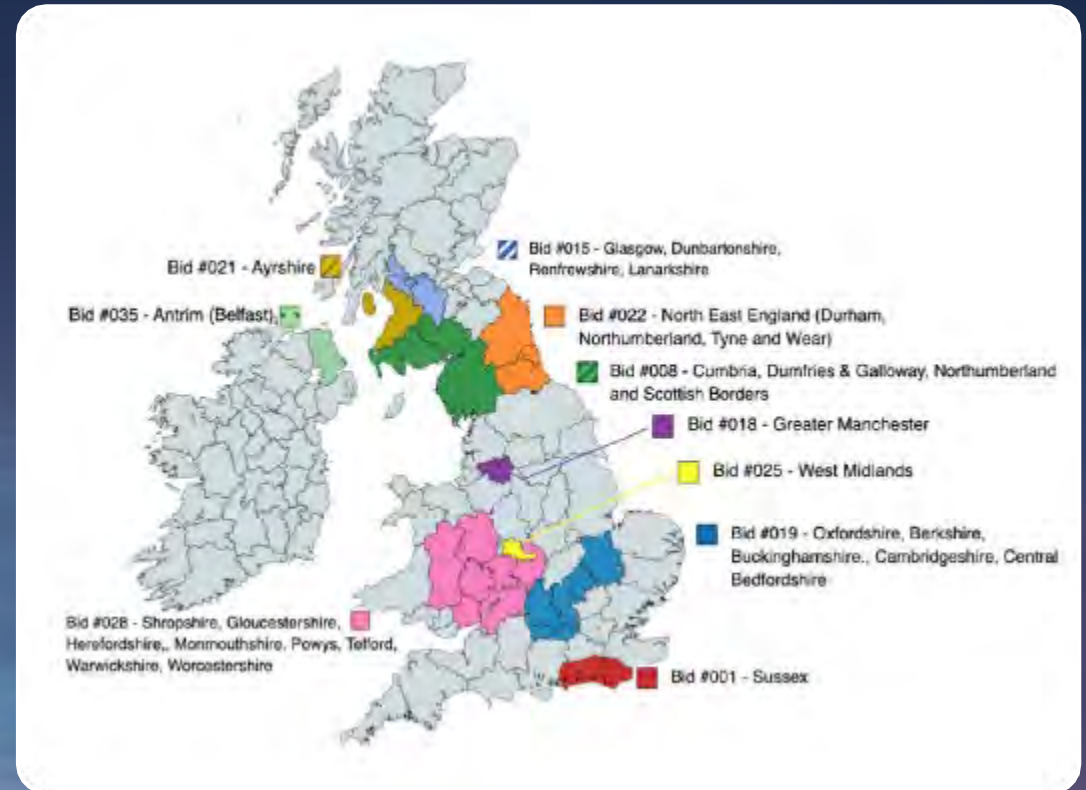
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- One of **10 5GIRs** in the UK
- **£4m** of DSIT funding **Feb 2024 – Sep 2025**
- Managed by Shropshire Council
- Supported by Birmingham City University, Water Resources West, Warwickshire & Worcestershire CC

Aims to

- **Develop use cases** that demonstrate viability of advanced wireless technology
- **Encourage adoption** of advanced wireless technologies in the **water, rural & public sectors**
- Drive **economic growth** and **environmental impact**
- Invest in activity that **benefits every part** of the region



What's the problem?

The first question raised by people interested in adopting more wireless technology is about the public mobile network availability



Mobile Coverage Drive Trial Survey

- Using RSPAWIR Funding
- We procured **streetwave**
- To measure signal & performance of
 - All Mobile Networks
 - EE, O2, Vodafone & Three
 - All Generations of mobile connectivity
 - 2G, 3G, 4G & 5G
 - Both Voice & Data capability
 - Public LoRaWAN Networks
- Like other county-based surveys
- But the largest of its kind ever attempted in the UK



Mobile Coverage Drive Trial Survey

- On-Street 'outdoor' Survey
- 20,000 linear Km of road network
- 6 million datapoints across the region
- Utilising the Waste Fleets
- Only able to do this with the support of >30 unitary and district council waste teams and their partners



Biffa

VEOLIA

ubico

Mobile Coverage Drive Trial Survey

Pros

- Cost Effective
- Measured (not modelled) data
- Based on real-world experience
- Rich data source containing tens of millions of individual signal strength readings
- Covers most areas where people live and work
- The results are harder to dismiss than local studies
- It is significantly more reflective of the real world than either the MNO or Ofcom's Coverage statistics



Mobile Coverage Drive Trial Survey

Cons

- Does not cover the whole geography
- Measures the Optimal Generation not all Generations all the time
- The measurement is point in time
 - May miss time of day contention issues
 - Power & or radio direction changes
 - Seasonality impact
- Bin lorry Faraday effect

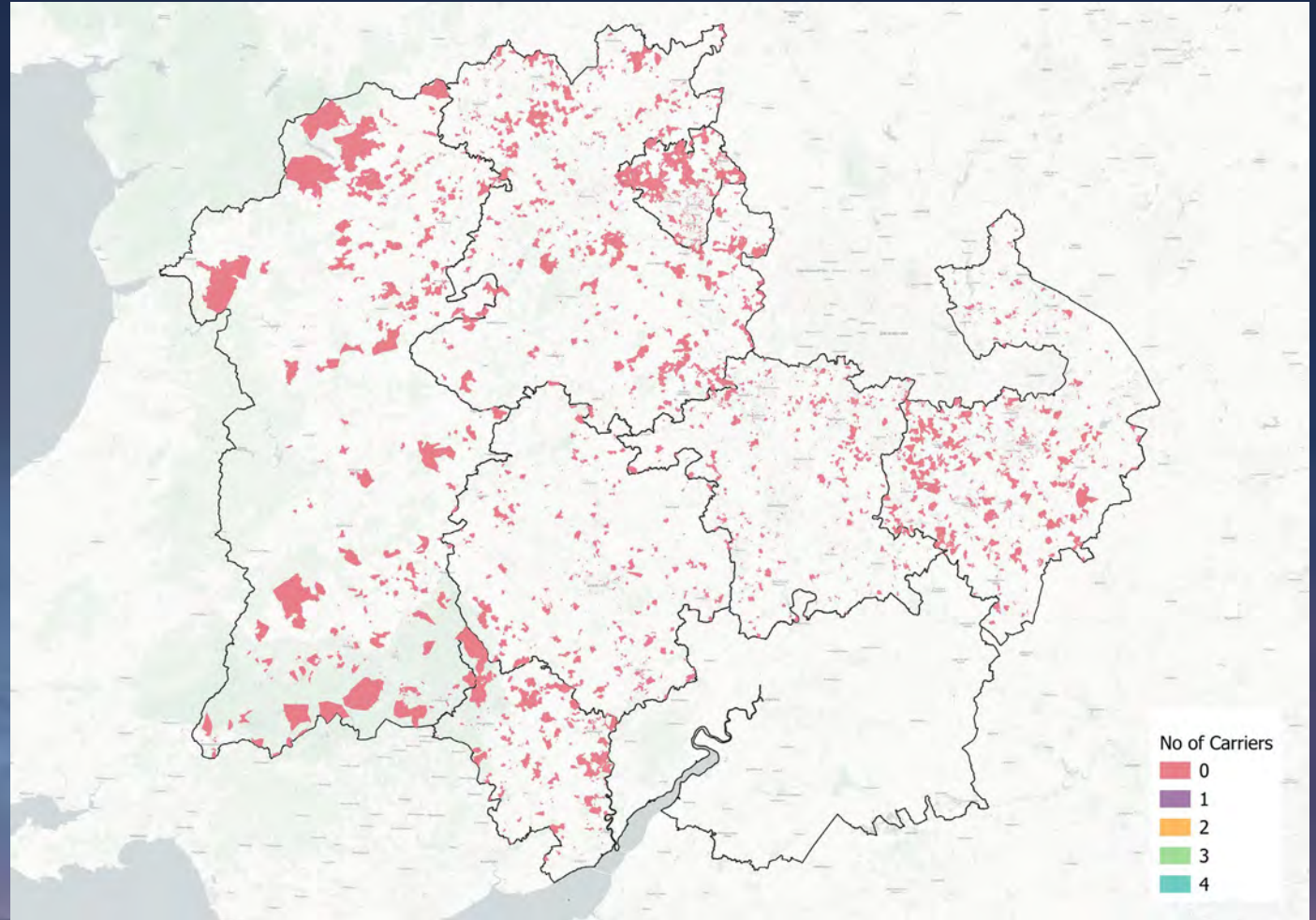


What are the results?

	OFCOM % Postcodes without access to Good Voice -95dBm	Our Data % Postcodes without access to Good Voice -95dBm
Herefordshire	0.07	11.90
Monmouthshire	2.46	16.41
Powys	4.51	15.85
Shropshire	0.12	13.97
Telford	0.00	29.74
Warwickshire	0.00	17.93
Worcestershire	0.01	10.03

What are the results?

Postcode areas with
no 'Good' **voice**
and/or **data** services



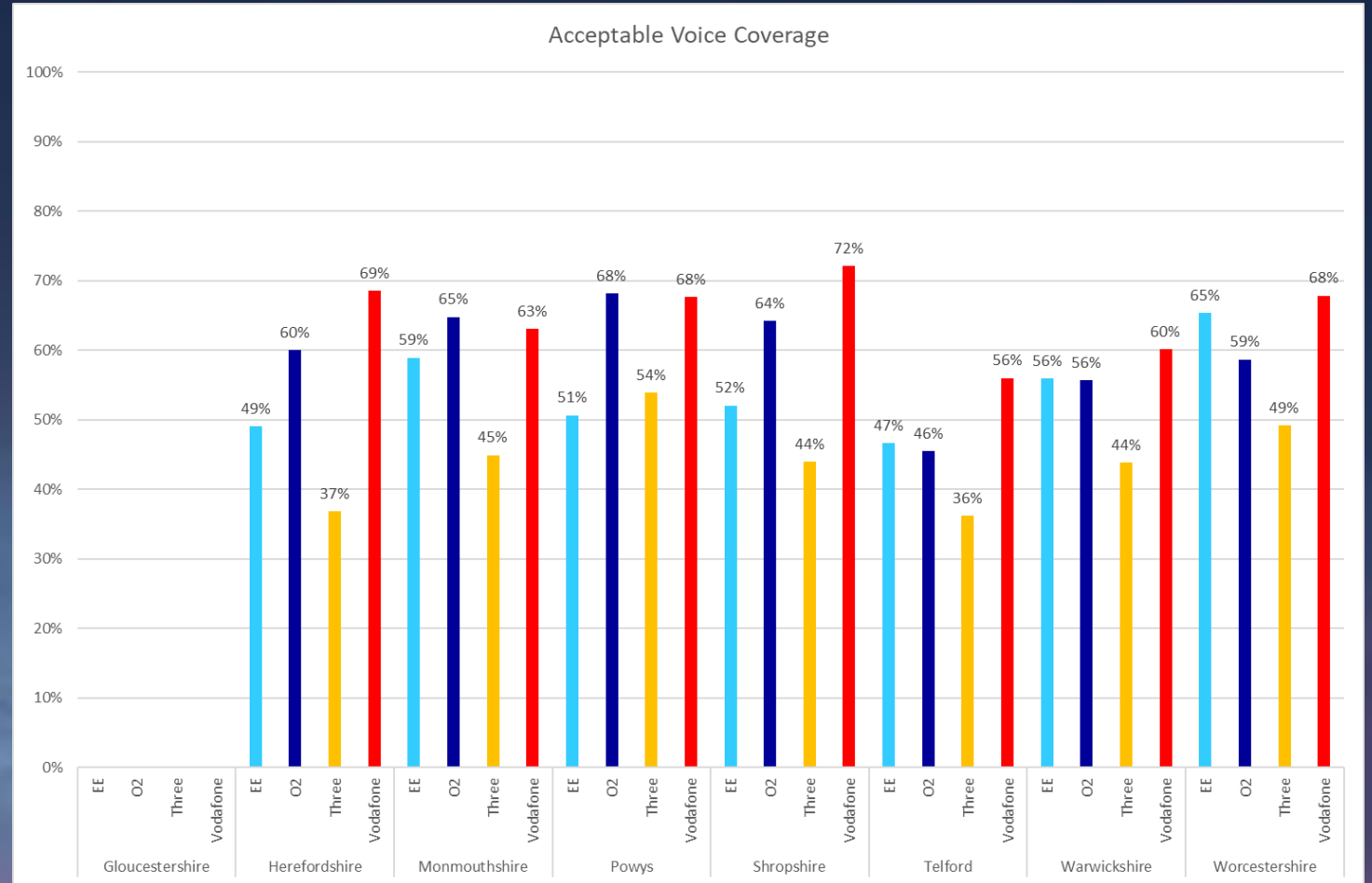
What are the results?

Voice Coverage by MNO

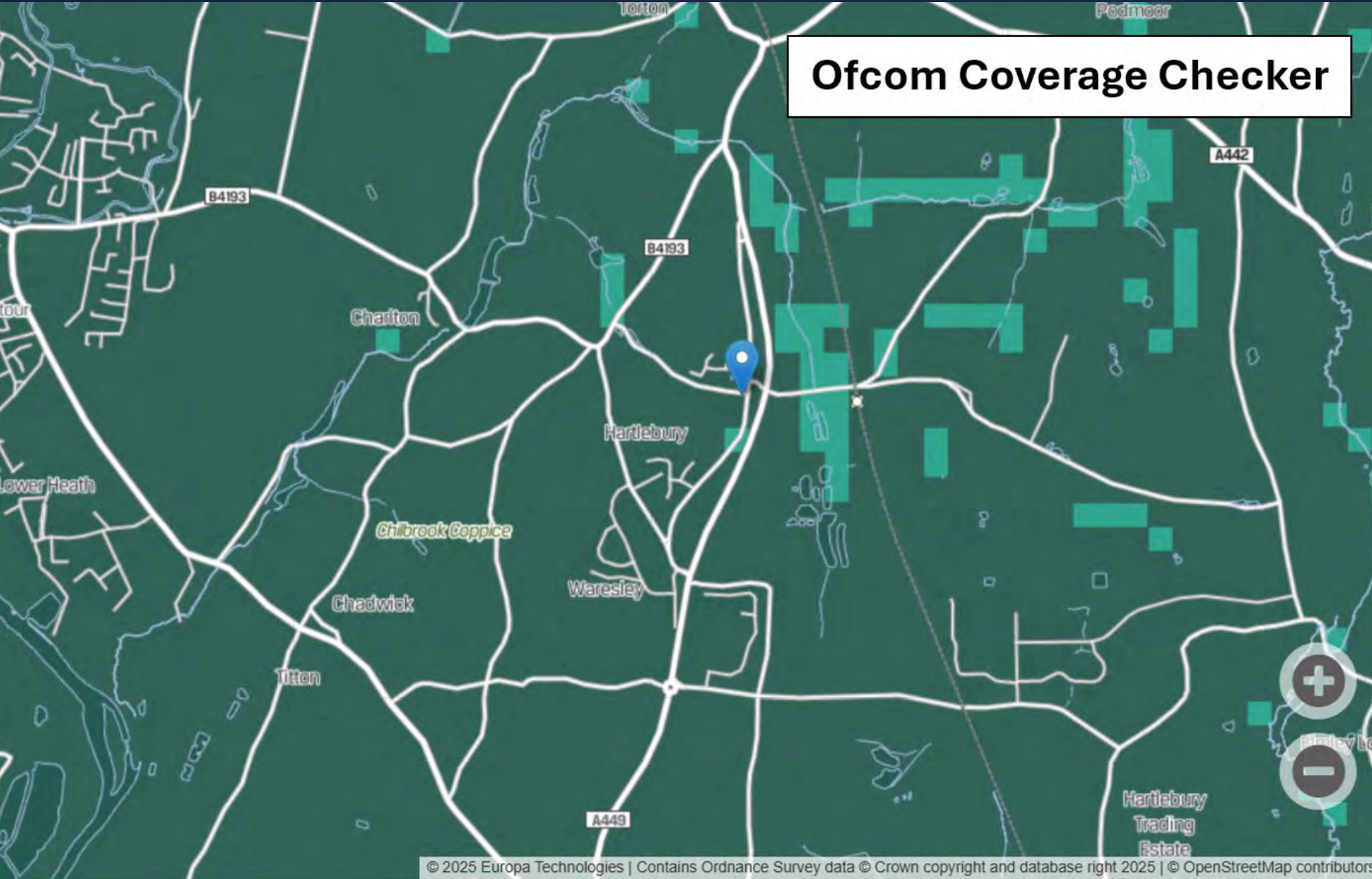
The overall % coverage stated by Ofcom masks the issue

It is single provider coverage that reflects the user experience

The coverage that can be accessed by any given device is far smaller than any of the MNOs declare publicly



Ofcom Coverage Checker



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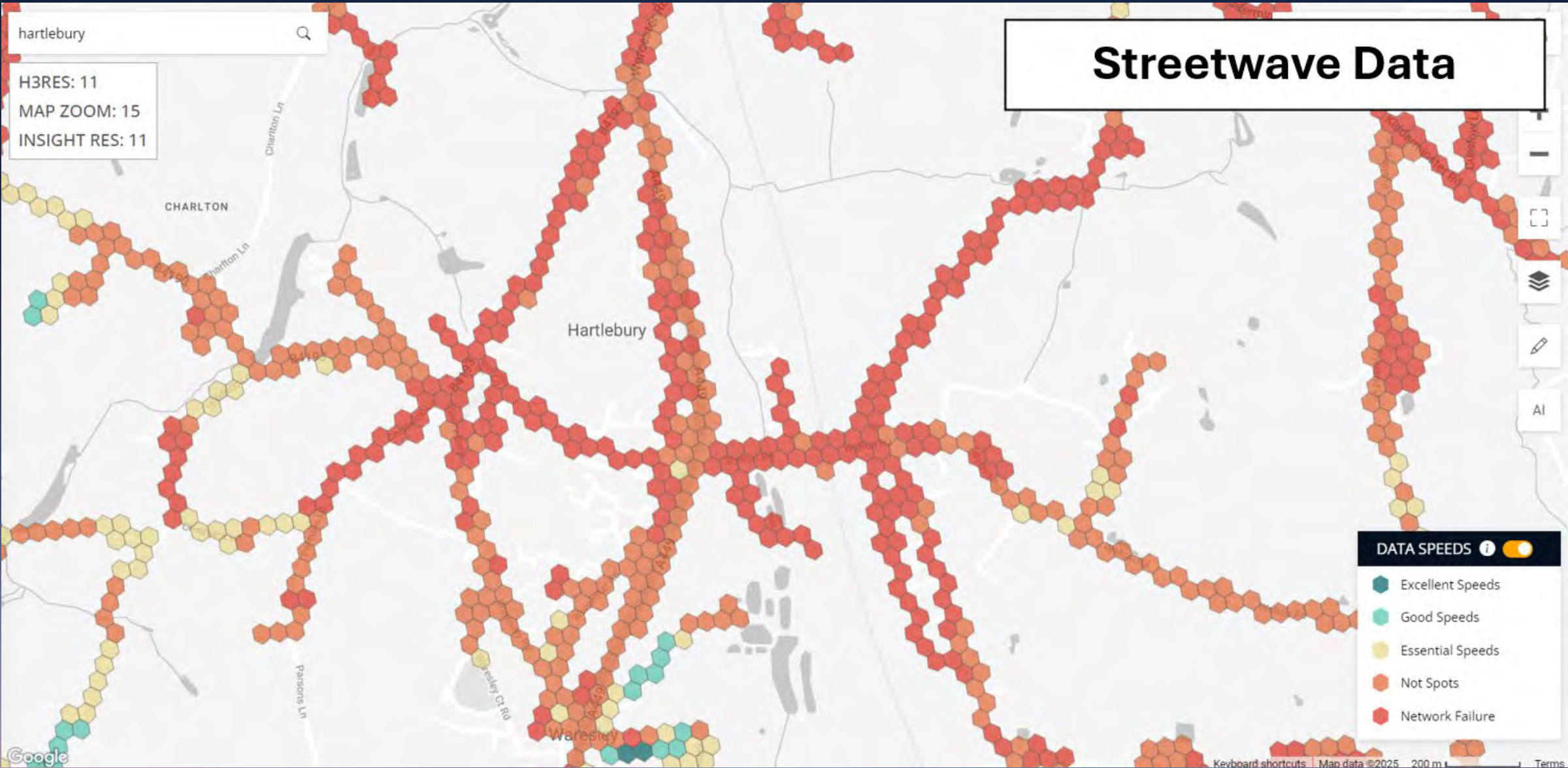


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H3RES: 11
MAP ZOOM: 15
INSIGHT RES: 11

Streetwave Data



DATA SPEEDS

- Excellent Speeds
- Good Speeds
- Essential Speeds
- Not Spots
- Network Failure

Google



What is the impact?

Value of lost productivity due to a lack of mobile coverage

Shropshire: £121 million

Telford: £70 million

Worcestershire: £226 million

Herefordshire: £70 million

Monmouthshire: £35 million

Powys: £50 million

Warwickshire: £224 million

Gloucestershire: £242 million

TOTAL: £1.04 billion

This is based on the assumptions that:

1. The average worker loses 47 hours of productivity a year due to poor mobile coverage: <https://smallbusiness.co.uk/firms-lose-19bn-a-year-due-to-poor-mobile-networks-2562257/>
2. This productivity is only applied to the working population of each council: <https://commonslibrary.parliament.uk/research-briefings/cbp-9366/> + <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationandhouseholdestimatesenglandandwalescensus2021>
3. The value of this lost time is valued at the median hourly wage of £16.37: <https://www.statista.com/statistics/280687/full-time-hourly-wage-uk/>

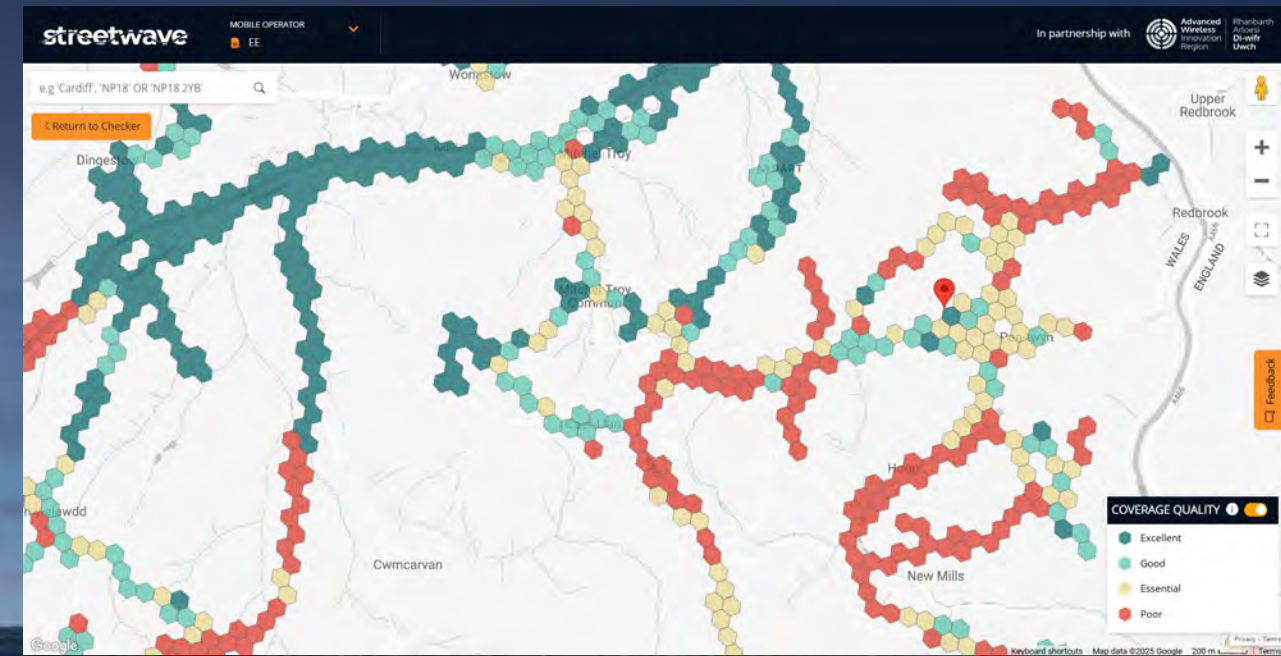
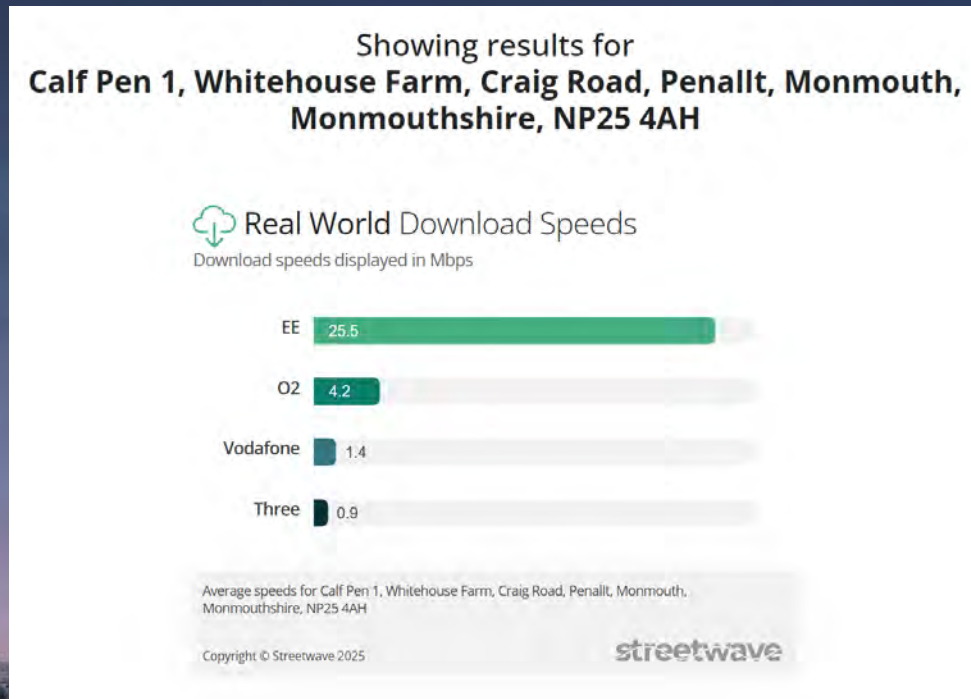


How we are using the results

- Empowering people to make the right decisions including LA procurement
 - Coverage checker

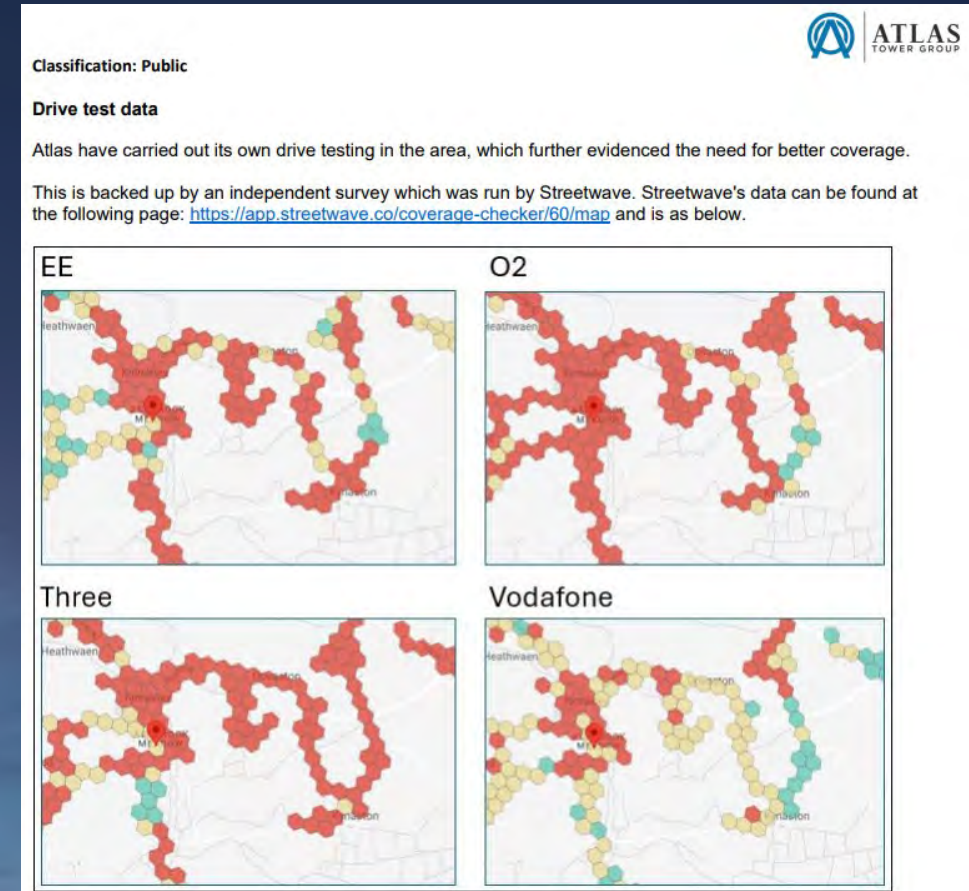


<https://app.streetwave.co/coverage-checker/60>



How we are using the results

- Encouraging neutral hosts by sharing data
- Supporting Planning Applications for new Masts
- Changing the planning culture
- LA Sites, Assets & Wayleaves – How can we help



How we are using the results

- Lobbying Ofcom, MNOs, Government Funders (SRN Issues)
- DIY - Warwickshire Booster Loan Scheme



Contact Us

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