Exploring Geospatial Visualisations
UK Department for Transport

Exploring Geospatial Visualisations

- A range of mapping visualisations are used across UK transport statistics, with the **tools and techniques** used varying across all different transport modes.

- Data visualisation through mapping provides a clear and powerful mechanism to **disseminate data effectively**, **explore simple trends** and **highlight regional variations** of a particular theme of transport.

- A range of platforms available to produce mapping, **ArcGIS** has typically been the core product that we use, but we are exploring mapping with other software applications.

Recent trends

- **Interactivity** – ability for users to interact with mapping data is becoming increasingly important.

- **Exploring data deeper** – users not only want to see the data mapped, but rather select a region of choice and "drill down" further into the data.

- **Helping the "inquiring citizen"** – making the data as user-friendly as possible, especially to the general public.

- **Assessing policy proposals** – presenting data through maps can allow a cleaner depiction of data and help provide a strong evidence base for a variety of decision making processes.

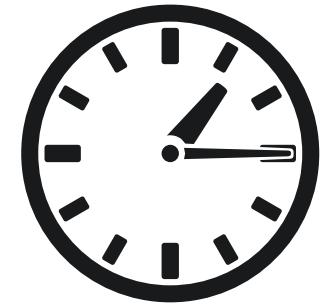- **Big data** – exploring large quantities of data through mapping yields interesting insights.

Department for Transport

Geospatial visualisations across UK transport statistics

Walking and Cycling Explorer

Journey Time Statistics

Search and Rescue Helicopter Statistics

Road Traffic Statistics

AIS Visualisations

Walking and Cycling Explorer

▸ Statistics on walking and cycling in England for 2016, including the proportion of adults participating at a local authority level.

▸ Each set of transport statistics has associated commentary: "East of England had the highest proportion of adults cycling at least once a week (14%) of any region and the West Midlands had the lowest (9%). London was the only region where more adults cycled for travel (9%) than for leisure (7%) at least once a week."
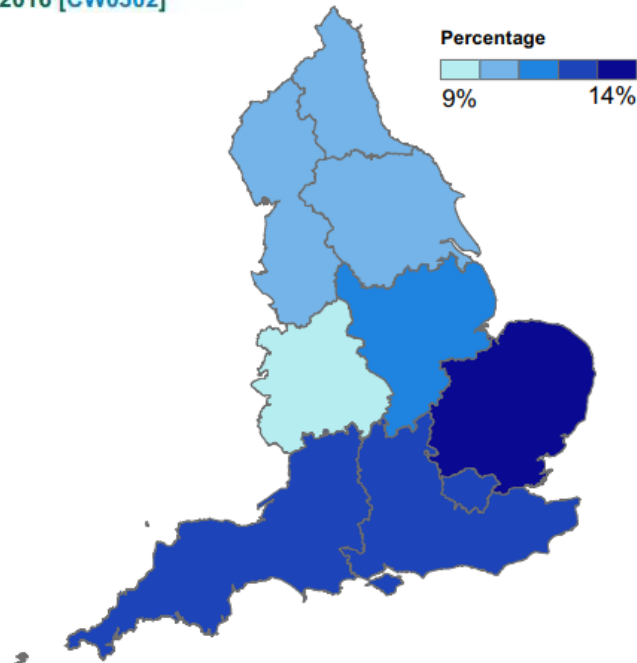
Choropleth mapping

Static map found on statistical commentary
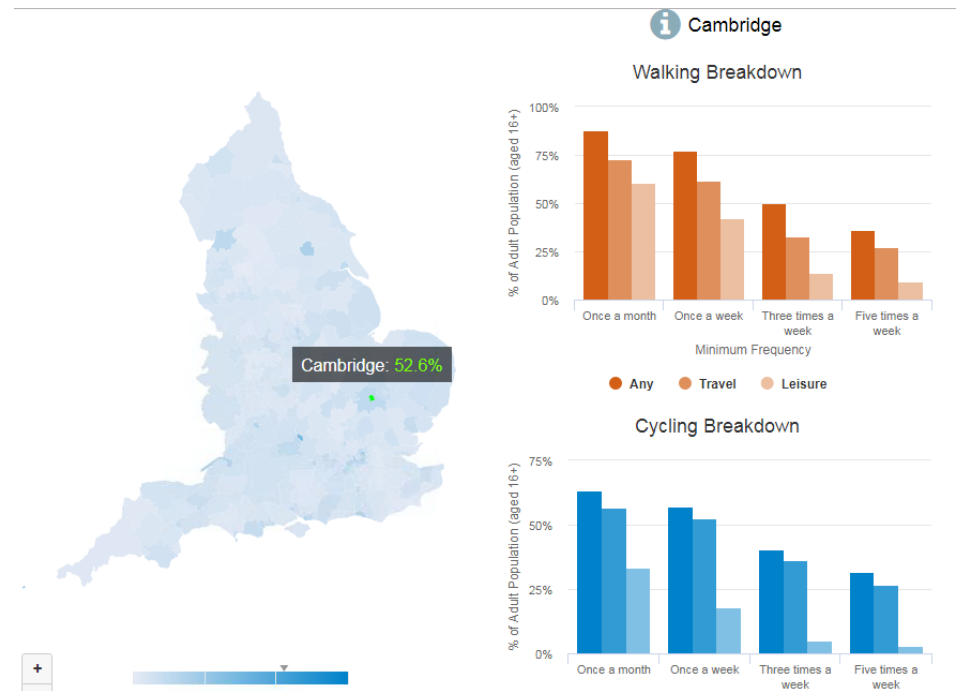
Interactive mapping tool to explore the local estimates in this release in more detail

# Search and Rescue Helicopter Statistics

▶ Statistics on civilian search and rescue helicopter (SARH) taskings, with breakdowns by tasking category, location, location type (land, maritime or coast) and helicopter base.

▶ The Aeronautical Rescue Coordination Centre provides details of longitude and latitude of tasking, this Geographical Information System data can be plotted.

Static map found on statistical commentary
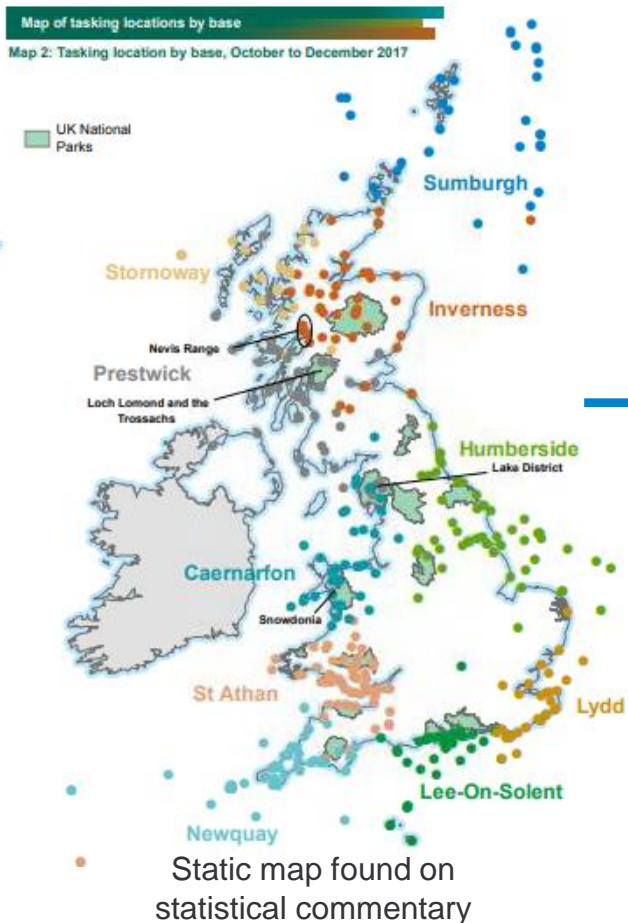
Plotting individual data points
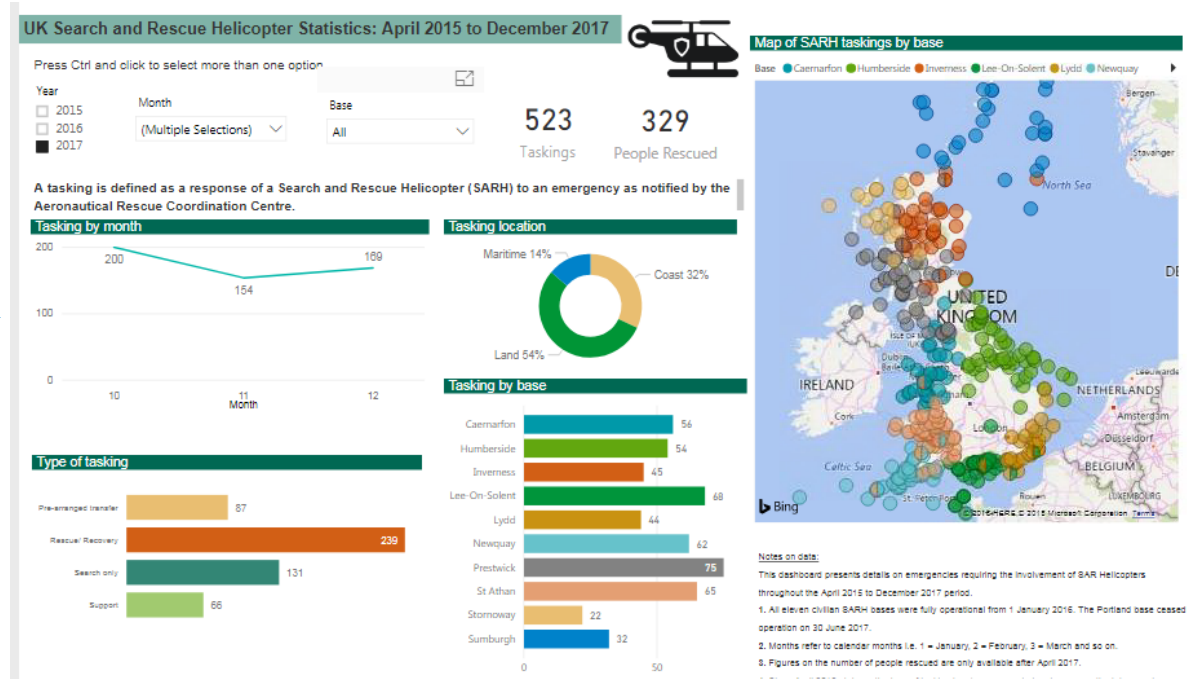
Interactive dashboard incorporating map to explore doing points in more detail

Journey Time Statistics

▸ Journey times to key services (employment centres, education centres, GP surgeries, hospital, food stores, town centres) by public transport, car and cycle in England for 2016.

▸ To calculate these theoretical journey times we use information on the road network, public timetables, traffic speeds, origins (Output Areas) and address level information on destinations.

▸ Average minimum journey times to key services (2016) were: 18 minutes by public transport and walking,15 minutes by cycle, 11 minutes by car.
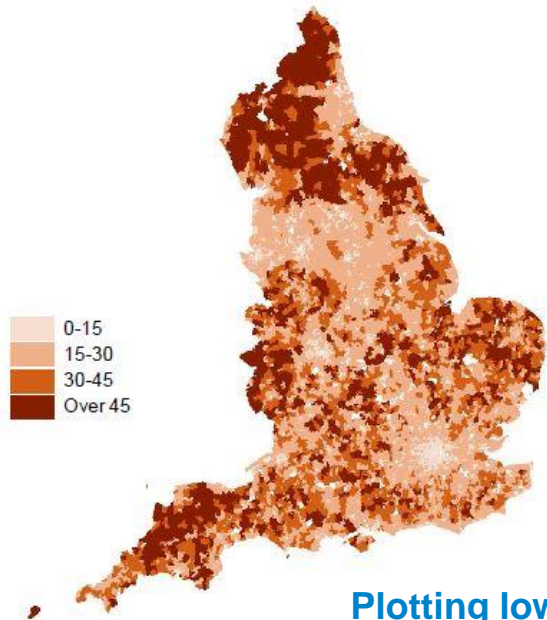
Plotting lower layer super output areas (LSOA)
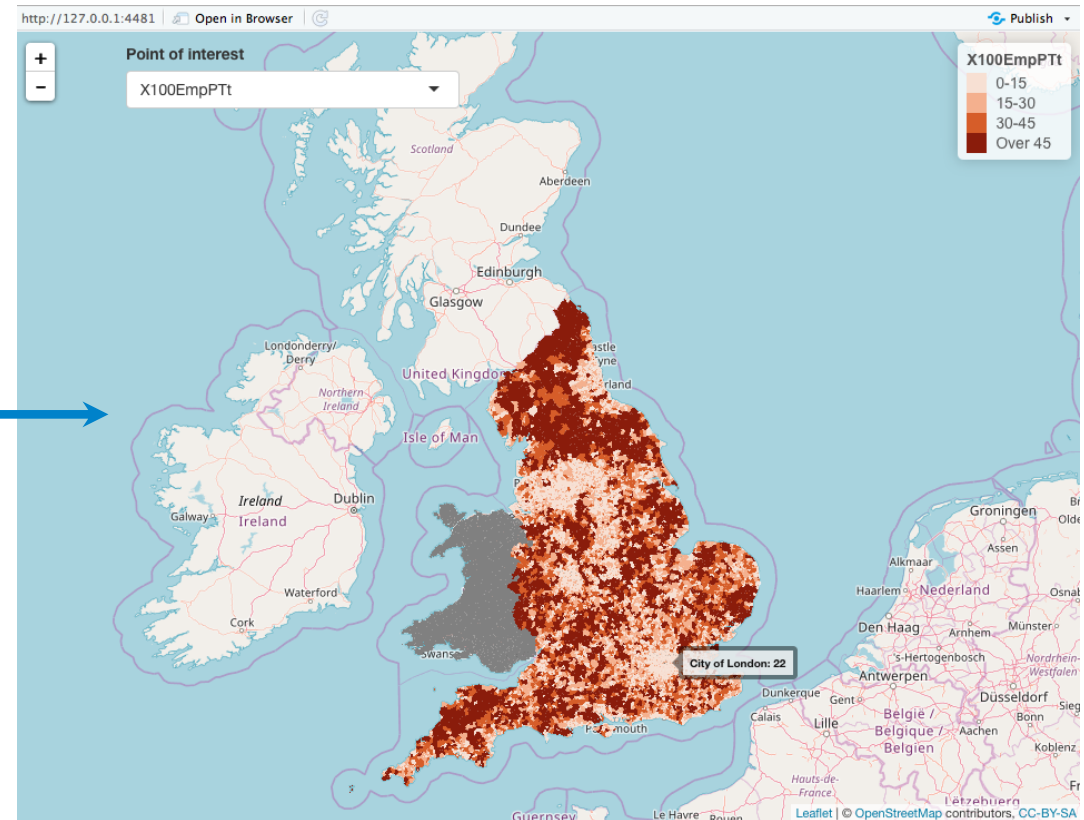
▶ The previous three examples of statistics produced by the Department all have the common theme of enhancing statistics dissemination through interactive mapping and visualisations – but of these three example have **taken different approaches** and **used different tools**.

Considerations for mapping

▶ **Depends on the data** – the correct style of mapping chosen is highly dependent on the data collected/produced, how much detailed information is available and how it can sensibly be visualised.

▶ **Driven by user needs** – the mapping tools created are often driven be user needs, which are often different for different transport modes.

▶ **Flexibility** – different tools have different visualisation capabilities and capacities, need to pick the correct tool for the data

Road Traffic Statistics

▸ The traffic figures are produced for each junction to junction link on the major road network for every year. The annual publication also contains breakdowns by country, region and local authority, plus tables on traffic distributions by time of day, by day, and by month.

Cartographic mapping

▶ AIS (Automatic Identification System) an automatic tracking system to provide vessel information, primarily for the purposes of maritime safety (e.g. collision avoidance). In the UK the Maritime & Coastguard Agency (MCA) has a wide ranging UK shore based reception and monitoring network.

- Plot of 1 days worth of AIS messages (01 April 2016)
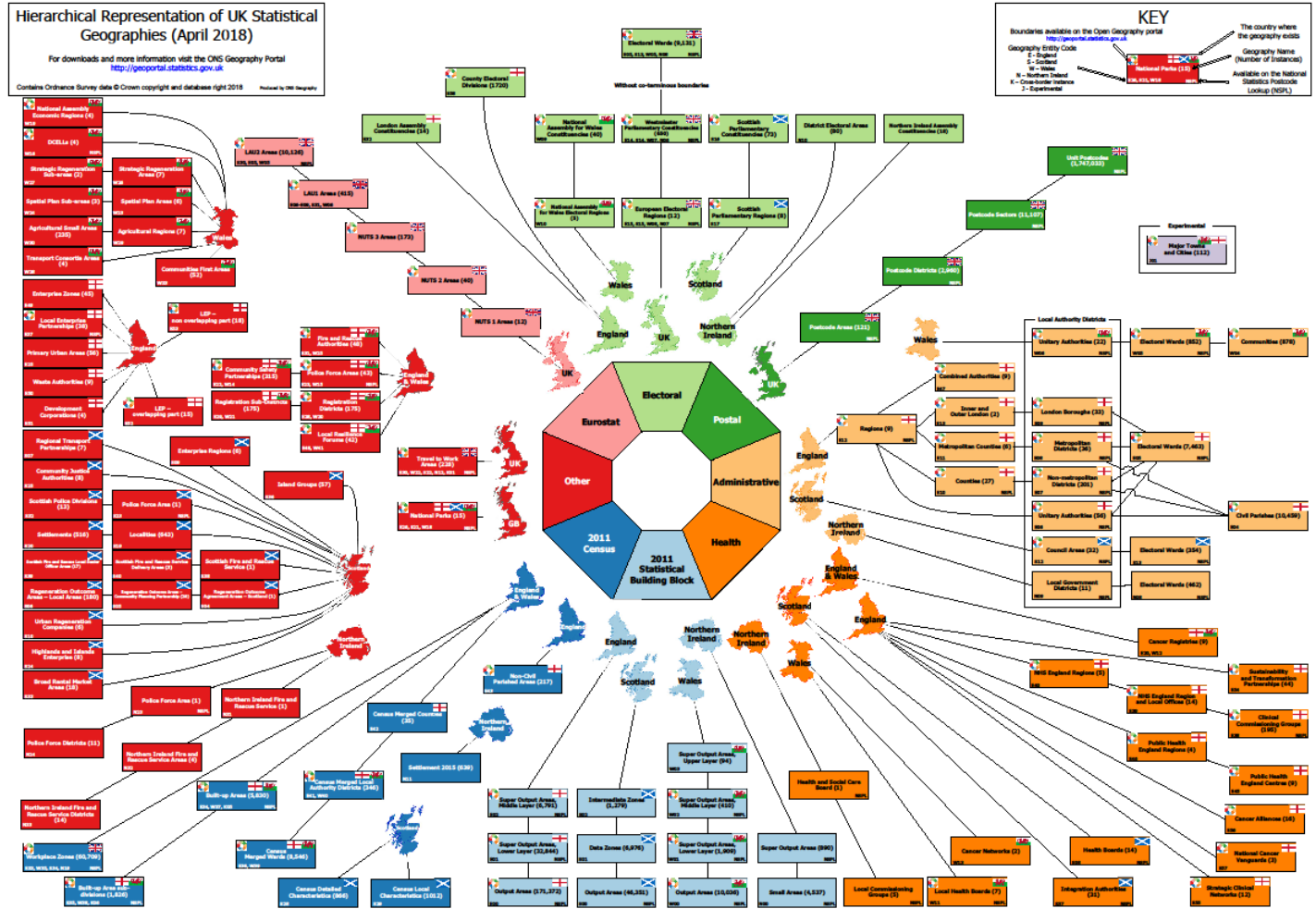- ~5 million data points
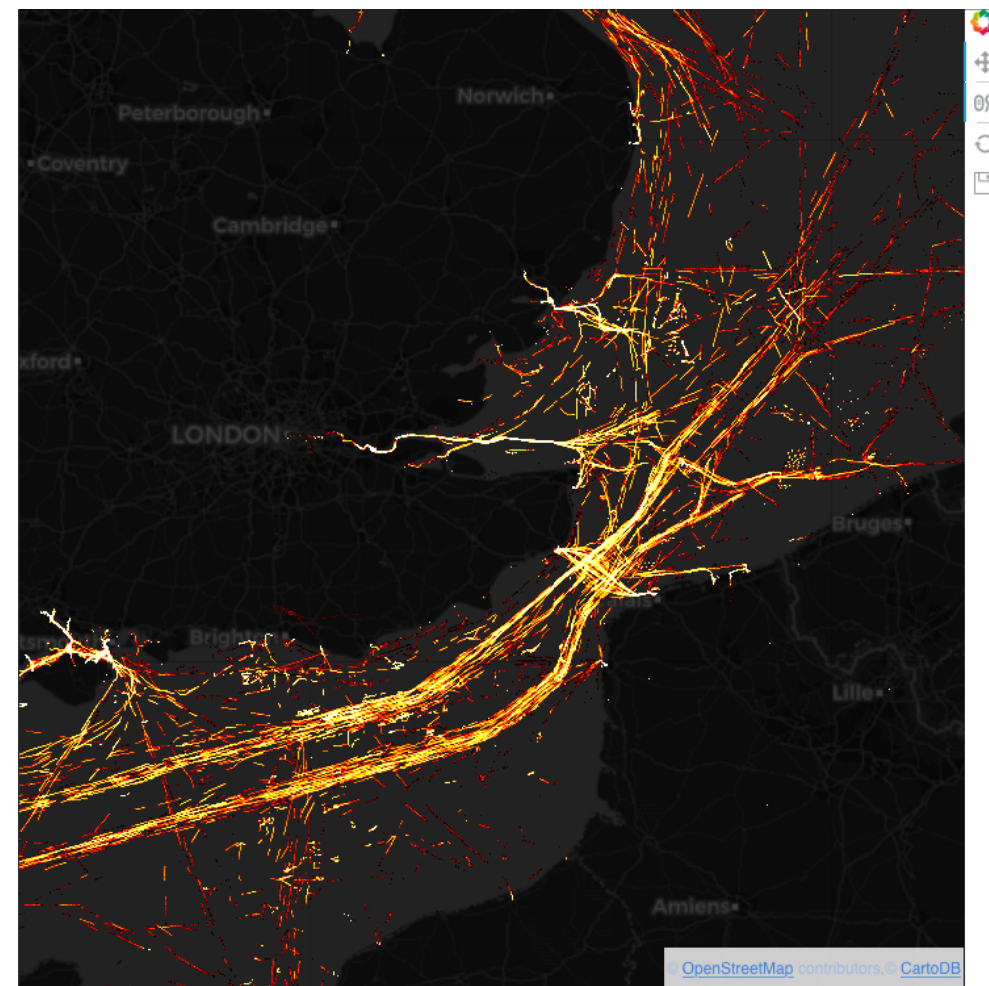
Exploring applications:
- Speed
- Shipping emissions
- Resilience
- Better production of official statistics

ONS Geography

- ▸ The Office of National Statistics (the UK's national statistics institute) provides **ONS Geography** – a resource which promotes a harmonised, cross-departmental approach to the geographic aspect of statistics.

- ▸ There are many different geographic unit types that can be used (administrative, health, electoral, postcode etc) and their boundaries frequently do not align.

Hierarchical Representation of UK Statistical Geographies (April 2018)

Thank you for listening…