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.
Geospatial visualisations across UK transport statistics

Search and Rescue Helicopter Statistics

Walking and Cycling Explorer

Road Traffic Statistics

Journey Time Statistics

AIS Visualisations
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.”
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.

Plotting individual data points

Interactive dashboard incorporating map to explore doing points in more detail

http://maps.dft.gov.uk/sarh-statistics/interactive-dashboard/
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.
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.
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.

Exploring applications:
- Speed
- Shipping emissions
- Resilience
- Better production of official statistics
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.
Thank you for listening...