Strategic noise mapping

Explaining which noise sources were included in 2012 noise maps

August 2015

Contents

Background

Environmental noise mainly consists of noise from transport sources such as road, rail and aviation. One of the ways Defra manages this noise is by implementing the [Environmental Noise Directive (END)](#) (Directive 2002/49/EC) which is transposed into English law by the Environmental Noise (England) Regulations 2006 (as amended). The END requires that, every 5 years, Defra:

1. adopts noise maps which show people's exposure to environmental noise;

2. adopts action plans based on the results of noise mapping

3. aims to preserve environmental noise quality where it is good; and

4. provides information to the public on environmental noise and its effects;

In order to create the noise maps, the main sources of environmental noise need to be identified. Under the END the following sources are considered:

- Agglomerations (large urban areas);
- Major Airports;
- Major Railways; and
- Major Roads.

Defra is responsible for creating noise maps and drawing up Action Plans for most of the noise sources. The exception is airports where the responsibility lies with the relevant airport operators[1].

Each of these noise source types is discussed further below.

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[1] For designated airports (Gatwick, Heathrow & Stansted) the competent authority for the strategic noise mapping is the Department for Transport.
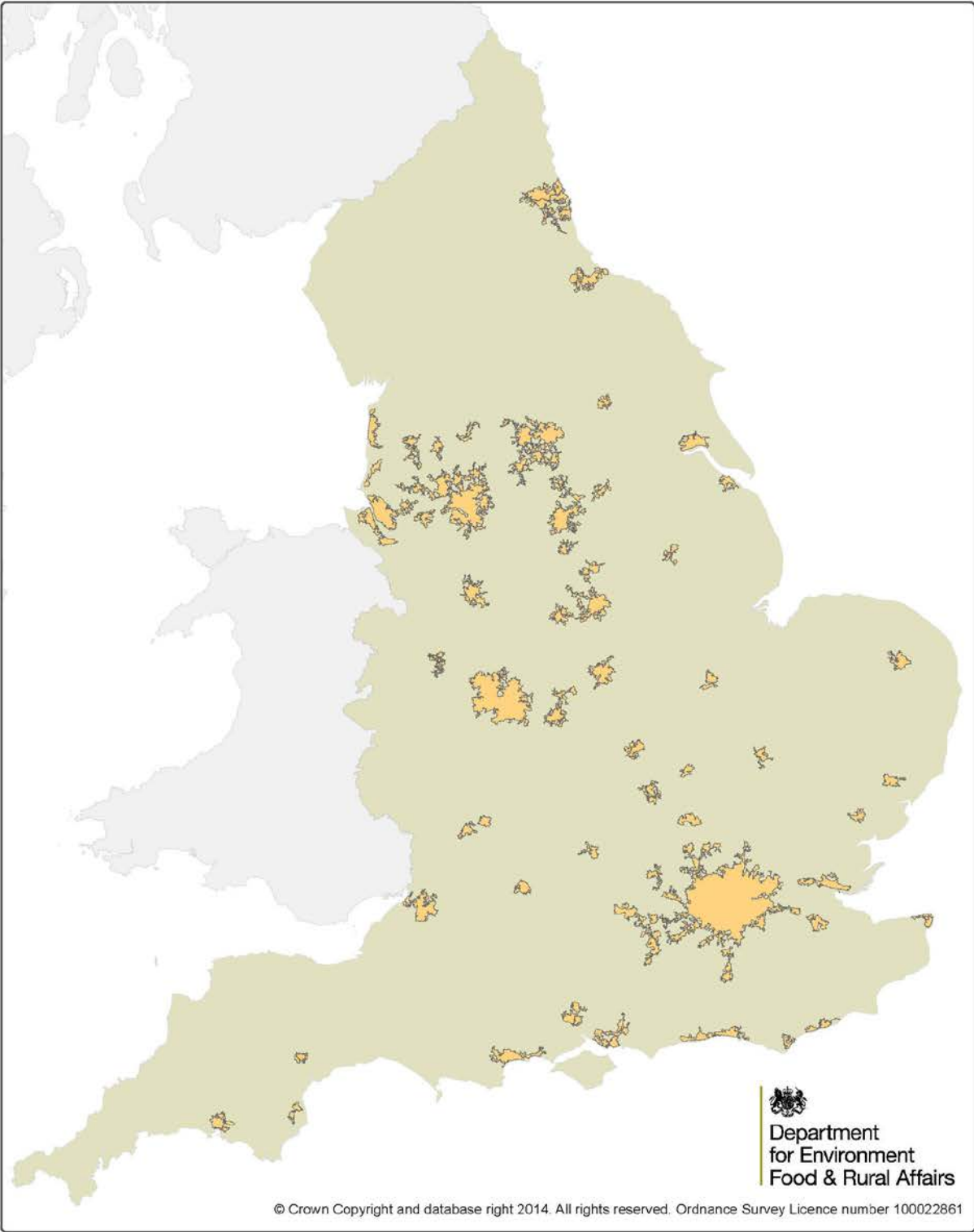
Agglomerations

Agglomerations are large urban areas. This is defined under the END as an area with a population in excess of 100,000 persons and a population density equal to or greater than 500 people per km^2, which the Secretary of State considers to be urbanised. Within the agglomeration area all motorways and A class roads and all mainline railways (as defined by Network Rail) were used as noise sources for the mapping, regardless of the flow of traffic and trains on these routes.

Urban areas were defined using the Department for Communities and Local Government's Urban Settlements 2001 dataset. All urban areas within 200m of one another were combined into a single entity. The total population for each entity was calculated using Census 2001 data by Census Enumeration District linked to the Ordnance Survey (OS) Address Point database. Those with a total population greater than 100,000 (65 in total) were identified as Agglomerations and are shown in the diagram below[2].

The Geographic Information Systems (GIS) data on agglomerations was published in August 2015 and can be found at: http://data.gov.uk/dataset/environmental-noise-directive-end-noise-mapping-noise-mapping-agglomerations-england-round-2

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[2] A list of agglomerations can be found in the noise action plan for agglomerations.

Figure 1. Agglomerations in England 2012

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Airports

Under the END, noise from two kinds of airports are mapped; Major Airports and non-major airports which may impact upon an agglomeration.

Major Airports are defined by the END as those with 50,000 or more plane movements per year (excluding light aircraft used purely for training purposes). The Major Airports for Noise Mapping 2012 were identified using the Civil Aviation Authority's [Aircraft Movements data](#) 2011.

Airports which have an impact on an Agglomeration are defined as those where air traffic results in noise levels of: greater than or equal to 55dB L_{den}[3] averaged over 24 hours; or 50dBA averaged over the hours between 22:00 and 06:00.

Airports[4] are responsible for mapping noise at major airports and those in proximity to an agglomeration boundary. A list of the airports requested to carry out noise mapping in 2012 is below with links to their websites.

Major Airports

- [Birmingham](#)
- [Bristol Lulsgate International](#)
- [East Midlands (Nottingham)](#)
- [London City](#)
- [London Gatwick](#)
- [London Heathrow](#)
- [London Luton](#)
- [London Stansted](#)
- [Manchester International](#)
- [Newcastle International](#)

Airports near an Agglomeration

- [Blackpool Squire's Gate International](#)[5]
- [Bournemouth Hurn International](#)
- [Brighton City Airport](#) (Shoreham)

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[3] A-weighted, Leq noise level, measured over the 24 hour period, with a 10 dB uplift added to the levels between 23.00 and 07.00 hours and a 5 dB uplift added to the levels between 19.00 and 23.00 hours to reflect people's extra sensitivity to noise during the night and the evening.

[4] Or DfT (see footnote 1).

[5] Blackpool Airport closed to commercial flights while the Round 2 mapping & action planning process was underway and hence there was no requirement for an action plan to be produced and adopted. We note that the airport has recently reopened to limited commercial flights and it will be assessed whether or not the potential noise impacts are sufficient for them to be included in Round 3 of END mapping and action planning. Round 3 has just begun.

- [Cambridge City](#)
- [Coventry Baginton](#) (noise mapping was undertaken and concluded that the noise from Coventry Airport did not significantly impact the agglomeration)
- [Leeds Bradford International](#)
- [Liverpool John Lennon](#)
- Manston Kent International (closed to all flights from May 2014)
- [Norwich International](#) (noise mapping was undertaken and concluded that the noise from Norwich Airport did not significantly impact the agglomeration)
- [Southampton Eastleigh International](#)
- [Southend (London)](#)
- [Wycombe Air Park/Booker Airport](#)

Major Railways

Major Railways as defined under the END are those sections of rail route above a flow threshold of 30,000 train passages per year. Where more than one line follows the same route, forming a "corridor", the flow on each line is summed to give the total flow for that section. The Major Railways for Noise Mapping 2012 were identified using a subset of Network Rail's Actual Traffic (ACTRAFF) database (managed by DeltaRail on behalf of Network Rail - not publicly available at time of publication) for the 12 months to September 2011 inclusively (see diagram below).

The Geographic Information Systems (GIS) data on noise from railways in England was published in August 2015 for 3 different noise indicators and can be found at:

Rail Noise Indicator	Weblink
L_{DEN}	http://data.gov.uk/dataset/rail-noise-lden-england-round-2
$L_{Aeq,16hr}$	http://data.gov.uk/dataset/rail-noise-laeq-16h-england-round-2
L_{Night}	http://data.gov.uk/dataset/rail-noise-lnight-england-round-2

Figure 2. Major Railways in England 2012
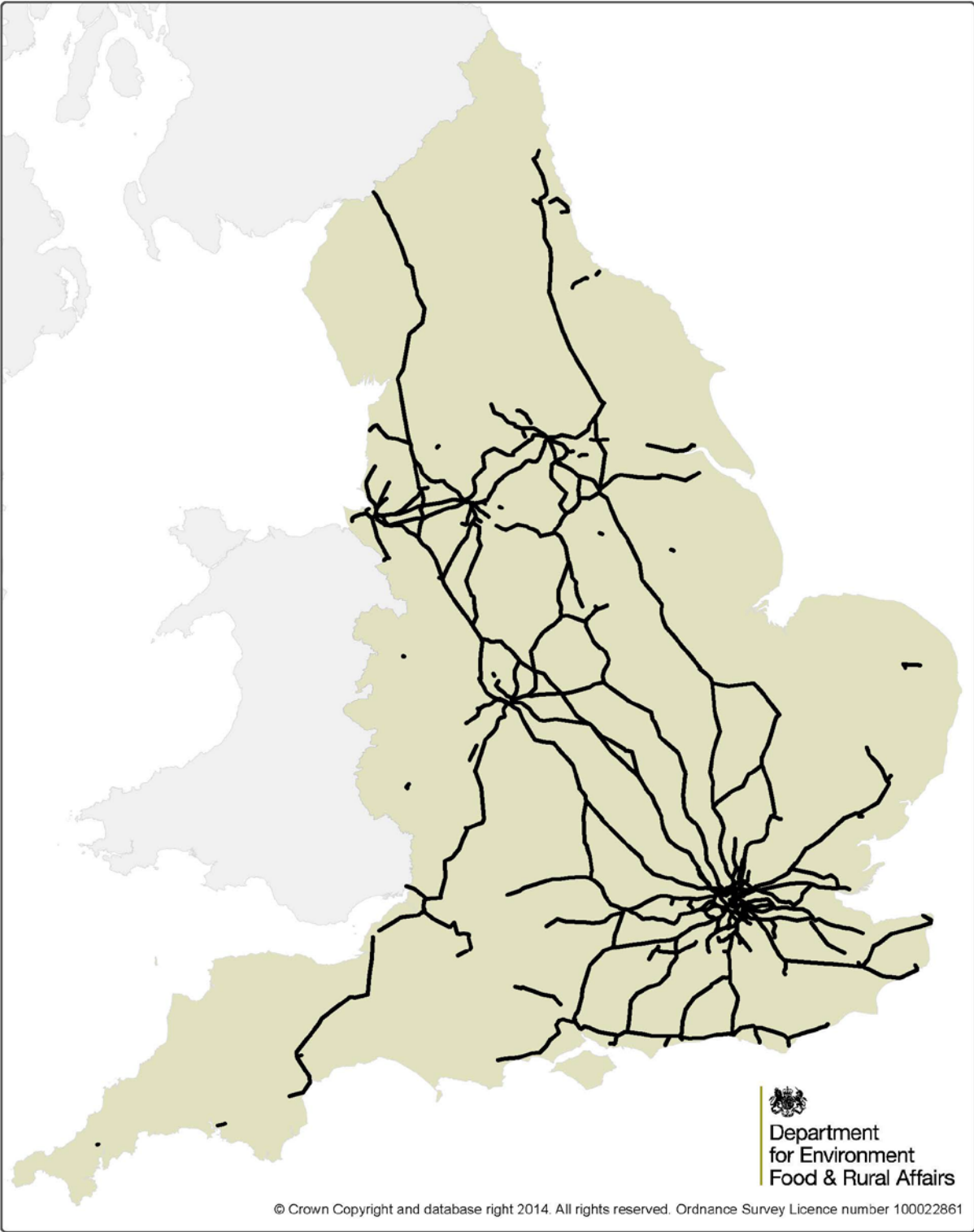
Major Roads

Major Roads are defined under the END as regional or national sections of road which have a bi-directional flow of 3 million vehicle passages or more per year. The Major Roads for Noise Mapping 2012 were identified using the Department for Transport's [Transport Statistics Major Roads](#) data from 2010.

The Geographic Information Systems (GIS) data on noise from roads in England was published in August 2015 and can be found at:

Road Noise Indicator	Weblink
L_{DEN}	http://data.gov.uk/dataset/road-noise-lden-england-round-2
$L_{Aeq,16hr}$	http://data.gov.uk/dataset/road-noise-laeq-16h-england-round-2
L_{Night}	http://data.gov.uk/dataset/road-noise-lnight-england-round-2

Figure 3. Major Roads in England 2012

Legend:
- Motorway (blue)
- A-Road (red)

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