

Chapter 2: Methodological Approach



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Transportation

2 Methodological Approach

2.1 Introduction

This chapter details the approach which has been taken during the study to acquire the information reported in this document.

The overall approach stems from identifying the base information through desk based research and stakeholder consultation. The information gained from these activities enabled a well informed execution of surveys, including location and facilities and utilisation audits. It is important to note that the utilisation audits were piloted before they were rolled-out nationally. This approach fully tested the method and provided confidence in the results.

The final results of surveys have been analysed in a consistent manner to enable comparisons to be made between different data sets and at different levels. The following information provides the background to our method, and helps explain why it was conducted in this way.

2.2 Identifying the Base Information

2.2.1 Desk Research

To ascertain the base information required to inform the study, extensive desk based research was undertaken. Firstly, the location and details of lorry parking locations in England were compiled into a database using various sources. These sources included:

- Previous research conducted by AECOM;
- Website reviews;
- Hard copy booklets/guides;
- Trade press article reviews;
- Trade association input; and
- Consultation input.

To identify lorry parking sites a wide definition was used, which helped to minimise the amount of lorry parking sites that could be overlooked. This included independent truckstops, MSA, local authority lorry parks, even sites that may have been closed down were added to the initial list and coded appropriately.

Developing a database of lorry parks containing their specific location and basic details was important prior to the location and facilities survey. All lorry parks in England had to be identified in order to assist journey planning and consultation. This information helped to make the project as efficient as possible.

All identified sites on the initial list were visited by the survey teams, and where complete addresses were available letters were sent. This was used to narrow the dataset down and confirm which sites were in operation. The initial list contained the following number of sites (see Table 2.1).

Table 2.1: Number of initial sites identified through desk based research (by region)

Region	Total Truck Stops
East Midlands	63
East of England	56
London	12
North East	22
North West	49
South East	62
South West	65
West Midlands	62
Yorkshire and Humber	56
Total	447

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Another database that had to be developed came from the contact details of appropriate stakeholders such as local authorities, freight quality partnership co-ordinators and industry bodies. This information came from a combination of previous research conducted by AECOM, current partners and website reviews. This database was used in the consultation and enabled a record of contact to be maintained. The database was separated into County Council, Unitary Authority, District Council, Borough Council, Metropolitan Borough Council, City Council, and London Borough. These were then segmented into the nine regions.

Freight crime figures were obtained from Truckpol¹, a body which collates freight crime figures from the police into a national database. These figures have been used in the analysis to highlight where crime and off-site parking correlate and impact the freight industry.

2.2.2 Consultation

As part of the study a variety of stakeholders were contacted to act as sources of information, primarily to help determine lorry parking locations (on and off-site) but also to determine their views on various issues related to lorry parking in England. These sets of stakeholders included:

- Local Authorities;
- Trade Associations;
- Government Departments; and
- Lorry Park Managers.

Communication methods for the consultation included email, written letter, phone and fax. In total 355 local authorities were contacted, with 117 responding directly. The information gained from this process proved instrumental in providing detailed information on the local lorry parking sites and highlighted particular problem areas of inappropriate parking in industrial estates and lay-bys.

The Road Haulage Association (RHA), Freight Transport Association (FTA), Truckers World, DfT and the HA helped to provide a national and strategic overview of lorry parking. These groups provided high quality information which fed into the planning process of the study. Lorry park managers were informed of the study by letter and where possible their views were sought during site visits to find out if there were any issues specific to that site and the nearby area.

The overall consultation provided information at various levels, from a strategic national level to the local level. The results of the consultation helped to inform the planning stages of the surveys and ensured local knowledge was used to capture the situation of parking demand. The headline results of the consultation are provided in Appendix 1, and also run throughout the local analysis one page templates in Chapter 5.

2.3 Conducting Surveys

AECOM operated a number of survey teams across England, based on an extensive office network. This involved a number of internal briefings for each of the survey stages and a health and safety risk assessment. All surveys conducted were performed by two members of staff per location for safety and logistical requirements of collecting data. The main piece of equipment used by each team for performing the data collection was a personal data assistant (PDA). This enabled a resource efficient process by allowing electronically live data capture, live Global Positioning System (GPS) generation and consistent reporting. Once



¹ <http://www.truckpol.com/>

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uploaded all data could be automatically plugged into a database for analysis. This also minimised the requirement for paper based recording and subsequent write-up. Examples of the survey sheets used within the PDA are shown in Appendix 7.

The survey stages and associated timings are as follows:

- Location and Facilities Surveys (national) = May 2010 – July 2010
- Pilot Utilisation Surveys (North West and West Midlands) = September 2010
- Full Utilisation Survey including industrial estates and lay-bys(national) = February 2011 – May 2011

The method and background information to each survey stage is presented below.

2.3.1 Location and Facilities Information

A daytime survey of the 447 initially identified sites was undertaken to:

- Check whether the lorry parking sites were still open;
- Check whether they could be defined as a lorry parking site;
- Check the capacity of the site;
- Check the exact location of the site; and
- Check the type of facilities that were available.



This also presented an opportunity to talk to staff at each lorry parking site and hand out a further letter about the study. This basic information helped plan the next stages of the research by providing the foundation for the utilisation surveys. Based on the collection of information from the location and facilities surveys the initial number of 447 sites was reduced to 280. The database was coded appropriately to show why certain sites were removed from the list; some of the reasons included closure, not a lorry park, does not exist, and change of use. Utilisation Surveys

The utilisation surveys involved the practical task of collecting data to enable an analysis of lorry parking demand in England. These followed the location and facilities surveys. To ensure an appropriate level of confidence could be given to the final results, the utilisation survey method was tested in a pilot study. Once approved by the DfT a full utilisation survey covering all of England and the SRN was undertaken.

2.3.1.1 Pilot Utilisation Study

This involved applying success criteria to a sample set of results. The aim was to show that two visits on different days, to the same locations in a local authority, would produce similar results. As the full utilisation survey would visit sites once, it was important to test the chances of differences in results between the specific days chosen to perform the study. The results and further detail of the pilot study can be found in Appendix 2. This followed the same method as the full utilisation survey.

2.3.1.2 Full Utilisation Survey

The full utilisation survey aimed to capture the level of use of both on-site facilities and parking off-site, in lay-bys and industrial estates. These surveys were undertaken at night between the hours of 8 pm and 2 am on Tuesdays, Wednesdays and Thursdays. All of the 280 on-site facilities were visited once during this stage and had their capacity re-checked. Over 3,000 lay-bys and 450 industrial estates were also covered by the full survey, both on and off the SRN. The on-site parking and surrounding off-site surveys were all undertaken on the same night. Further detail on this method will now be discussed, helping to explain why surveys were undertaken in this way.

The busiest days for HGV traffic are Tuesday, Wednesday and Thursday. Variation in traffic is relatively low between these days (particularly for motorway traffic which is most likely to use truckstops). Therefore, these days were chosen as the survey periods

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in order to identify truckstop utilisation at the time of maximum demand (see table 2.2). To note surveys are conducted at night as this is the period of maximum demand, and by 8 pm most vehicles will have decided where to park for the night.

Table 2.2: Survey days

Day	Motorways	Rural Roads	Urban Roads	All Roads
Monday	117	117	115	117
Tuesday	128	130	126	128
Wednesday	129	130	128	129
Thursday	130	133	129	130
Friday	116	117	121	116
Saturday	46	44	51	46
Sunday	35	30	28	34

Index: 100 = Average Day. Statistics for Goods Vehicles taken from Road Traffic Statistics, DfT 2009

In terms of the months available to conduct survey work, road traffic statistics³ suggest that they do not take place in January, December or June (see table 2.3). As indicated within the DMRB guidance⁴, surveys were also not carried out during the week of a bank holiday. Therefore no surveys were undertaken during these three months.

Table 2.3: Months of survey

Month	Motorways	Rural Roads	Urban Roads	All Roads
January	93	92	92	93
February	99	98	98	99
March	102	101	101	102
April	101	100	100	101
May	101	101	101	101
June	106	106	106	106
July	103	103	104	103
August	98	102	100	99
September	103	106	104	104
October	103	104	104	103
November	103	101	102	103
December	87	84	87	87

Index: 100 = Average Day. Statistics for Goods Vehicles taken from Road Traffic Statistics, 2009

Beyond the timing of surveys the actual driving routes had to be planned. As a base the entire SRN was driven. The driving routes aimed to be as efficient as possible based on maximising the ability to capture off-site parking data in between each on-site lorry parking location. One of the main factors was to identify industrial estate and lay-by locations, particularly on the non strategic road network.

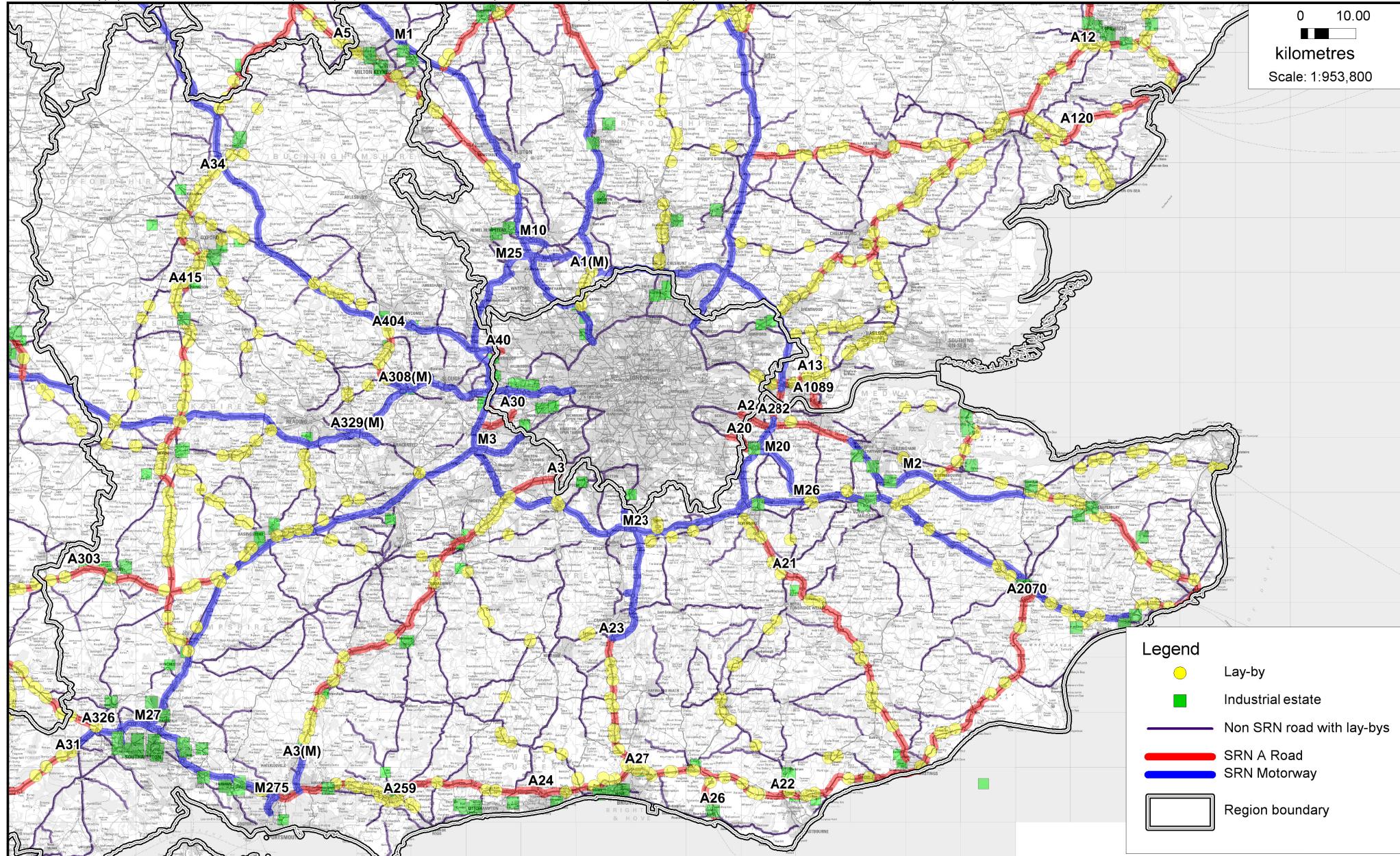
³ DfT 2009

⁴ <http://www.dft.gov.uk/ha/standards/dmr/index.htm>

0 10.00

kilometres

Scale: 1:953,800



Client: Department for Transport

Title: Driving routes:
location of roads driven and
lay-bys and industrial estates observed
South East and London

Project: Lorry Parking Study

AECOM

Lynnfield House
Church Street
Altrincham,
WA14 4DZ

Tel: +44 (0) 161 927 8200
www.AECOM.com

Design: T.F

Mapinfo: T.F

Chk'd: J.M

App'd: S.H

Date: 21.06.11

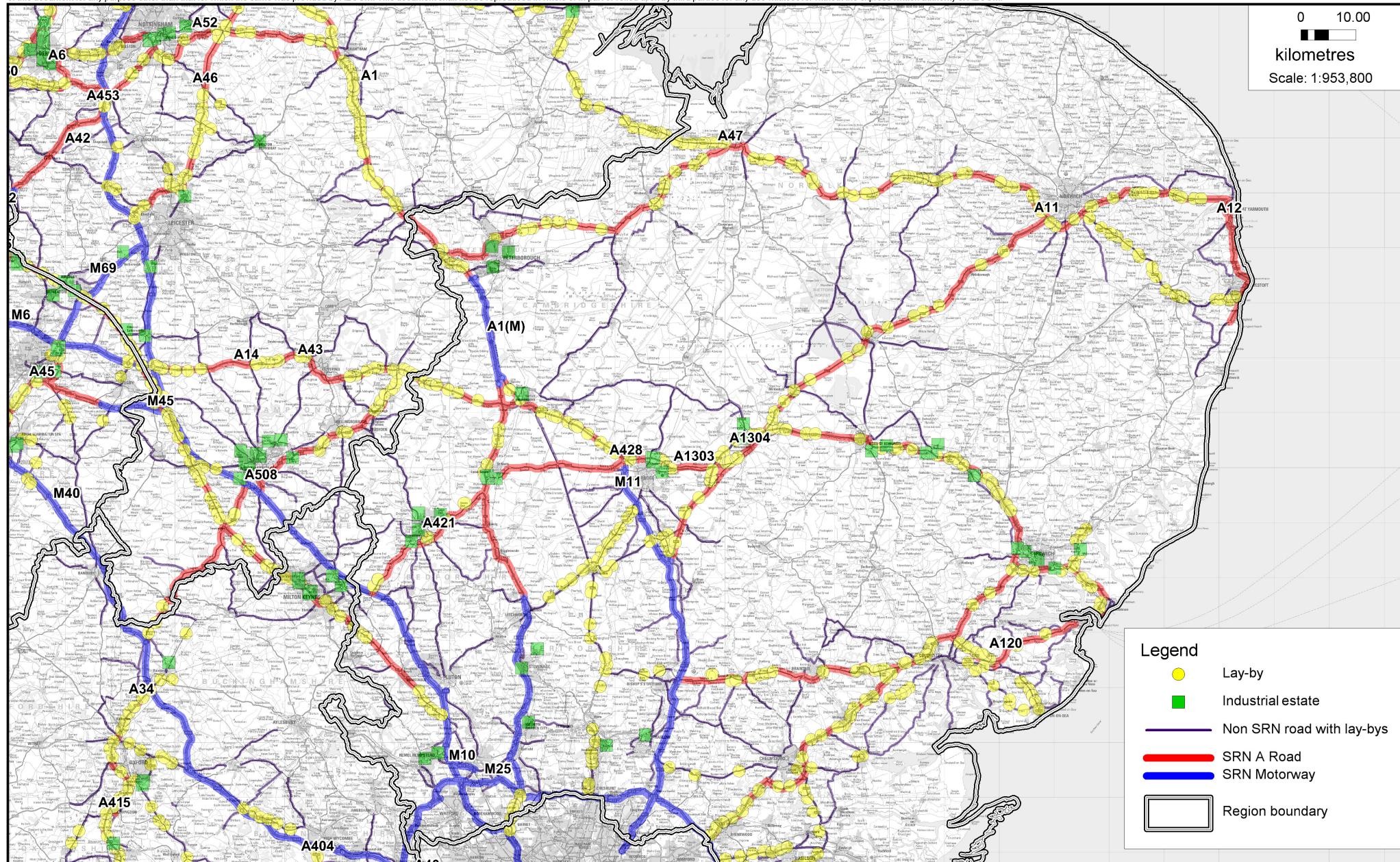
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0 10.00

kilometres

Scale: 1:953,800



Legend

- Lay-by
- Industrial estate
- Non SRN road with lay-bys
- SRN A Road
- SRN Motorway
- Region boundary

Client: Department for Transport

Title: Driving routes:
location of roads driven and
lay-bys and industrial estates observed
East of England

Project: Lorry Parking Study

AECOM

Lynnfield House
Church Street
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WA14 4DZ

Tel: +44 (0) 161 927 8200
www.AECOM.com

Design: T.F

Mapinfo: T.F

Chk'd: J.M

App'd: S.H

Date: 21.06.11

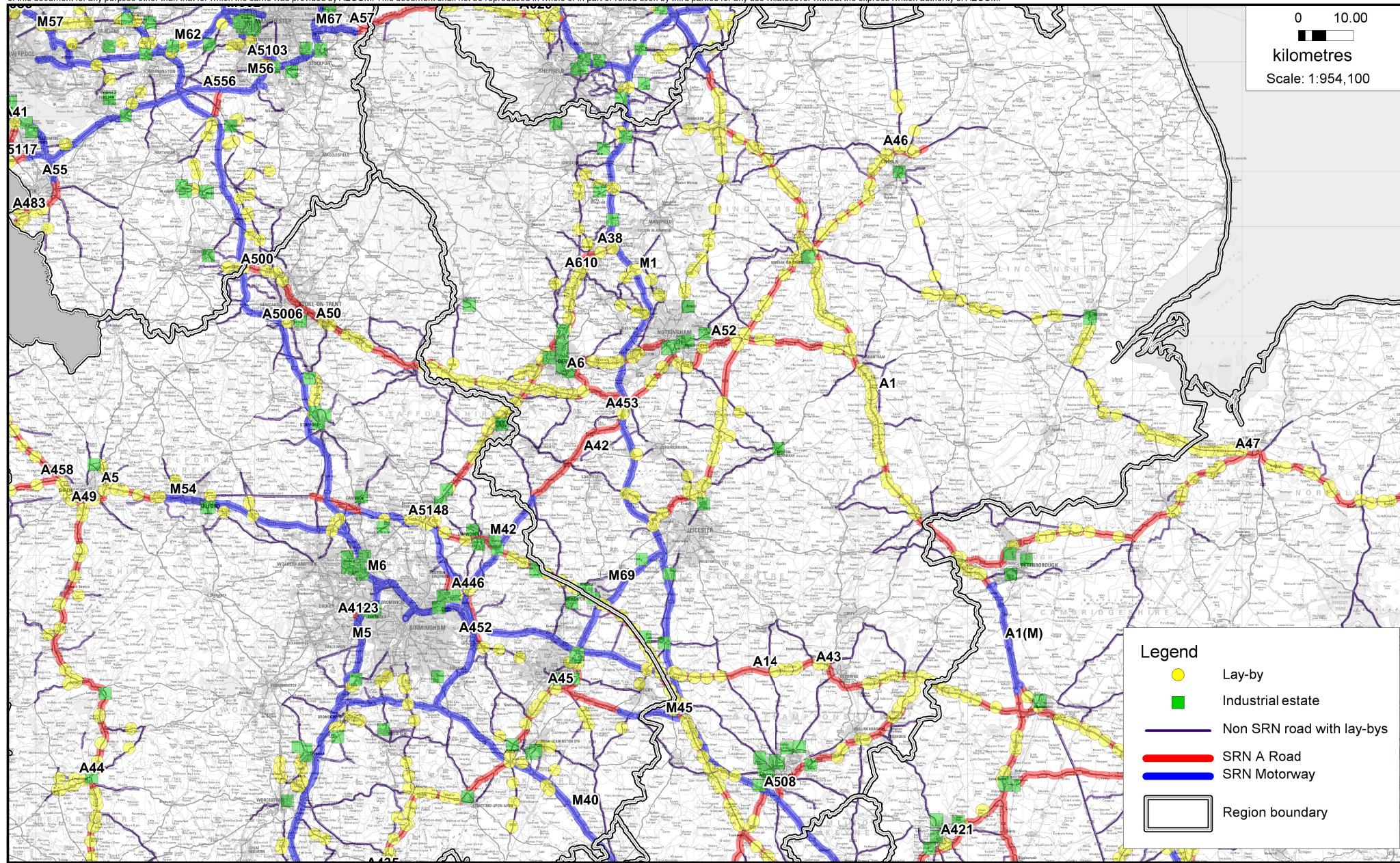
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kilometres

Scale: 1:954,100



Client: Department for Transport

Project: Lorry Parking Study

Title:

Driving routes:
location of roads driven and
lay-bys and industrial estates observed
East Midlands

AECOM

Lynnfield House
Church Street
Altrincham,
WA14 4DZ

Tel: +44 (0) 161 927 8200
www.AECOM.com

Design: T.F

Mapinfo: T.F

Chk'd: J.M

App'd: S.H

Date: 21.06.11

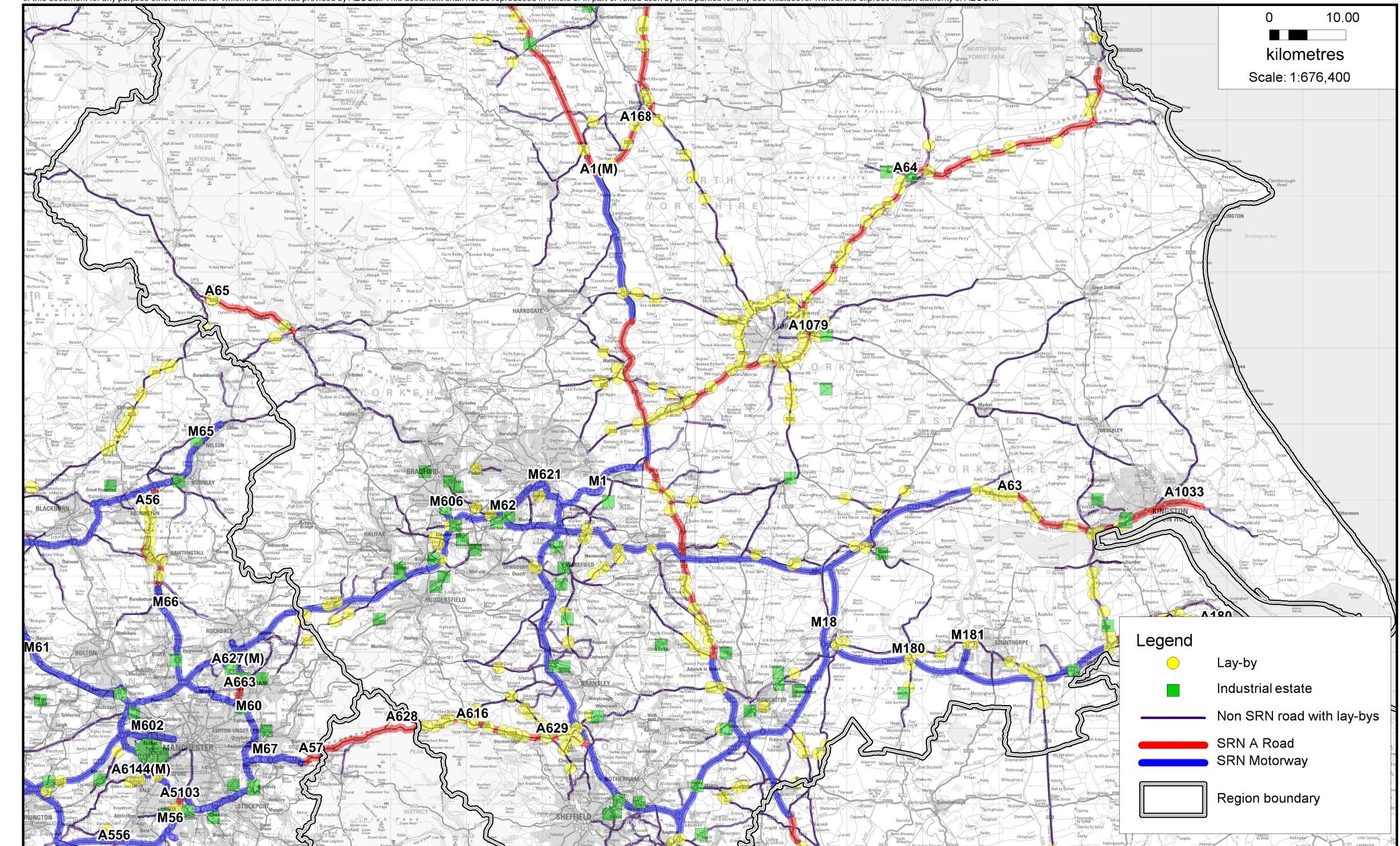
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kilometres

Scale: 1:676,400



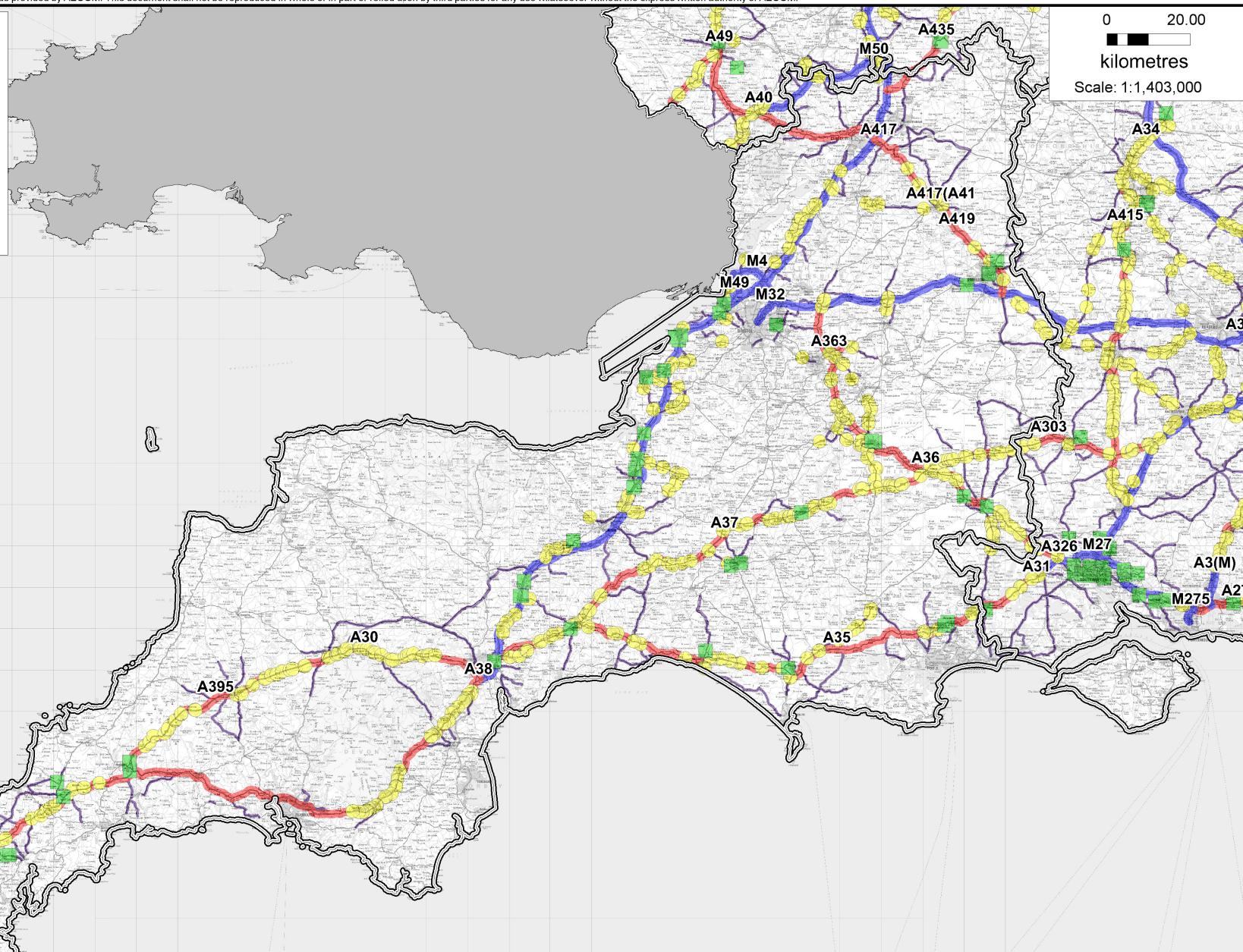
Legend

- Lay-by
- Industrial estate
- Non SRN road with lay-bys
- SRN A Road
- SRN Motorway
- Region boundary

0 20.00

kilometres

Scale: 1:1,403,000



Client: Department for Transport

Project: Lorry Parking Study

Title: Driving routes:
location of roads driven and
lay-bys and industrial estates observed
South West

Lynfield House
Church Street
Altrincham,
WA14 4DZ

AECOM

Tel: +44 (0) 161 927 8200
www.AECOM.com

Design: T.F

Mapinfo: T.F

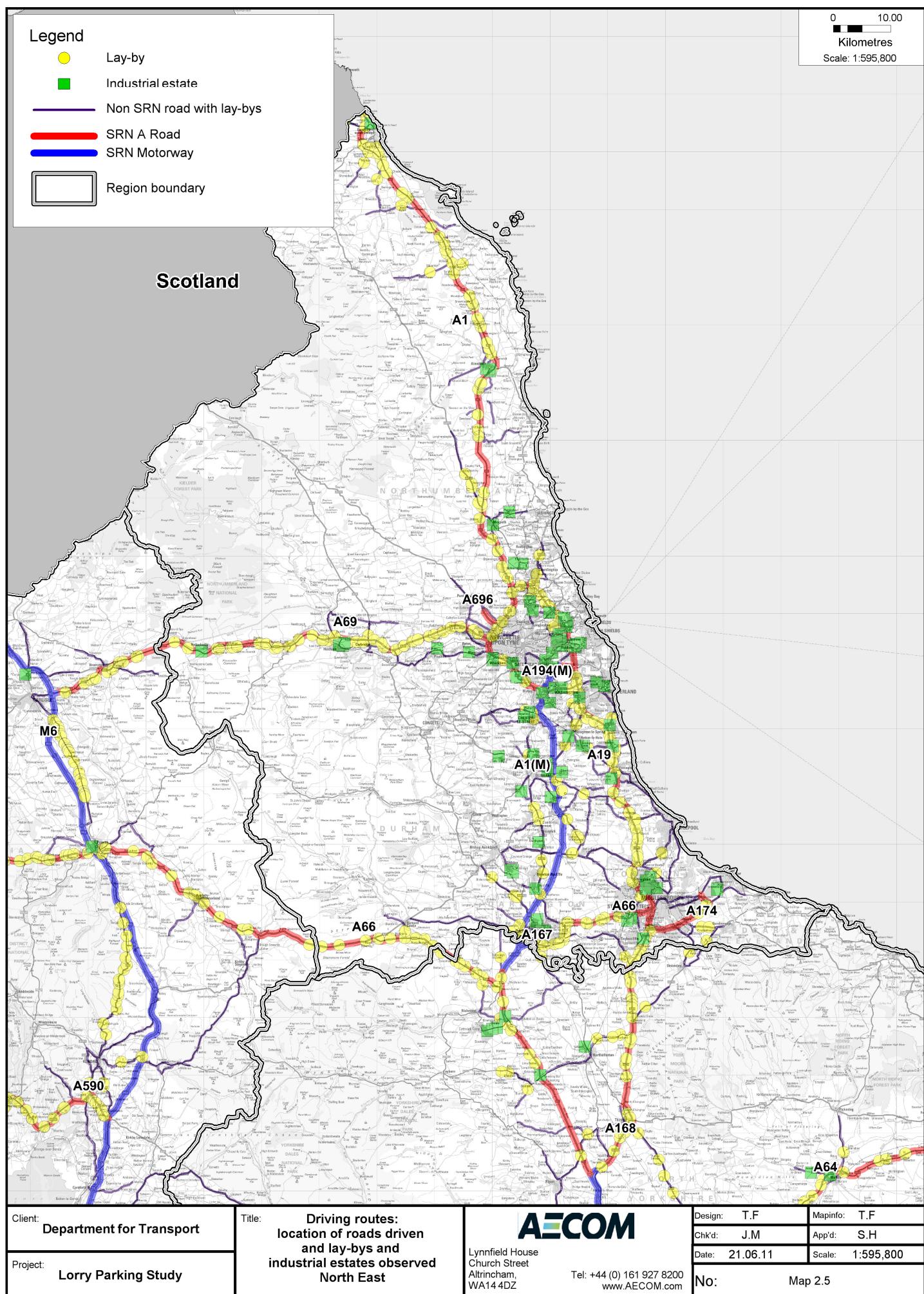
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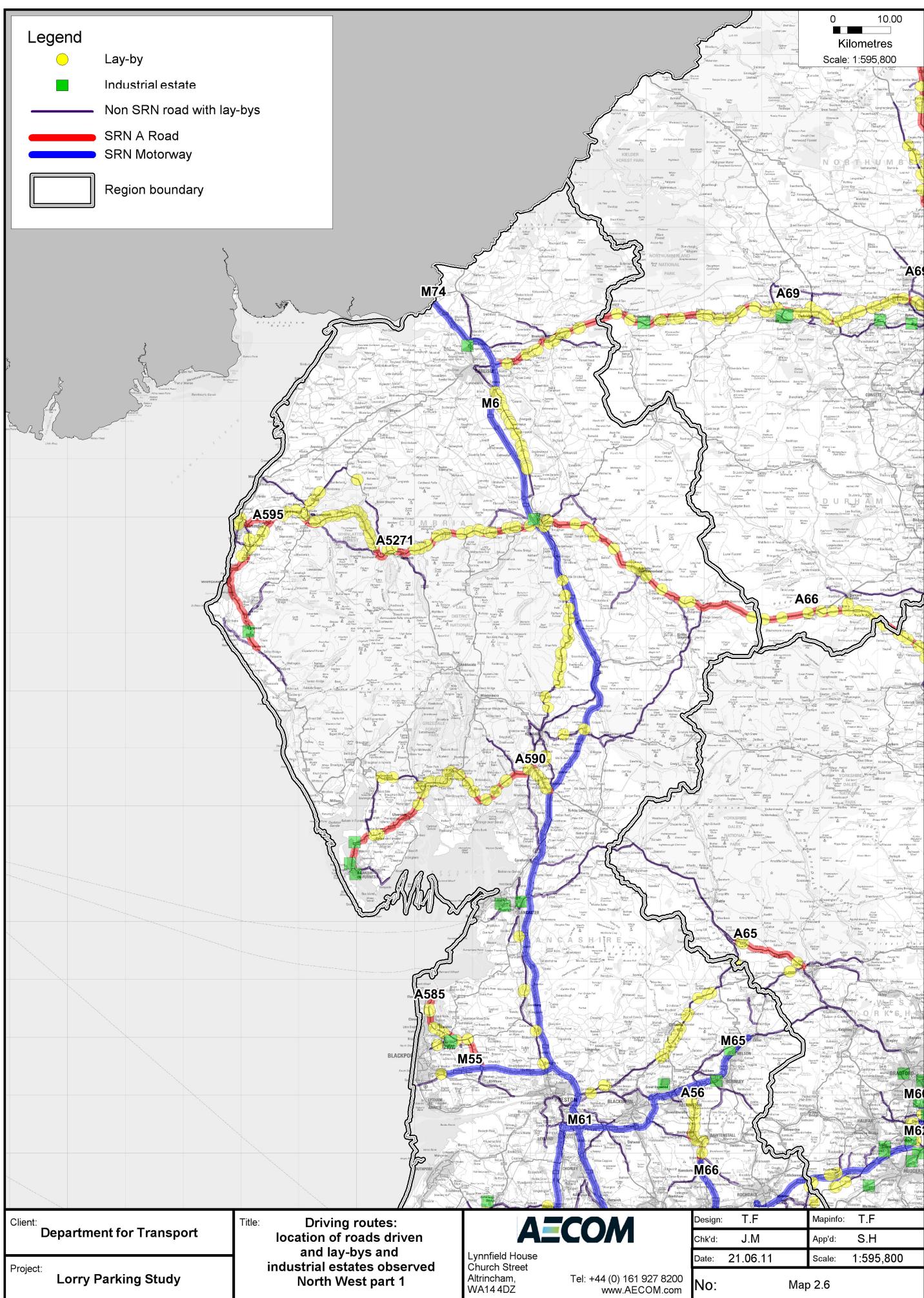
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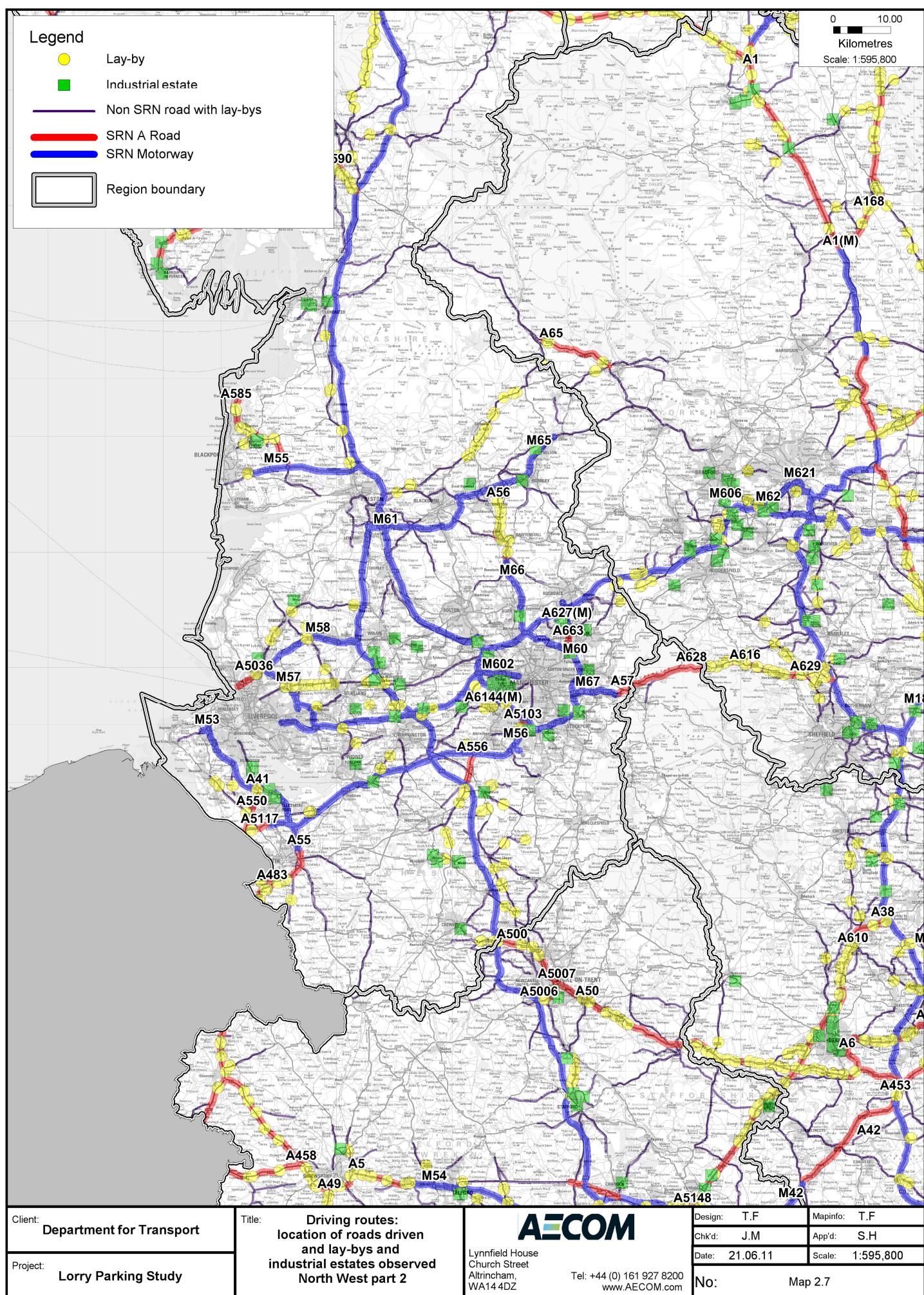
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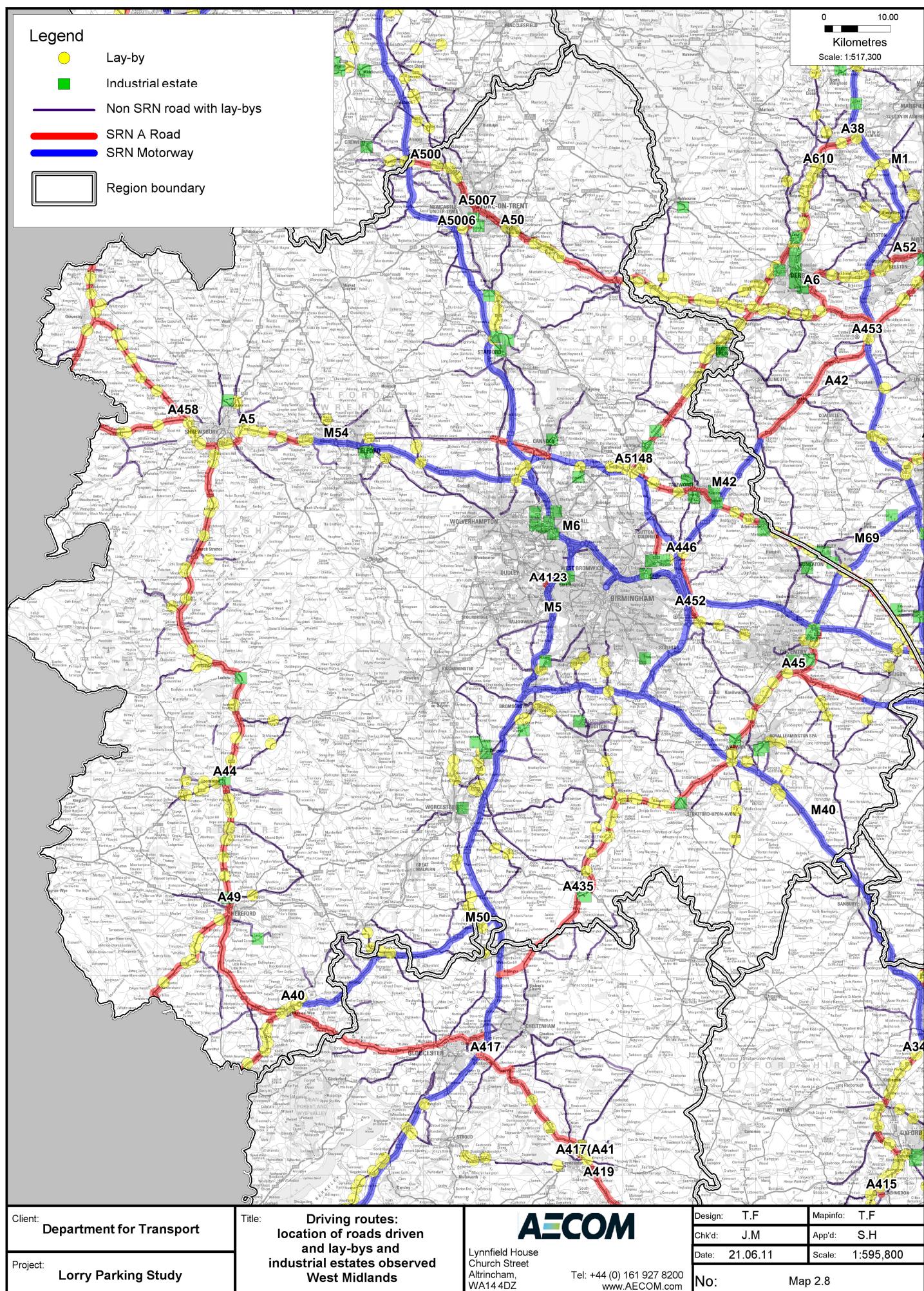
Scale: 1:1,403,000

No: Map 2.9









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To assist Google Maps© was used to pre-drive the routes and identify roads within 5km of the SRN with lay-bys on. It is important to note that any roads where lay-bys were identified, beyond the 5km radius of the SRN, and that were deemed to have potential for lorries to be parked on, were also included in the driving routes.

All sections of roads which were identified as having the potential for lorry parking and were subsequently driven are depicted in Maps 2.1-2.9. Some of the actual driving routes that were driven to reach these sections of road are not depicted on these maps as these are not relevant to the survey results. However, all considered routes that were researched through Google Maps© are provided in Appendix 3.

In terms of the information that was actually collected between the different categories of on-site parking, and off-site parking (off-site being split by lay-by and industrial estate) are as follows:

1. On-Site

For the on-site utilisation surveys the number of vehicles was counted, disaggregated by axle configuration³ and whether they were UK registered or non-UK registered. The number of dangerous goods vehicles was also counted.



2. Off-Site

a. Lay-bys

For the lay-by utilisation surveys the entire SRN was driven along with the majority of major roads within 5km of the SRN (where lay-bys could be identified). The number of vehicles parked in each lay-by along these roads was recorded, along with the location. For safety reasons the vehicle types recorded was simpler for off-site surveys. This included recording whether the vehicle was Rigid or Articulated bodied and UK registered or non-UK registered. Further data including whether the lay-by was lit, segregated from the main carriageway and whether there were any toilet or food facilities available was also recorded.

³ Graphical explanation of the axle configuration categories can be found in appendix 4.

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b. Industrial Estates

For the industrial estate utilisation surveys locations were identified via aerial photography, local knowledge and via the consultation. 450 sites were identified and visited and the number of vehicles counted, disaggregated by Rigid or Articulated Body type and UK or non-UK registered. At industrial estates it was also recorded whether there was street lighting and whether yellow lines were drawn on the road, where lorry parking was evident.



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2.4 Analysis

The analysis of the surveys has been performed at the three levels of national, regional and local.

1. The *national level* analysis presents the high level results for England, and also splits these between regions. It is important to note that results at this level can mask certain areas of high demand. This is why more detailed analysis at the regional and local level is required.
2. The *regional level* analysis is much more detailed than at the national level. This is the main level of analysis for comparing mapping outputs and understanding where the hotspots of demand are within each of the nine regions of England. The regional level of analysis also compares different sets of results by overlaying the location and facilities information with utilisation and crime figures.
3. The *local level* analysis provides a one page template for each local authority. This presents all relevant information on capacity, utilisation and crime. It also includes a national rank (based on all local authorities in England) and a regional rank (based on local authorities in the region only). The template also provides the ability to compare results with nearby local authorities. This helps to identify if nearby local authorities are facing similar issues, and therefore the ability to also identify potential opportunities for collaboration in solving those issues.

Further detail is provided within each of the analysis chapters to help interpret the results.

It should be noted that some lorry parking sites have greater than 100% utilisation, this occurred when more vehicles were observed parking than the official number of spaces counted on the initial visit. In total, 16 sites experienced this phenomenon.

2.4.1 Research Considerations

It is noted that whilst this study is comprehensive in terms of the amount of data collected it should not be deemed as totally accurate and/or reliable in all cases. A number of considerations should therefore be taken into account when interpreting the data, such as:

- This study does not investigate why drivers are parking where they are and how this could be influenced.
- The study is open to anomalies and the information should not be taken as the complete situation. Efforts have been made to mitigate factors such as seasonality. However, some uncontrollable factors cannot be accounted for, such as the impact of the economic downturn on freight flows.
- The survey results should be taken as a minimum guide. Despite AECOM's best efforts some localised areas of parking demand may not have been uncovered, particularly on non-strategic roads e.g. some industrial estates and lay-bys.
- More detailed studies may be required at the local level in order to uncover the full extent of the problem.
- The crime figures provided by Truckpol only include crime that has been reported to the police⁴ and does not always include values. Many crimes, particularly of low value, go unreported. Therefore the number and total value of crimes is underreported.

The location of each crime provided by truckpol is plotted using post codes. This means the precise location of where each incident occurred cannot be determined. It is important to clarify this as it means it is not possible to determine whether crime has happened at the side of the road, in industrial estates, actually in lorry parks or in operator's premises.

⁴ Figures sourced from Truckpol 2010