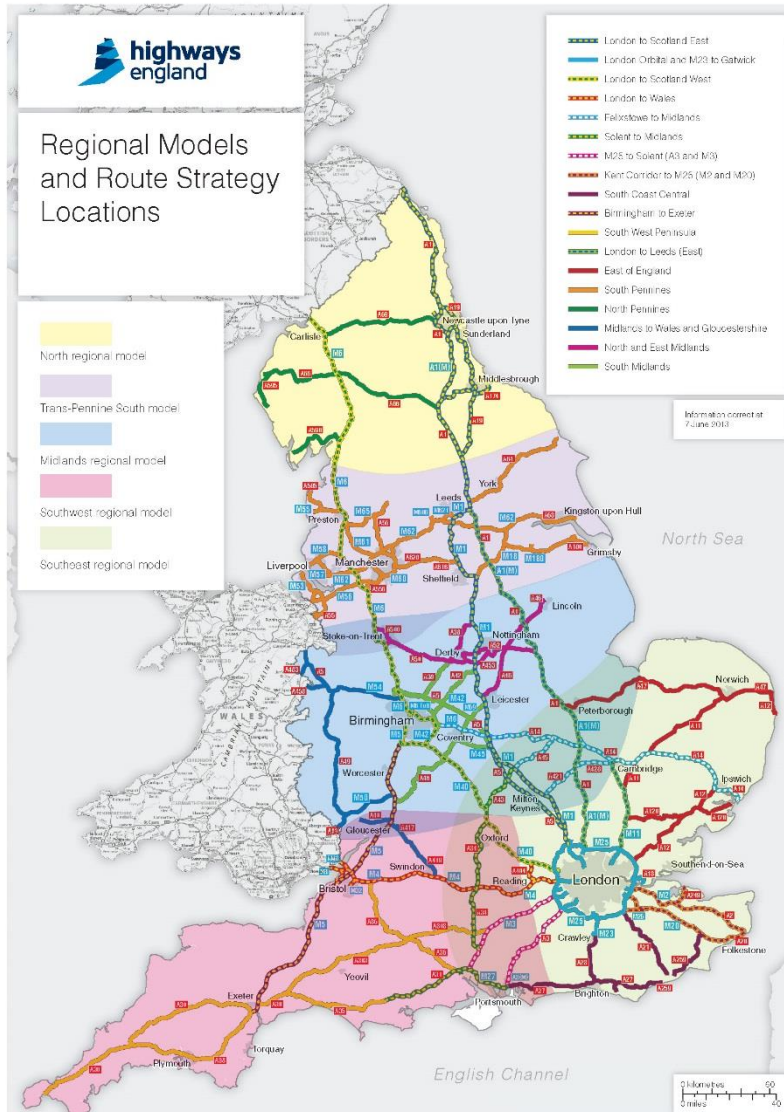


# **Highways England's Regional Traffic Models Challenges over the past year Saturn User Group 2<sup>nd</sup> November 2016**

Alison Cox

# Background to RTMs



- 5 models covering England
- Overlapping areas to consider potential boundary issues
- A range of schemes proposed in RIS1
- 5 separate teams delivering the models in parallel
- Over 120 consultant staff involved

# Background to RTMs

- Models represent average weekday in March 2015
- Three time periods (AM, IP, PM – average hour)
- Cover SRN, A & B road network including junction delays
- Car (business, commute, other), LGV, HGV segmentation
- Mobile phone data for development of car matrices
- Combination of datasets for matrix build
- Huge data collation process - reliance on existing available traffic count data as opposed to significant new data collection.
- **Consistency a key theme**

# Main Challenges but there were many more.....

- Developing matrices from mobile phone data
- Calibration and validation
- Forecasting fixed speeds

# Use of Mobile Phone data in matrix development

# Matrix Development TCG



# Key Issues

## Verification Process.....

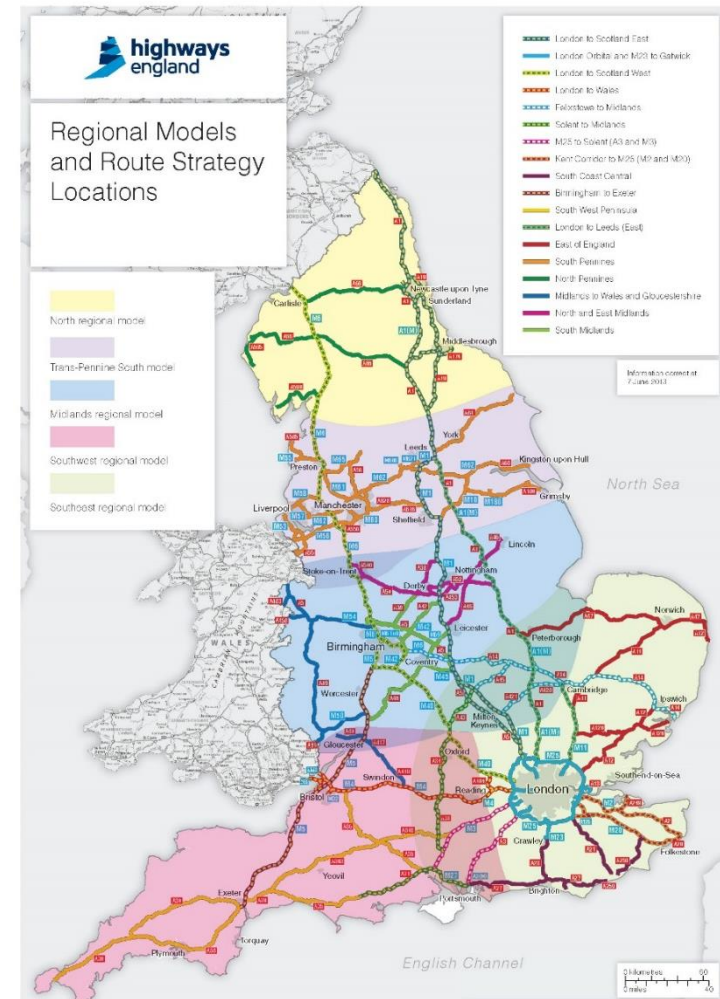
- The data we were provided with included bus and rail trips which had to be stripped out
- The data was biased towards long distance trips and missed a significant amount of short distance movements
- The data expansion resulted in a bias in trip rates and trip length distribution
- *Matrix Adjustments*
- *Disaggregation*

# Calibration and Validation



# The challenges

- Scale
- The need for consistency so that all areas treated the same / inter region consistency
- Relevance of WebTAG given model scale and end use
- Matrix build and limitations of mobile phone data
- How to focus on the SRN and treat other routes consistently
- Role of matrix estimation
- Consistent reporting



# Acceptability

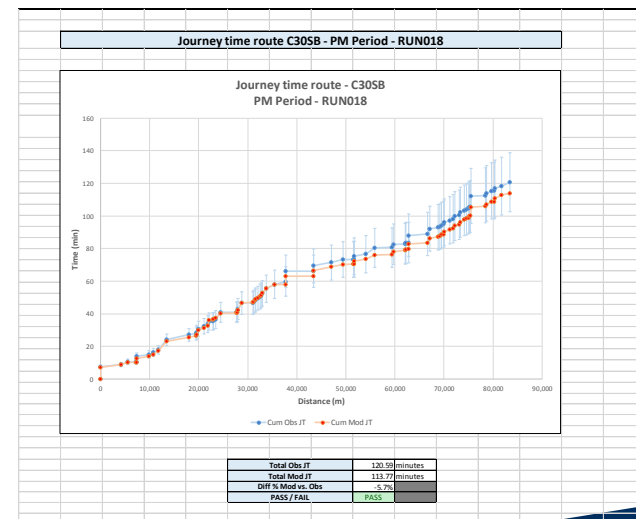
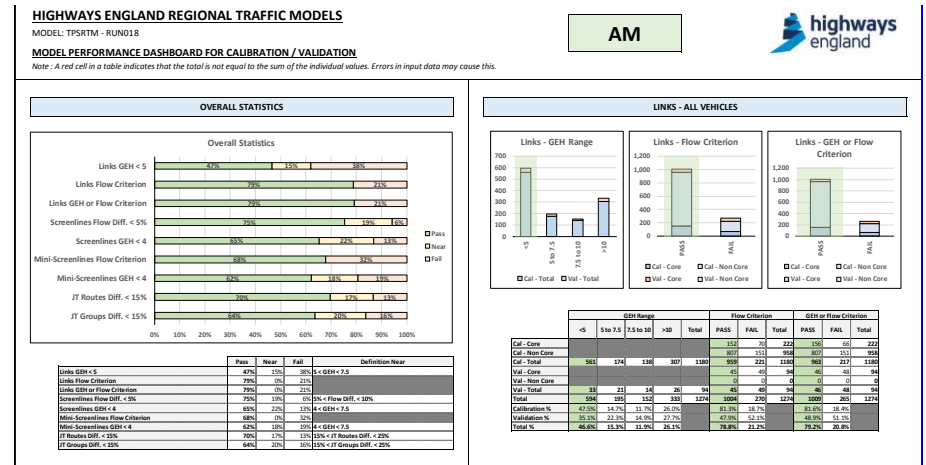
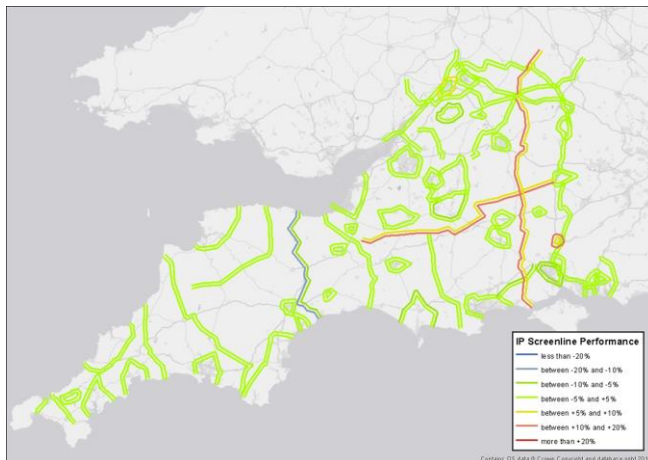
- What is an acceptable model?
- Role of TAG guidance
- RTM guidance developed to consider focus of model, i.e. the SRN.
- Key issues considered
  - Zone size v network coverage.
  - Needs of differentiate the SRN performance
  - Journey time considerations
  - Matrix change acceptability

# Acceptability

- For non SRN flows we examined the implication of the model zone/networks
  - For local authority roads looked at relationship between flows and Confidence Intervals
  - Derived relaxed criteria for roads distant from SRN
- **within +/-300 (for links with count below 2000)**
  - **within 15% for links with a count between 2000 and 2700**
  - **within +/-400 for links with counts in excess of 2700**

# Reporting Consistently

- Dashboard for analysis and reporting
- Shared between all teams
- Drew upon each teams experience



# Forecasting Fixed Speeds

# The Challenge

- The RTMs have been developed with a focus on capturing the Strategic Road Network (SRN) movements.
- Urban areas developed with a skeletal network of “fixed speed” coding and dummy nodes which do not model junction delay.
- In the Base Year, the fixed speeds have been taken from TrafficMaster data including the effects of congestion on traffic speeds.
- **Forecast speeds need to respond to forecast changes in demand**

# Methodology

Undertook pilot studies using existing models to look at a number of methods of forecasting fixed speeds.

1. Use speed factors derived from National Transport Model by road type
2. Derive future speeds from backwards engineering speed flow curves

National Transport Model approach adopted for transparency and simplicity

# Where next for the RTMs

- Base model validation complete/nearing completion.
- Realism tests underway using enhanced DIADEM.
- Forecasting to follow during November/December.
- RTM guidance has been produced.
- Models are being shared with third parties for RIS1 scheme development and the strategic studies
- Future Policy Testing for RIS2.
- 5 Year maintenance plan being developed



# The Next Steps

**Thank You**