Agilysis Factsheet

Speed Compliance Tool 2.0

Overview

The Speed Compliance Tool is an easy-to-use online tool providing access to information about speed limits and average speeds on roads across your local area. It is priced on a per-user basis to keep costs down. Customers only pay for the road coverage they need meaning lower costs for authorities with shorter road networks.

The data sources and updates:

The data is provided by Ordnance Survey and is then analysed and transformed into the dashboards and maps by Agilysis using the powerful ArcGIS Online tool by Esri. Each dashboard shows speed limits for individual road segments based on the OS MasterMap Highways network, with All Day Everyday average speeds plus six extra values of average vehicle speeds at different times of the day and week. Coverage is widespread for the vast majority of roads and the interactive tools allow users to select multiple roads based on road class, road number, speed limit, road length, form of way, or via manual selection.
The Speed Compliance Tool Plus also includes 85th percentile speeds across all seven time periods and the modelled annual average daily traffic (AADT) for each road section.

Annual updates are provided for the average speed data in May and speed limit maps are updated quarterly.

The data for speed limits is matched to the Ordnance Survey network by a third party (Insight Warehouse Limited) and is updated quarterly from their central database which is also used by other mapping providers and technology companies for use in maps for drivers, fleet managers and many others. Evidence to support the current speed limit is obtained from a number of sources with input from local authorities seen as the most valuable. If you are aware of errors or recent changes that need to result in a mapping update, please contact speedmap@insight-warehouse.co.uk who are happy to help with data updates including any TROs or plans illustrating the extent of speed limits.

Use Case Scenarios

The information is useful for local authorities and police forces who want to understand more about how vehicles are travelling on their network, without having to commission individual speed surveys. The data is sourced from 135,000 vehicles which provide GPS data tracks ever 1-10 seconds. This raw data is processed to provide average speeds for the Highways network layer and can be used in association with the speed limit to identify non-compliance hotspots.

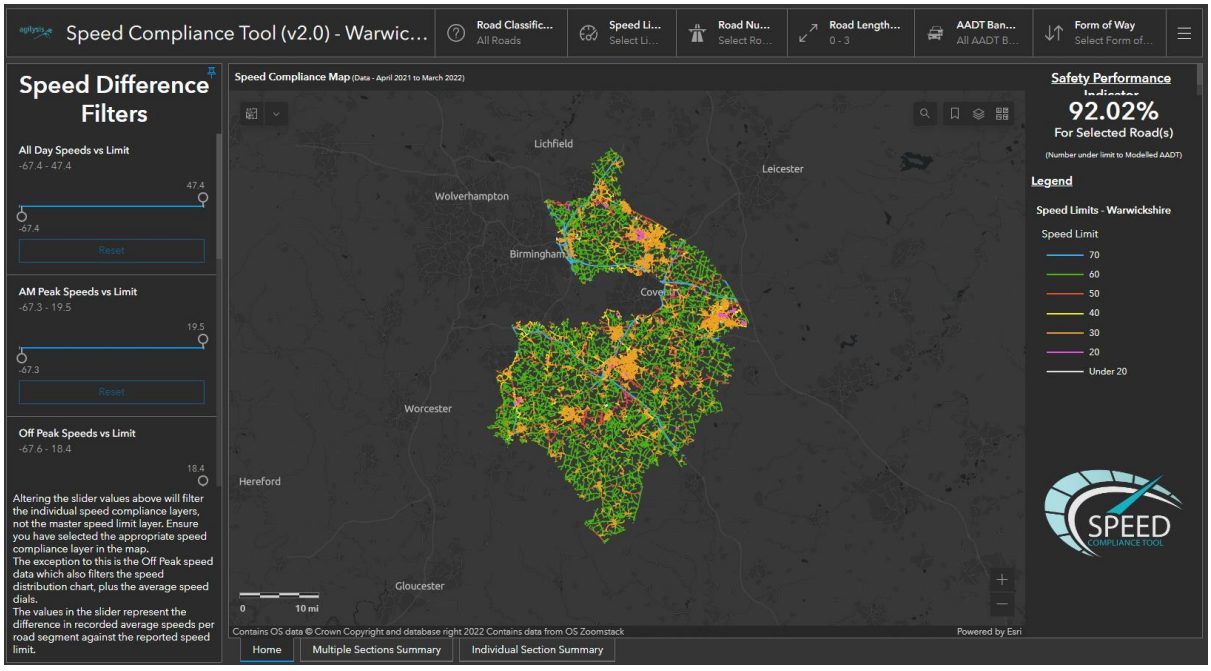
The information is also useful to assess speeding complaints from members of the public. Users can see average vehicle speeds in seconds to make judgements on the appropriate next steps, whether that is a simple response stating that there is no significant issue, a requirement for further investigation, or escalation as a part of a speed management strategy.

Slough Borough Council are using the system to respond to complaints from members of the public regarding speed in local neighbourhoods. The evidence is used to quickly assess the overall level of compliance and compare it to other roads. When used in conjunction with CrashMap Pro it allows a simple analysis of risk to take place in a single online portal. This evidence will then fit into a speed management strategy that could involve further evidence-gathering via SDR or SID, Community Speedwatch or even enforcement.

The data in the dashboard is not always a direct replacement for traditional spot-surveys which can give more detailed information, but it provides widespread coverage at a low cost. In terms of decision-making on enforcement, it is clear that the data can be used to guide decision making but users may still decide to carry out traditional surveys where extra information is required or a very high degree of accuracy and comparability is needed.

What does it look like?

The speed compliance tool is designed for the interrogation of individual roads or multiple road sections for comparison of the average recorded speed to the national speed limit. The dashboard shows individual road segments based on the OS MasterMap Highways network, with seven values supplied for average vehicle speeds at different time of the day and week. Coverage is widespread for the vast majority of roads.



1	***Interactive map***
2	***Road filtering tools (along the top)***
3	***Safety Performance Indicator***
4	***Legend***
5	***Speed Compliance Filters***

What's included

Standard items included	***Add-ons***
Speed limit layer	85th Percentile speeds
Annual average speed data (most recent year)	Modelled traffic (AADT)
Average speed layer with individual values for road sections	
Seven speeding maps colour coded according to compliance levels	
Online dashboard created for your authority area	

Limitations:

Data sources from vehicle GPS is not equivalent to that obtained from permanent or temporary Automated Traffic Counters (ATCs) or Speed Detection Radars (SDR). The limitations of the data are as follows:

1. It is only a sample of traffic, and quite frequently in low single digits in terms of percentages. However, on classified roads the annual number of journeys per segment are in the thousands or tens of thousands which we considered reliable enough to get a good estimate of the metrics we provide.
2. Where traffic flows are insufficient to determine 85th percentile speeds confidence intervals on the average speeds at different times of the day and week are low and therefore null data is returned.
3. On roads with significant congestion there can be large differences in speeds at different time of day, and also larger than expected differences in average and 85th percentile speeds. This tends to be an issue where average speeds in congested times are below 15 mph, and not on most rural classified roads. On these roads we estimate the 85th percentile speeds are more reliable.
4. Due to the nature of the matching process, the speed values are average speeds along a link length, rather than spot speeds at the most free-flowing point along a link. As links are always split at point where other roads intersect, high turning-frequencies would see supressed average speeds.
5. Agilysis took a sample of speeds recorded from ATCs in Slough and Wokingham. Variances in *Evening* average speeds between the two collection methodologies were -/+ 50% at the extreme ends but over 80% of recordings were within 10%. This variance is typical of other roads analysed and has been demonstrated in other telematics datasets.

Speed Data Analysis:

Research into speeds on ***rural roads*** using Surrey data has been carried out to compare telematics speed data, as used in the speed compliance dashboard, with data from local traffic surveys.

Speed data provided by Ordnance Survey, taken from a telematics data source, was used for this analysis to ensure coverage of as much of the network as possible. This data was supplemented with an additional 775 traffic surveys provided by Surrey County Council, which were batch processed and spatially matched to the road network, to enable comparisons between the telematics-based speed data and speeds collected by more robust measurement techniques. Although the OS speed data is available for several different time periods, evening speeds were used in this analysis as they are usually the most representative of all day speeds.

Figure 1 below shows a comparison of average speed values for the two sources of speed data, whilst Figure 2 shows a comparison of 85th percentile speeds. As these charts show, although there is good correlation between the two data sources, the OS speed data does tend to have suppressed values. The suppression of speeds from telematics data sources is most likely a result of differences in the way data is collected, rather than reporting error. Whilst speed surveys often measure spot speeds at a free-flowing point on the road, telematics data covered speeds across the whole stretch of road, including areas where traffic is not free flowing (e.g. where vehicles may be slowing down as they approach junctions or crossings). On average, average speeds differ by around 3.3mph, whilst 85th percentile speeds differ by around 3.5mph. These differences should be borne in mind. The difference in speeds is likely to be less on urban roads where there is more telematics coverage.

Figure 1 - Comparison of average speed between OS data and speed survey data

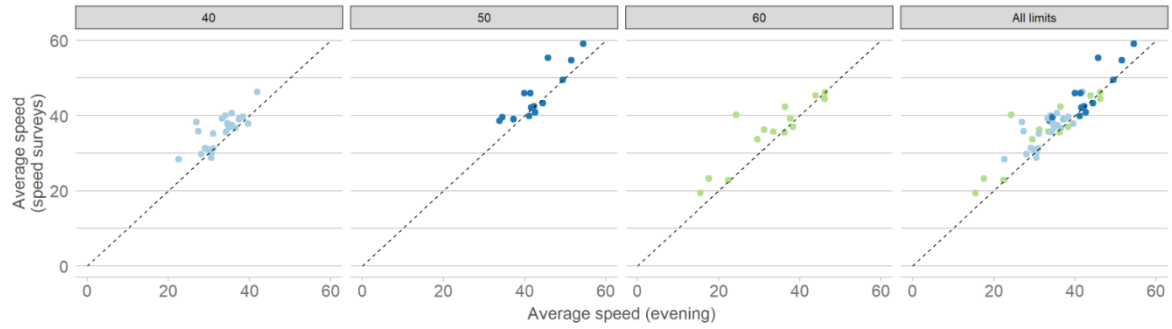
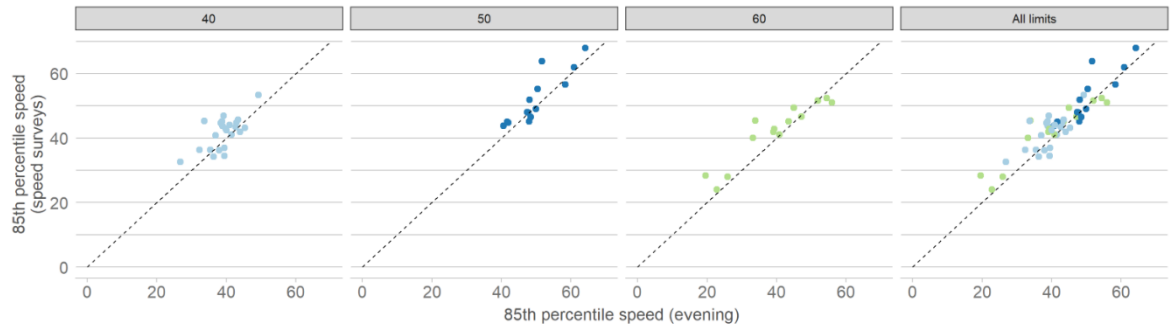


Figure 2 - Comparison of 85th percentile speed between OS data and speed survey data



Video Demonstration

(Video coming soon)