



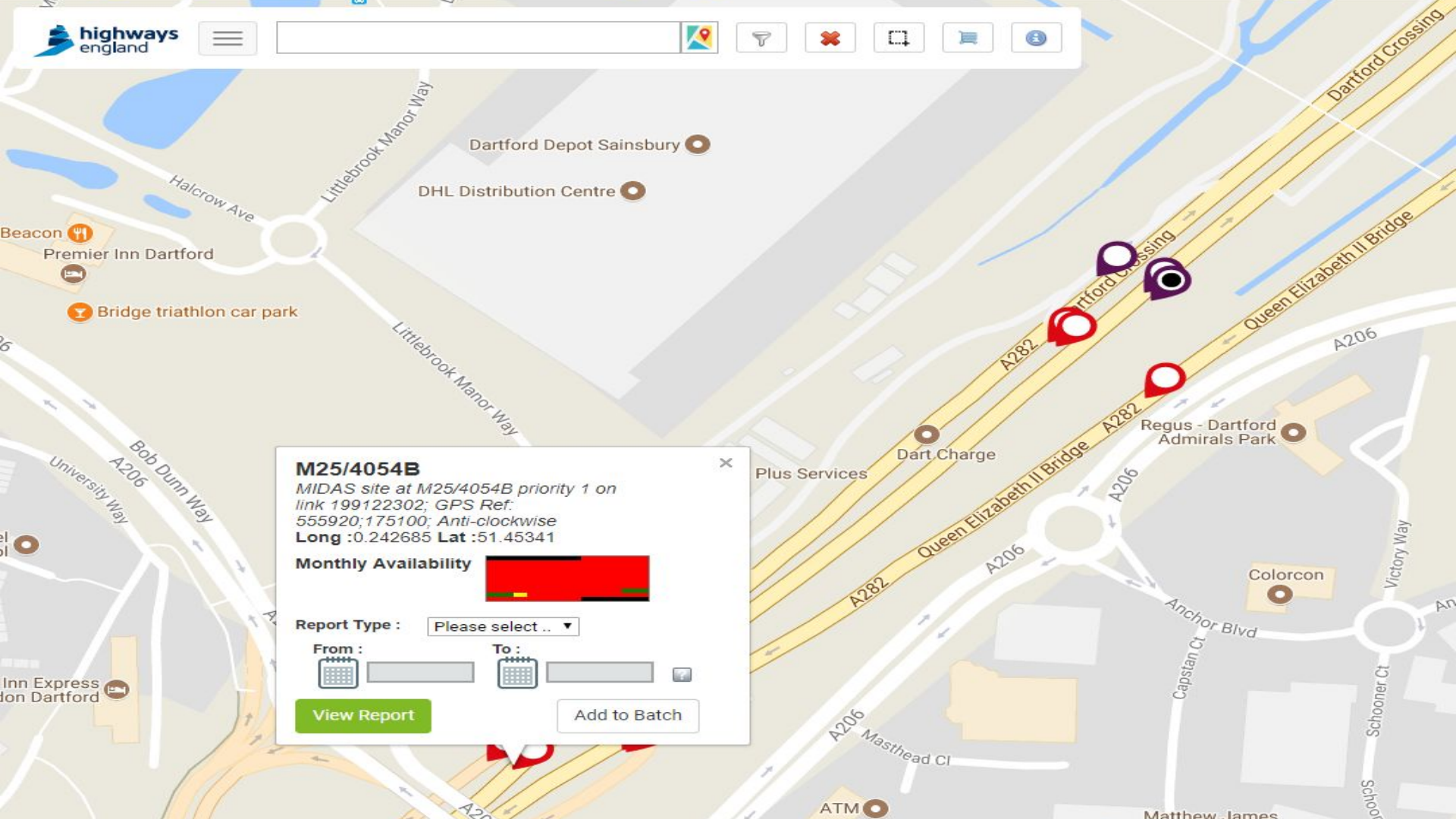
Traffic Speed and Flow Data

New tools to analyse minute-by-minute data on the SRN in
England

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Joining the Dots 2018
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SRN traffic data

- HE inherited Highways Agency data sets: HATRIS, Live traffic data, etc.
- Current access to 15 minute traffic data HATRIS => Data.gov.uk => WebTris
- Current access to 1 minute traffic data HALOGEN
- R package for SRN traffic data: *oneminutetrafficdata*



M25/4054B

MIDAS site at M25/4054B priority 1 on
link 199122302; GPS Ref:
555920; 175100; Anti-clockwise
Long :0.242685 Lat :51.45341

Monthly Availability



Report Type :

Please select ..



From :



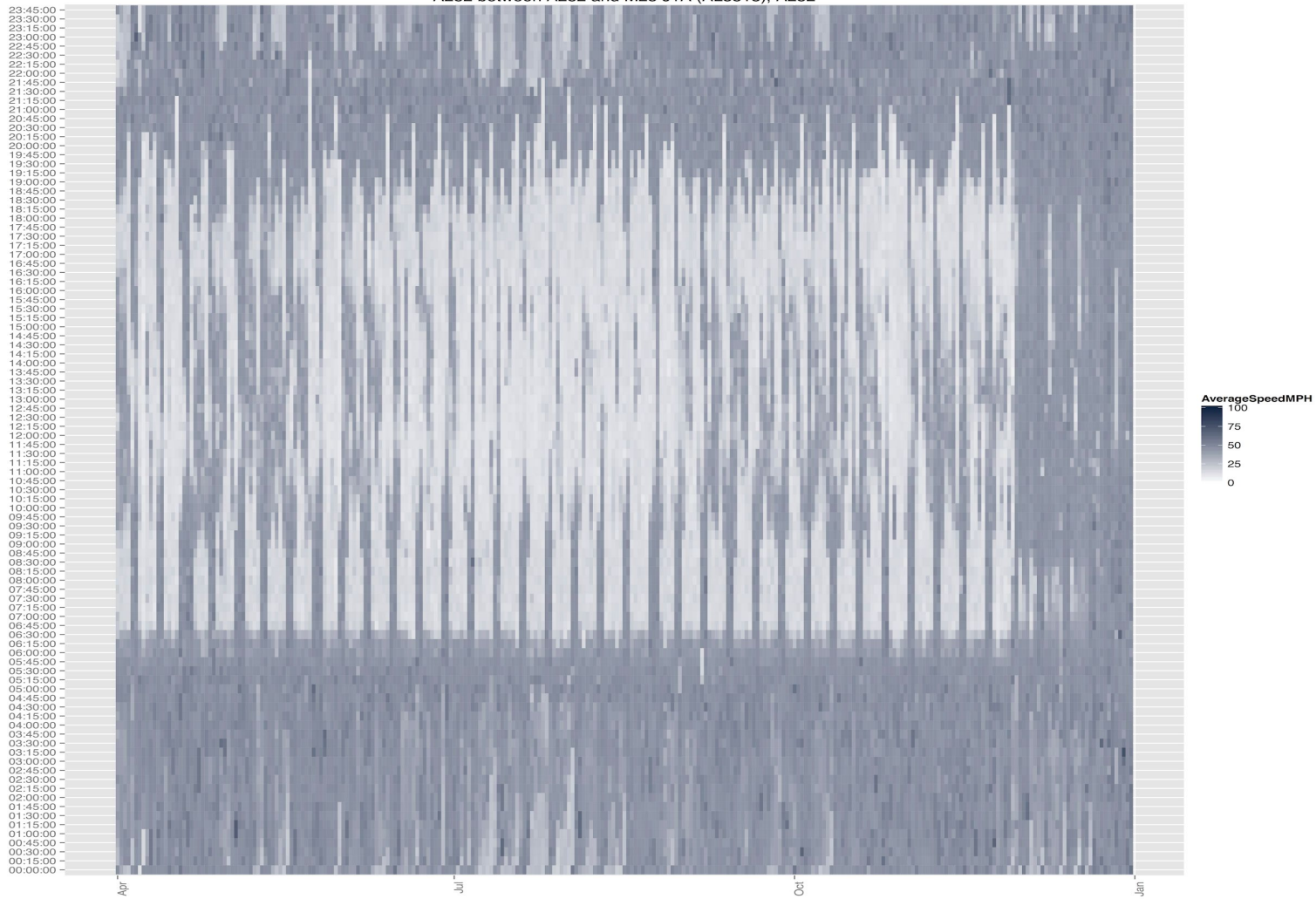
To :



View Report

Add to Batch

A282 between A282 and M25 J1A (AL3818), A282



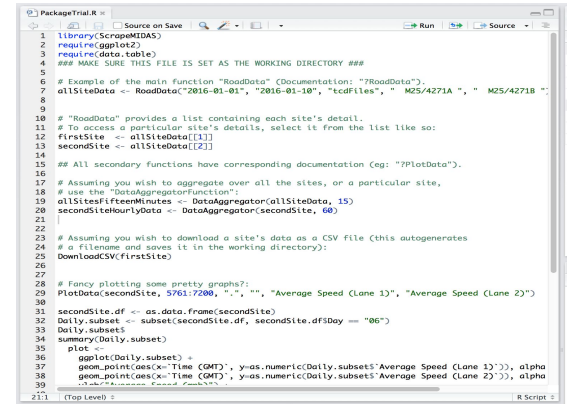
1 minute data

- Traffic speed and traffic flow (vehicle count) by **vehicle category** and **lane** for each 1 minute period of each day for each link on the SRN network
- Well hidden in HALOGEN
- Complex access procedure
- Difficult file type etc.



oneminutetrafficdata

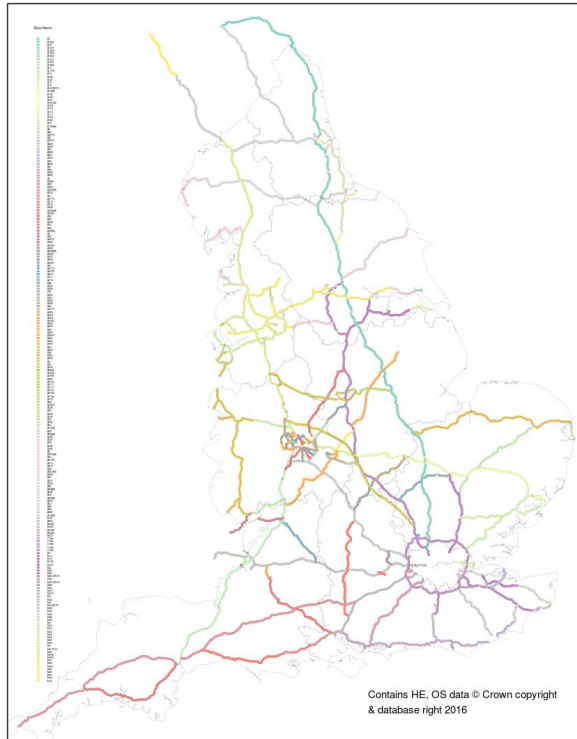
- Store TCD files locally, batch convert and analyse in R
- Aggregate data over any time period (e.g., 15 minute, **but with lanes**)
- Download as CSV function
- Plotting function (or use ggplot2)
- PCU converter
- Percentile Speed estimates
- Ops and Alert Logs – record of network events and signage



```
1 library(ScrapeMIDAS)
2 require(ggplot2)
3 require(data.table)
4 ## MAKE SURE THIS FILE IS SET AS THE WORKING DIRECTORY ##
5
6 # Example of the main function "RoadData" (Documentation: "?RoadData"):
7 allSiteData <- RoadData("2016-01-01", "2016-01-31", "M25/4271A", "M25/4271B")
8
9
10 # "RoadData" provides a list containing each site's detail.
11 # To access a particular site's details, select it from the list like so:
12 firstSite <- allSiteData[[1]]
13 secondSite <- allSiteData[[2]]
14
15 ## All secondary functions have corresponding documentation (eg: "?PlotData").
16
17 # Assuming you wish to aggregate over all the sites, or a particular site,
18 # use the "DataAggregatorFunction":
19 allSitesFifteenMinutes <- DataAggregator(allSiteData, 15)
20 secondSiteHourlyData <- DataAggregator(secondSite, 60)
21
22
23 # Assuming you wish to download a site's data as a CSV file (this autogenerated
24 # a filename and saves it in the working directory):
25 DownloadCSV(firstSite)
26
27
28 # Fancy plotting some pretty graphs?:
29 PlotData(secondSite, 57617200, " ", " ", "Average Speed (Lane 1)", "Average Speed (Lane 2)")
30
31 secondSite.df <- as.data.frame(secondSite)
32 Daily.subset <- subset(secondSite.df, secondSite.df$Day == "06")
33 Daily.subset
34 summary(Daily.subset)
35
36 plot <-
37   ggplot(Daily.subset) +
38     geom_point(aes(x=Time GMT, y=as.numeric(Daily.subset$Average Speed (Lane 1))), alpha
39     geom_point(aes(x=Time GMT, y=as.numeric(Daily.subset$Average Speed (Lane 2))), alpha
```

Map the SRN

SRN

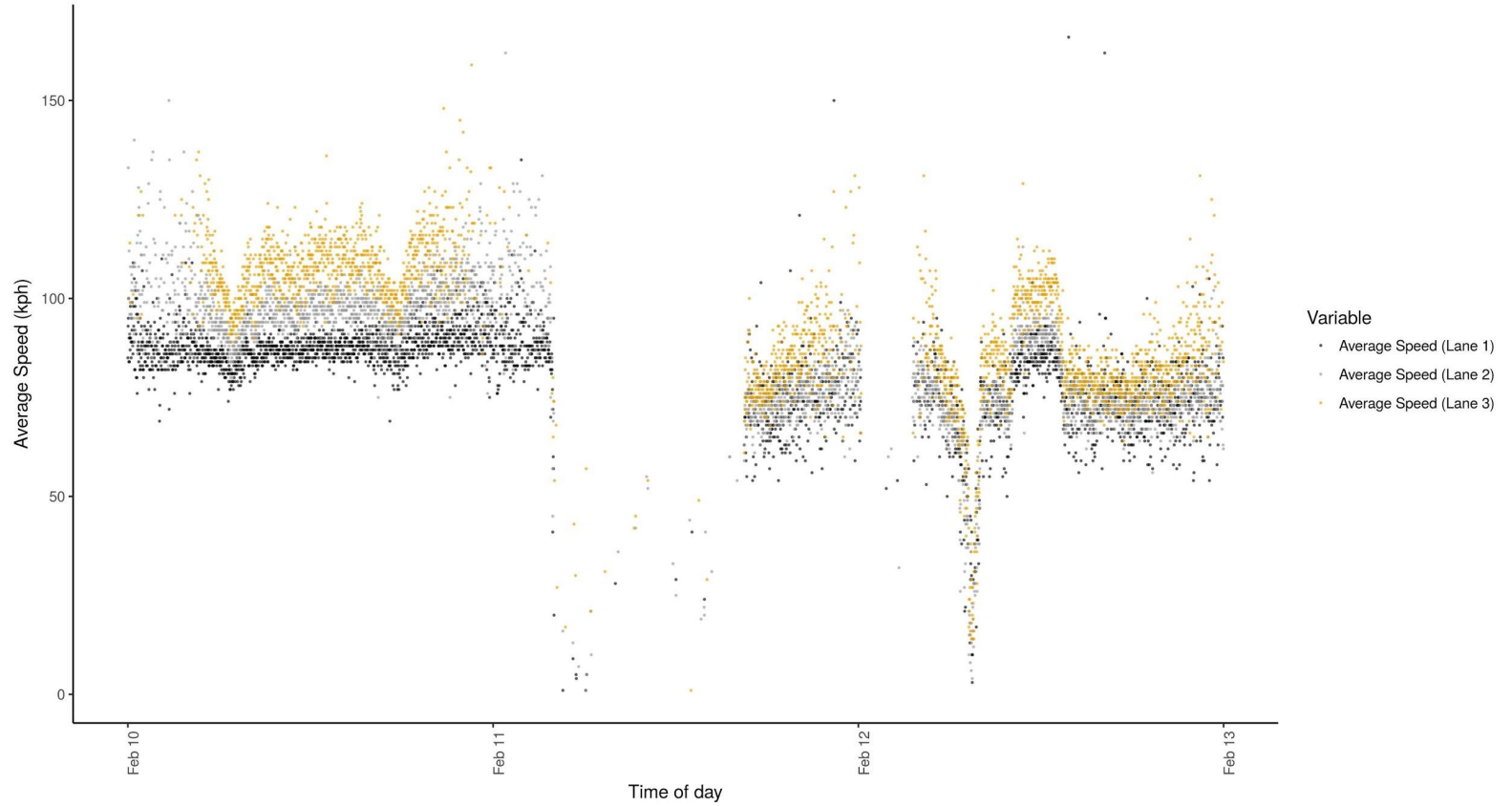


M25



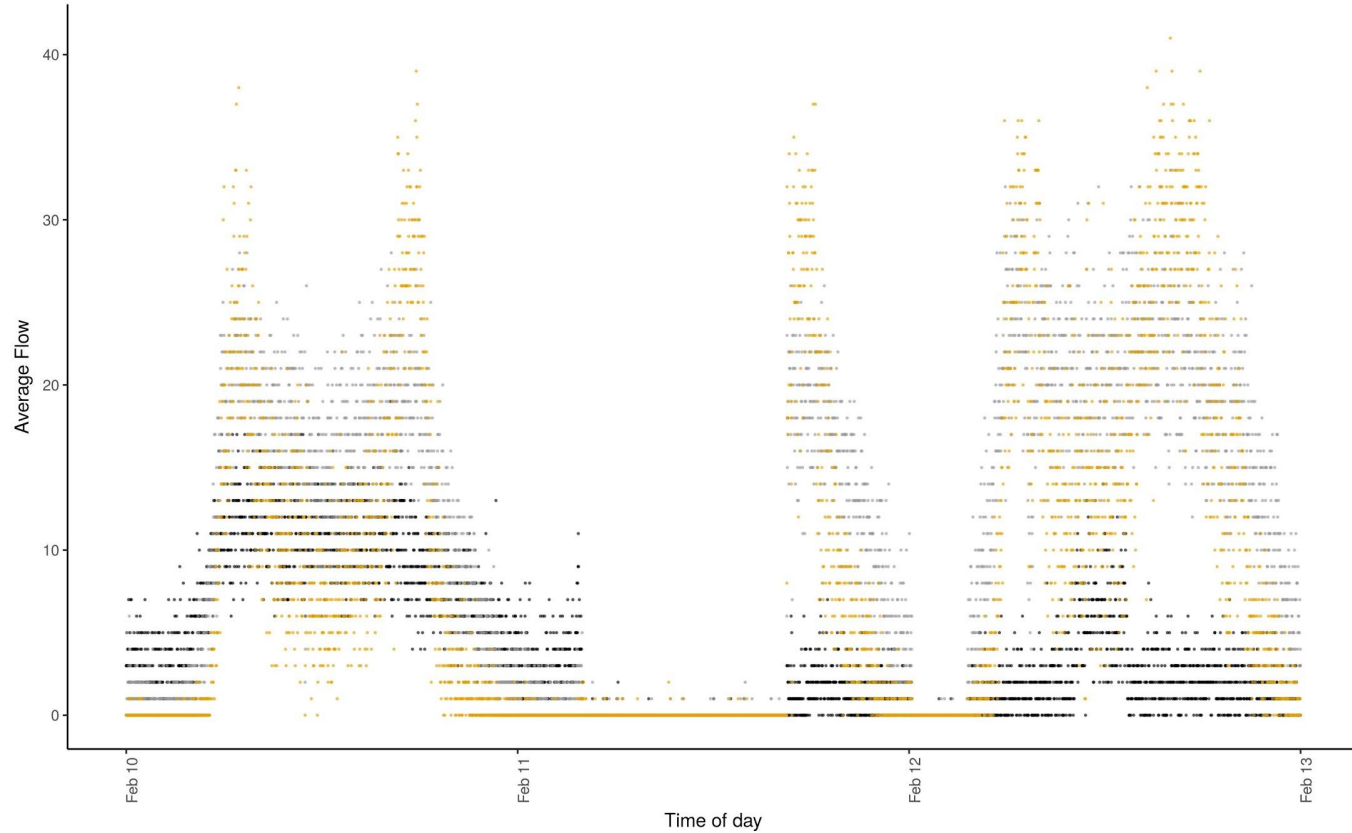
*Find a link with a fatal crash in 2016.
Plot speed by time, by lane, +/- 24hrs.*

Speed/Time plot, by lane



Plot flow by time, by lane, +/- 24hrs.

Flow/Time plot, by lane

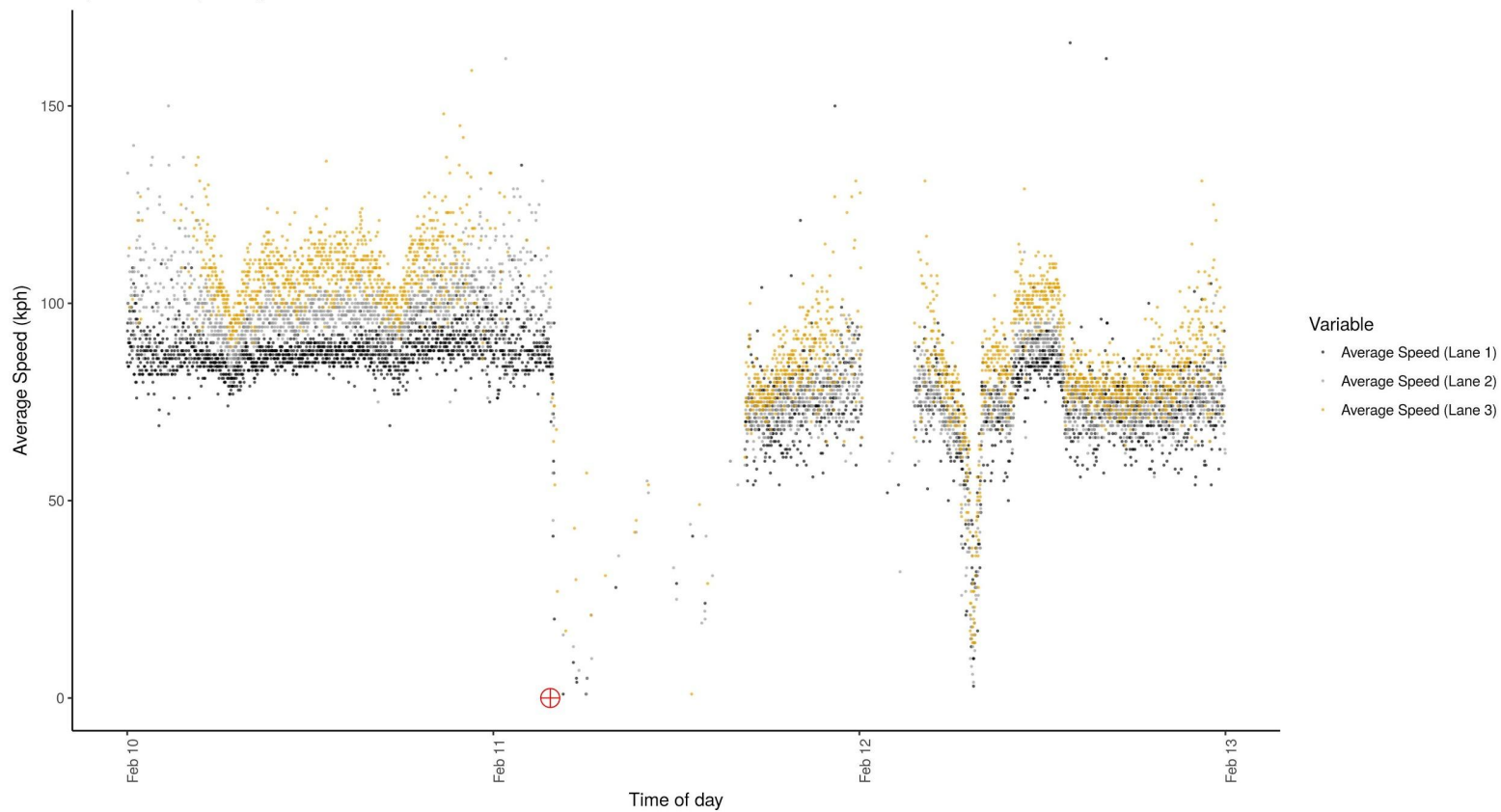


Variable

- Total Flow (Lane 1)
- Total Flow (Lane 2)
- Total Flow (Lane 3)

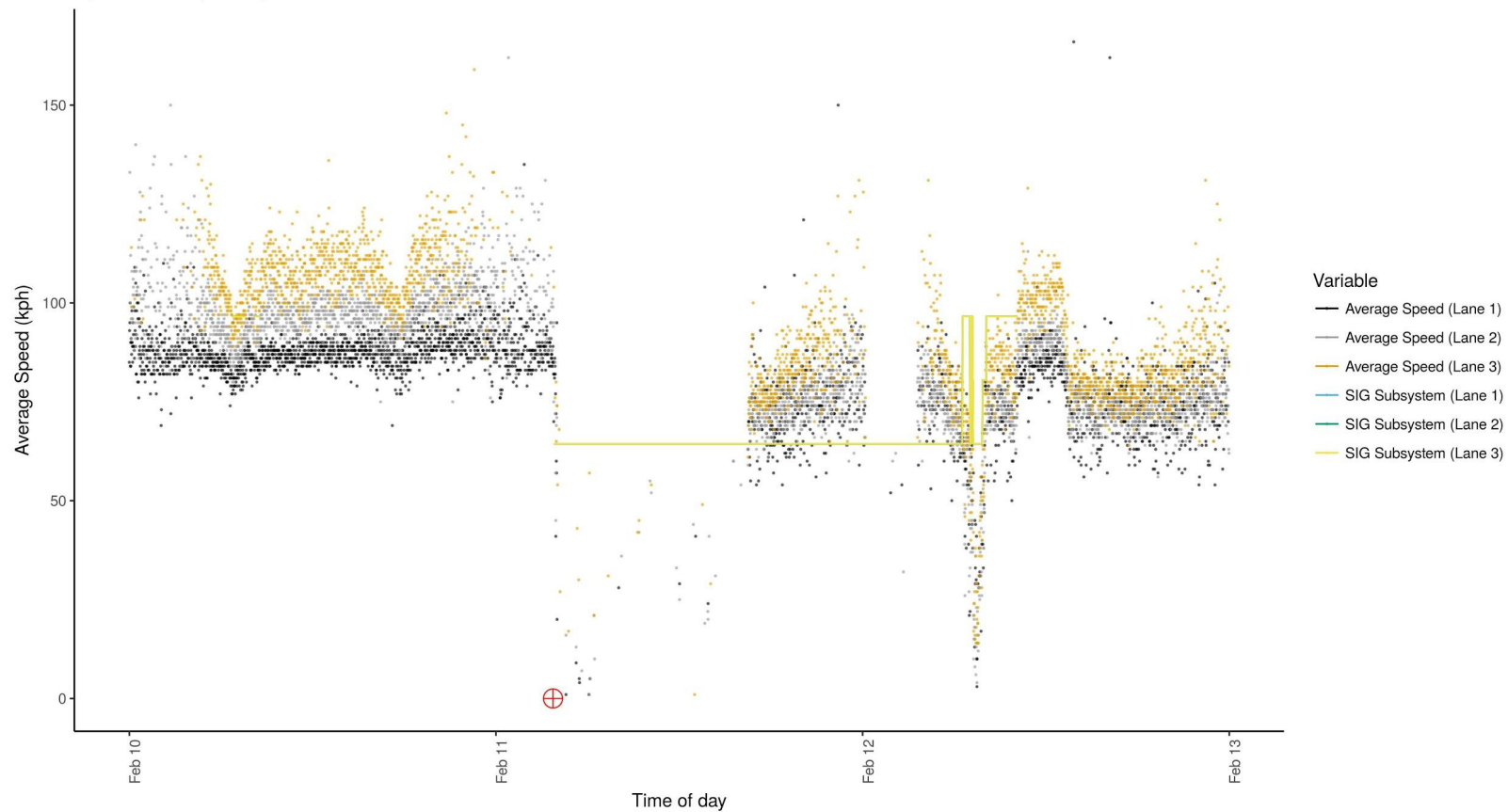
*Speed/time plot, but with STATS19
crash added to the plot.*

Speed/Time plot, by lane



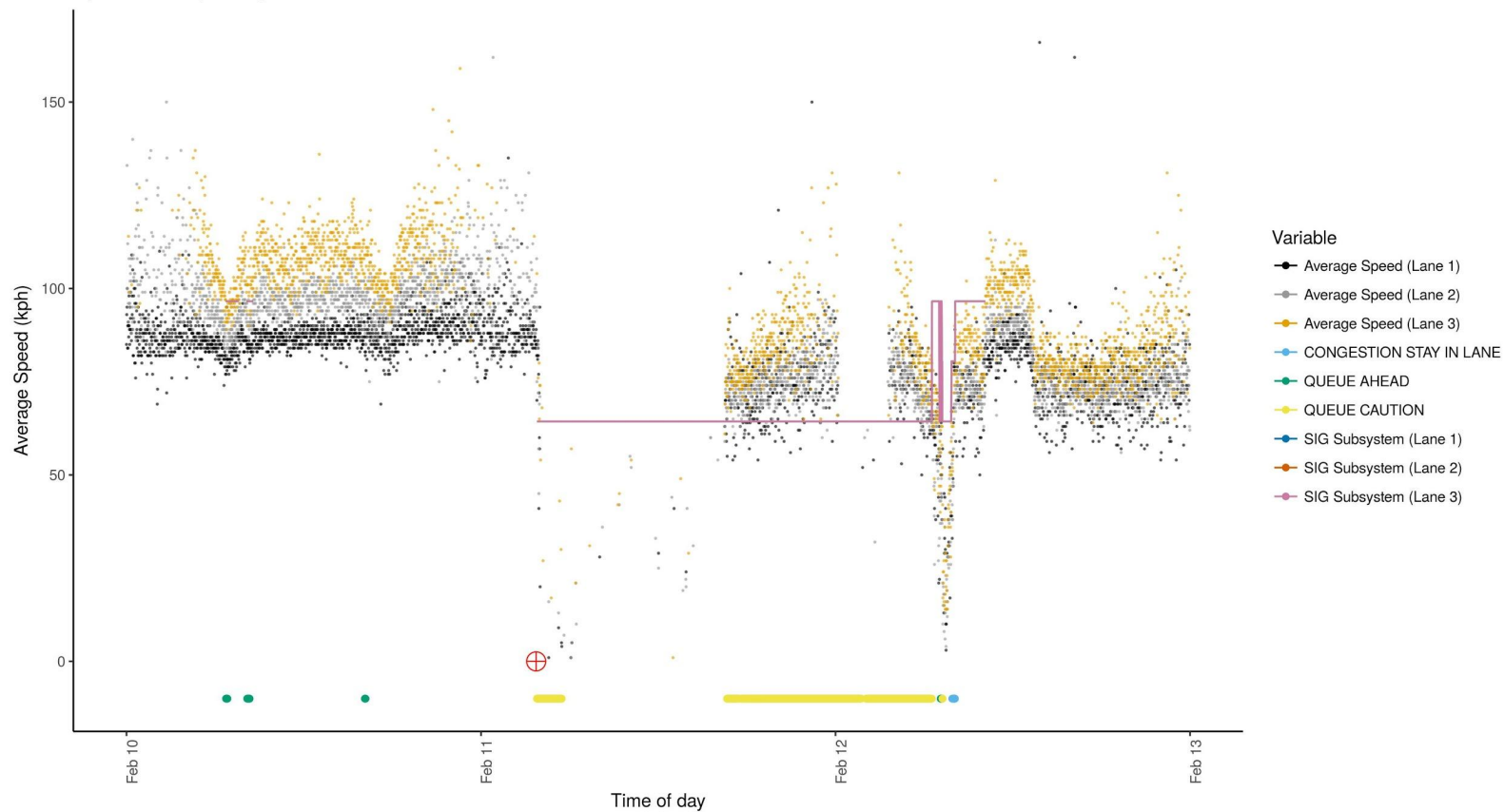
*Speed/time plot, plus STATS19 crash,
plus variable speed limits.*

Speed/Time plot, by lane



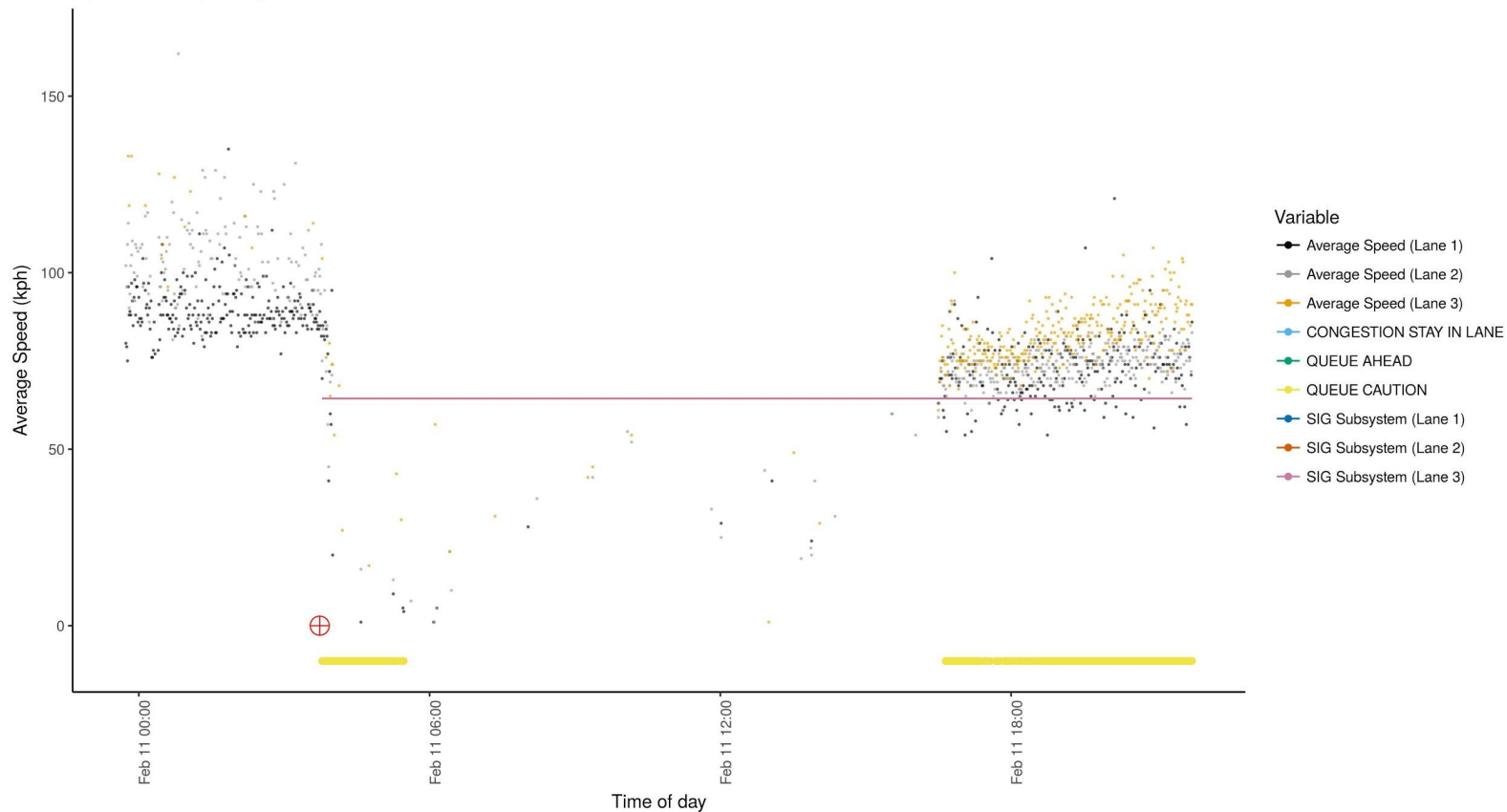
*Speed/time plot, plus STATS19 crash,
plus variable speed limits, then add in
what the VMS messages were at the
time.*

Speed/Time plot, by lane



Zoom in...

Speed/Time plot, by lane



oneminutetrafficdata - what can you do with it?

- Long closure to rebuild barrier on flyover - reconstruct events.
- Compliance with messages/VSL/speed limits
- Undertaking, stopping distance
- Traffic mix/levels
- Clear-ups
- Predictions?
- Ease of use - no software cost



Thank you

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