

A381 Harbertonford Traffic Data Analysis

The following analyses the data from the Automated Traffic Survey that ran for a week from 29 Jul 2021 to 05 Aug 2021. The survey collected speed, volume and vehicle types in 15 min intervals for the week. The data collected can be downloaded from [here](#). A pdf version of this page is available [here](#).

The survey took place about 20 metres to the north of the zebra-crossing, just opposite the old-school and just on the edge of the 20mph zone. At this location the speed limit is 30 mph, the 20 mph zone is currently advisory only.

Some notes on the charts. These require a modern browser to view. They are best viewed on a reasonably large screen... not a phone! Clicking on one of the legends will remove that data from the chart, which can be useful to see some data more clearly. Mouse over the chart to see specific data values.

Vehicle Classification

The survey produced counts for each class of vehicle using the Metrocount VRX Scheme as below:

Light

Class 1 SV 2 axles Short vehicle car or light Van
 Class 2 SVT 3,4 or 5 axles Short vehicle towing trailer, caravan, boat, etc

Medium

Class 3 TB2 2 axles Two-axle truck or bus
 Class 4 TB3 3 axles Three-axle truck or bus
 Class 5 T4 > 4 axles Four-axle truck

Heavy

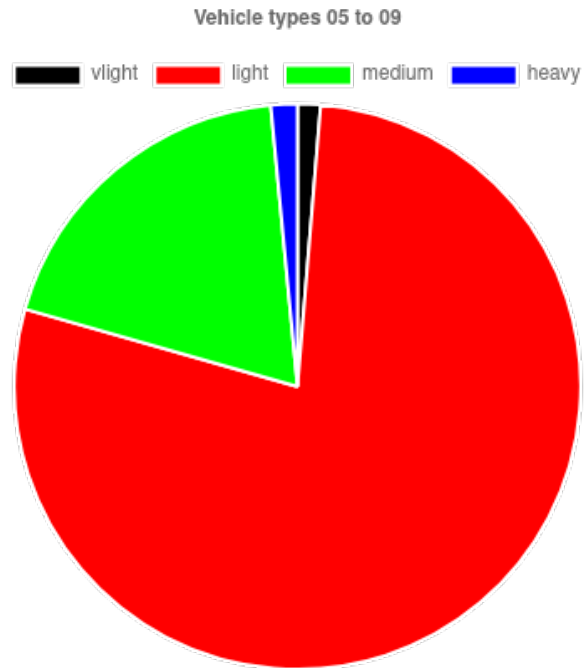
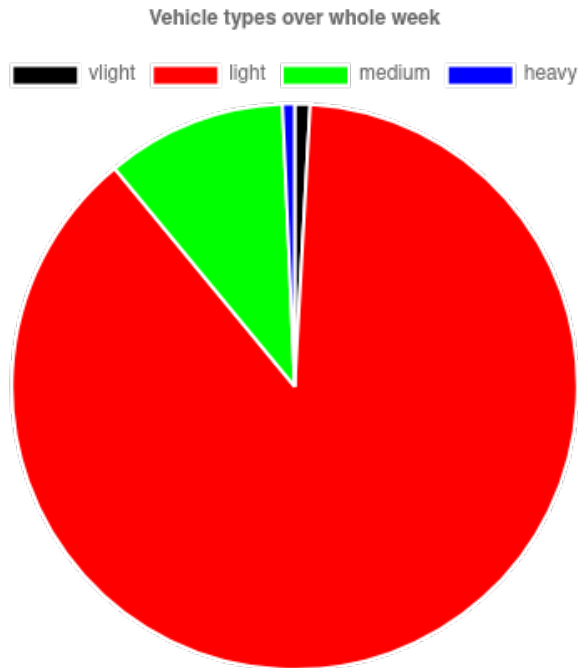
Class 6 ART3 3 axles Three-axle articulated or rigid vehicle and trailer
 Class 7 ART4 4 axles Four-axle articulated or rigid vehicle and trailer
 Class 8 ART5 5 axles Five-axle articulated or rigid vehicle and trailer
 Class 9 RT6 >6 axles Six or more axle articulated or rigid vehicle and trailer
 Class 10 BD >6 axles Double or heavy truck and trailer
 Class 11 DRT >6 axles Double road train or heavy truck and two trailers
 Class 12 TRT >6 axles Triple road train or heavy truck and three or more trailers
 Class 13 UNK Unknown

Very Light

Class 14 M/C 2 axles Motorcycles
 Class 15 Cycle 2 axles Bicycles

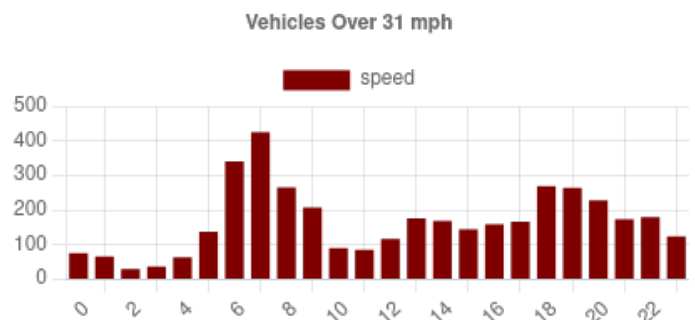
Distribution of Vehicle Types

The first pie chart shows the average distribution of the broader vehicle types (Very Light, Light, Medium, Heavy) taken over the whole survey period. It can be seen that while the majority are Light, there is a significant number of Medium size vehicles passing through the village. The second pie chart shows that the proportion of Medium sized vehicles increases considerably when just considering the hours 05 to 09 in the morning.

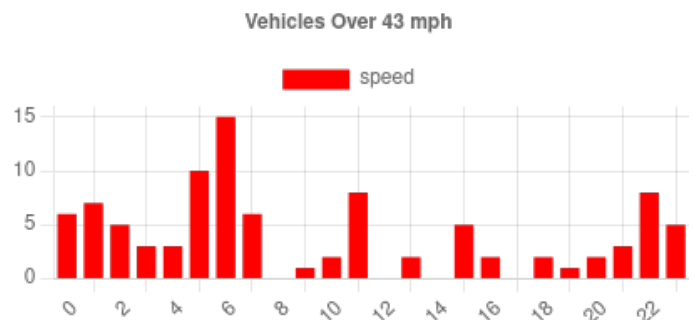


Speed of Vehicles

The following chart shows the distribution of vehicles through the day that are travelling at 31mph or more, so they are breaking the 30mph speed limit. The chart shows the total over the week for a particular hour in the day. The total number of vehicles exceeding 31 mph over the week is: 4,008.



Similarly, the following charts shows the distribution of vehicles through the day that are travelling at 37mph or more (the total for the week is: 538) and at 43mph (the total for the week is 96).



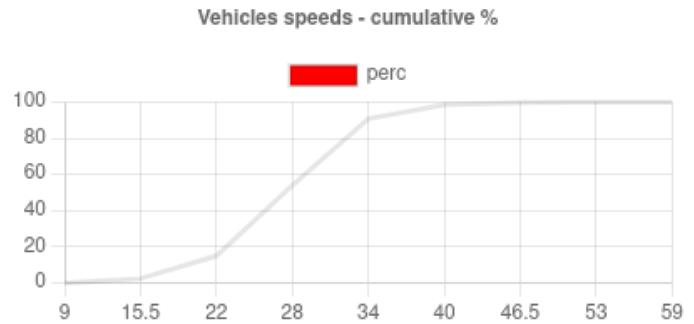
Speed limit violations

Assuming a widely applied speed tolerance policy of 10% above the speed limit plus 2 mph, then for a 30mph limit this would mean a threshold of 35mph. This would mean that in just one week, many more than the 538 drivers driving in excess of 37 mph could/should be fined or subject to speed awareness training. It is possible to make a rough estimate of the number from the data by noting that, as one might expect, there is a power-law relationship between the number of drivers exceeding the limit and their speed [eg: $t = (0.0153*s)^{-11.111}$]. From this approximation it is clear that *over 1,000 vehicles per week are exceeding 35 mph through the village*. It needs to be re-emphasised that this is at a location that is just 20 yds from a zebra-crossing.

It is plain from the charts above that the greatest number of speed violations take place early in the morning and to a lesser extent in the evening. The period 6-7am appears to be a particularly dangerous time. The data does not relate vehicle types to speeds and so it is not possible to correlate the two, however as noted above, there is a significant increase in vehicles of type Medium and Heavy at this time which serves to further exacerbate the problem.

The 85th Percentile

The 85th percentile speed figure is often quoted and used as a justification for policy. It is the speed below which 85% of vehicles are travelling measured over an extended period and it is an entirely inappropriate statistic in these circumstances as it masks the true nature of what is happening. However, even using this crude measure it can be seen in the following chart that if one looks at the crucial morning period, from 5am to 9am that the 85th percentile is 33mph... as determined from measurements taken on the boundary of a 20mph speed limit advisory zone.



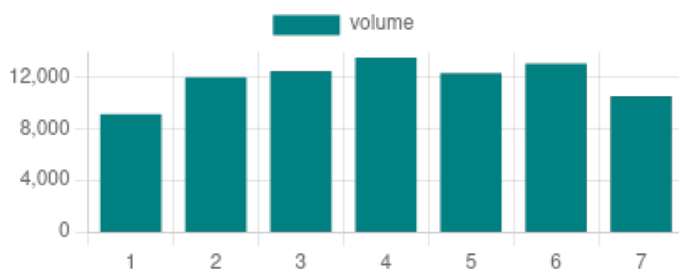
The 20mph Advisory Zone

For 20m either side of the zebra crossing there is a 20mph advisory zone. From the above graph it can be seen that during the crucial morning period less than 15% of vehicles are entering this zone at 20 mph. Overall the number is just 20%. So the vast majority of vehicles are clearly not heeding the advice and it is exactly why using the zebra-crossing is such an intimidating experience for residents.

Traffic Volumes

The charts below give the traffic volumes by day-of-the-week and by hour-of-the-day. It can be seen that on the Wednesday of the survey period *the volumes reached over 13,500 per day through the village*. Also, one can see from the hourly chart, the average volumes for an hour can exceed 1,000 vehicles per hour.

Traffic Volumes by Day (1 = Sunday)



Average Traffic Volumes by Hour



The following chart shows the maximum hourly volumes during the survey period. It can be seen that at 17:00 on a particular day (Wednesday) the hourly volume reached a staggering 1,215 vehicles per hour, or 1 vehicle every 2.96 seconds!

Maximum Traffic Volumes by Hour



This road is operating at the threshold of safety at times like this. If one were to use the stopping distances as recommended by the Transport Research Laboratory, then at 30 mph it is 34m (not 23m) and assuming the average length of a vehicle to be 5m (given the proportion of medium/heavy to light vehicles) then the safe number of vehicles per hour can be calculated to be 1238 vehicles per hour. At 20 mph, and a stopping distance of 19m would give a safety threshold of 1341 vehicles per hour.

It is clear that there is a need to control traffic speeds.

Conclusion

The A381 through Harbertonford is a cause of great concern to residents of Harbertonford and the data from the Automatic Traffic Survey reveals why. The volumes and speed of traffic pose a real danger to residents and just because the nature of the location means there have only been minor incidents, it is nonetheless a daily burden and a threat.

The above analysis of the data from the survey demonstrates just how bad the situation is. There can be no justification for continuing to allow 1000 vehicles per week to travel through the village of Harbertonford at speeds in excess of 35mph with impunity and there is an obvious case for installing speed cameras, which would in all probability be self-financing. There are now many cost effective solutions available (eg. a pair of Truvelo D-Cams with an installation cost of ~£25,000).

Also, the current signage is clearly nothing like sufficient and the rumble-strips and road markings are so badly worn that they have no effect on driver behavior. Several signs for each direction indicating a vehicle's speed as it travels through the village would also be very helpful. Funds are available for two of [these](#). All that is required is permission from Devon Highways (through its [SCARF](#) process and/or the HATOC committee) to install them.

As discussed in the [document](#) sent to Devon Highways in Nov 2019, the zebra crossing is dangerous. It is suggested that a proper pelican crossing is installed during the project to resurface the road and improve drainage, which it is understood is now scheduled for 2022.

I would therefore appeal to members of Devon County Council and officers of Devon Highways as well as the Police to please help the residents of Harbertonford and address these very *serious* issues.

Thank you.

South Hams District Cllr John McKay, member for West Dart.

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