A critique of the Bath & North East Somerset Council report reviewing their recent 20mph area schemes

Rod King – 20’s Plenty for Us
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Summary

In May 2017 N & NES Council released a report on their recent 20mph area schemes. Whilst we believe that assessing the results of 20mph limits is important in order to better implement ongoing schemes and formulate local authority policy, this must be done in a reasonable, balanced and objective manner.

20’s Plenty for Us refute the findings and conclusions in the report and advise members that the report is so compromised that it would not be reasonable for them to make any decisions based on the report. This critique looks at the report in detail.

In particular it finds the report biased, lacking in statistical rigour and not meeting several local authority duties on competency and equality.

20’s Plenty for Us would be pleased to engage with Bath & North East Council to further discuss the report and propose how a better review and assessment of the 20mph areas may be conducted.

This critique should be read alongside the BANES report which may be found at: https://democracy.bathnes.gov.uk/documents/s46582/20mph%20Zones%20Review%20Report.pdf
Background

Regarding the 01/2013 guidance the BANES report is informative but rather selective. For example one of the key points in 01/2013 was:-

Traffic authorities are asked to keep their speed limits under review with changing circumstances, and to consider the introduction of more 20 mph limits and zones, over time, in urban areas and built-up village streets that are primarily residential, to ensure greater safety for pedestrians and cyclists, using the criteria in Section 6.

It is surprising that this particular reference to 20mph limits was omitted. It shows very clear support for 20mph limits.

Another very important requirement in the guidance is contained in Para 32 :-

32. Different road users perceive risks and appropriate speeds differently, and drivers and riders of motor vehicles often do not have the same perception of the hazards of speed as do people on foot, on bicycles or on horseback. Fear of traffic can affect peoples’ quality of life and the needs of vulnerable road users must be fully taken into account in order to further encourage these modes of travel and improve their safety. Speed management strategies should seek to protect local community life.

The Issues

The requests for additional measures in some places is to be expected. Indeed this has happened in most implementations. But it is important to distinguish between the requirement to set the correct speed limit and the mechanism used to ensure enforcement. These two requirements should not be conflated. An unsafe limit cannot be justified based on the difficulties of gaining compliance. The guidance suggests many ways to achieve this including increased signage, education, engineering and enforcement. Para 97

....Traffic authorities are already free to use additional measures in 20 mph limits to achieve compliance, such as some traffic calming measures and vehicle activated signs, or safety cameras. Average speed cameras may provide a useful tool for enforcing compliance with urban speed limits.

DfT Guidance for setting local speed limits

We note that part of section 3 of the guidance is quoted regarding factors to take into account. However it fails to mention a very important part of that paragraph, namely:-

.. While these factors need to be considered for all road types, they may be weighted differently in urban or rural areas. The impact on community and environmental outcomes should also be considered.

The guidance states that in assessing the benefits of a reduced speed limit many other factors should be taken as well as road casualties.
31. Before introducing or changing a local speed limit, traffic authorities will wish to satisfy themselves that the expected benefits exceed the costs. Many of the costs and benefits do not have monetary values associated with them, but traffic authorities should include an assessment of the following factors:

- collision and casualty savings;
- conditions and facilities for vulnerable road users;
- impacts on walking and cycling and other mode shift;
- congestion and journey time reliability;
- environmental, community and quality of life impact, such as emissions, severance of local communities, visual impact, noise and vibration;
- costs, including of engineering and other physical measures including signing, maintenance and cost of enforcement.

If these wide benefits are to be considered when setting a speed limit then they should also be taken into account when assessing the success of a speed limit. We note that the BANES report makes no mention of 5 of these factors, namely:

- conditions and facilities for vulnerable road users;
- impacts on walking and cycling and other mode shift;
- congestion and journey time reliability;
- environmental, community and quality of life impact, such as emissions, severance of local communities, visual impact, noise and vibration

The BANES report also does not mention the value of casualty savings.
**Types of roads and speed limits that should apply to them**

The table used in this section of the BANES report is NOT consistent with that in the DfT guidance which states:

<table>
<thead>
<tr>
<th>Table 1 Speed limits in urban areas – summary Speed limit (mph)</th>
<th>Where limit should apply</th>
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<tbody>
<tr>
<td>20 (including 20 mph zone)</td>
<td>In streets that are primarily residential and in other town or city streets where pedestrian and cyclist movements are high, such as around schools, shops, markets, playgrounds and other areas, where motor vehicle movement is not the primary function.</td>
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<tr>
<td>30</td>
<td>In other built-up areas (where motor vehicle movement is deemed more important), with development on both sides of the road.</td>
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<tr>
<td>40</td>
<td>On higher quality suburban roads or those on the outskirts of urban areas where there is little development, with few cyclists, pedestrians or equestrians. On roads with good width and layout, parking and waiting restrictions in operation, and buildings set back from the road. On roads that, wherever possible, cater for the needs of non-motorised users through segregation of road space, and have adequate footways and crossing places.</td>
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<tr>
<td>50</td>
<td>On dual carriageway ring or radial routes or bypasses that have become partially built up, with little or no roadside development.</td>
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Within the table in the BANES report the only use of 20mph limits is as an “Alternative for short length around localised hazard”. The DfT guidance actually states:

> 40. Speed limits should not be used to attempt to solve the problem of isolated hazards, for example a single road junction or reduced forward visibility such as at a bend, since speed limits are difficult to enforce over such a short length.

The BANES report goes on to say that this table “will form the basic framework for this review”. Hence if the “basic framework for this review” is inconsistent with DfT guidance both in not recognising the wide use of 20mph limits and only recognising their use for around “localised” hazards then the whole BANES report must be deemed inconsistent with the DfT guidance.
Changes in Traffic Speed

The change of speed across such a range of roads is actually quite significant. From the figures show we can conclude that:

<table>
<thead>
<tr>
<th>Speed mph</th>
<th>% increase in number of roads at or below that speed</th>
<th>% decrease in number of roads at or above that speed</th>
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<tbody>
<tr>
<td>20</td>
<td>38%</td>
<td>16%</td>
</tr>
<tr>
<td>22</td>
<td>24%</td>
<td>21%</td>
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<td><strong>24</strong></td>
<td><strong>23%</strong></td>
<td><strong>43%</strong></td>
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<tr>
<td>26</td>
<td>17%</td>
<td>71%</td>
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<tr>
<td>28</td>
<td>9%</td>
<td>93%</td>
</tr>
<tr>
<td>30</td>
<td>2%</td>
<td>100%</td>
</tr>
<tr>
<td>32</td>
<td>1%</td>
<td>100%</td>
</tr>
<tr>
<td>34</td>
<td>0%</td>
<td>100%</td>
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</tbody>
</table>

We believe that this is very significant from a vulnerable road user perspective.

We have highlighted the “sweet spot” which shows:

- No of streets with **lower speeds of 24mph or less has increased by 23%** from 116 to 143 (ie <20, 20-22, 22-24)
- No of streets with **higher speeds of 24mph or more has reduced by 43%** from 63 to 36 (ie 24-26, 26-28, 28-30, 30-32, 32-34, >34)
- No of streets with **higher speeds of 26mph or more has reduced by 71%** from 34 to 10
- No of streets with **higher speeds of 28mph or more has reduced by 93%** from 15 to 1

For any pedestrian or cyclist then this reduction in the number of higher speed roads is significant. It reflects what is known from reports across the country that 20mph limit always have a larger effect of faster speed roads than on those where speeds are already low. They may not achieve general compliance but they do result in significant benefits for vulnerable road users.

Because wide-area 20mph speed limits include (for consistency) many roads where speeds are already low, such roads will dilute the average reduction in speed across the whole network. Hence whilst 1.3mph may “seem low” it disguises a greater reduction on faster roads which this graph of the 179 streets sampled does demonstrate.

Reference should also be made to Rose’s “Prevention Paradox” which recognises that a small improvement across a large area of the population can be far more beneficial than a larger improvement over a small part of the population. This is well understood in public health but less so in traffic management which so often works on localised remedies and
management. In this case reducing the average speed across 1500 roads is of significant benefit.

Change in accident rate

We note that Midsomer Norton has been taken as a “control” for measuring. With a population of some 11,000 it is difficult to see how it can have anywhere the same characteristics of Bath with a population of 90,000. This is especially true when taking into account the nature of Bath as a tourist attraction with so many visitors.

We note that the casualties are analysed into zones which create very small sample sizes, mostly in single digits. Such small sample sizes have very little statistical significance when viewed individually and when the “after” results are only over a single year compared to 3 years for before. To then take these minor differences and extrapolate them into good and bad without any acknowledgement of how good or bad they were individually has no statistical significance that anything can be inferred from.

However, we note that the statistically more reliable total accident figure for the Bath 20mph areas has reduced by 28% from 51.6 to 37. This has not been mentioned in the BANES report. This compares to only 12% reduction in the Midsomer Norton “control”.

Change in casualty rate

The same reservations exist regarding casualties and low numbers. However we note that casualties have reduced by in Bath 20mph areas by 23% from 61 to 47. This compares to the Midsomer Norton “control” of just 9%.

Change in casualty severity

Once again there has been a reliance on the better or worse colouring of the results based on just marginal changes in the numbers of KSIs. Relying upon changes of such small quantities as 1.3 and 1.2 has very little significance at all. On such small numbers over 12 months nothing can be inferred from this.

The BANES report then goes on to reference a “notable case of Portsmouth”. In their implementation they did find a reduction in casualties but an increase in severe casualties from 19 to 20 pa. However, the authors of the Portsmouth report made it perfectly clear that very little could be inferred from such a change. In fact it stated :-

*The number of deaths and serious injuries rose from 19 to 20 per year. Because the total numbers of deaths and serious injuries and of casualties by road user type and cause are relatively low, few inferences about the scheme’s impacts should be drawn from these figures.*

If Portsmouth found that little could be inferred from an increase from a base level of 19 to 20 because 19 is a small number then even less can be inferred from a base level that is 3 times lower in Bath and NE Somerset!
We note that the BANES report has not referenced other “notable cases”, such as that from Warrington Borough Council which found a 25% reduction in casualties on residential roads when implementing a 20mph trial across a large section of the town.

In fact the larger base numbers (and hence more statistically reliable) of casualties and accidents in the schemes do show benefits which have not been recognised adequately in the BANES report. Instead there has been an over-emphasis on smaller severe casualty numbers which bear very little statistical significance at all.

Any analysis of such small numbers needs to disaggregate the data to understand whether there is any significance. This has not been attempted.

**Conclusions**

We consider that conclusions shown in the BANES report are false and misleading. Members would be ill-advised to make any decisions based on such conclusions. In particular we note :-

<table>
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<tr>
<th>Conclusion</th>
<th>Comment</th>
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<tr>
<td>a) Broadly speaking, speed reduction in line with national trends has been achieved, but in real terms the overall reduction in average speed is very small (1.3 mph) and thus is not persuasive in terms of the money spent on these schemes.</td>
<td>Yes speed reductions are similar to elsewhere where 20mph limits are deemed to be successful and forming the foundation for road safety, active travel encouragement, community liveability and controlling air quality. A average reduction of 1.3mph across the whole 20mph network is very beneficial, but the BANES report has not taken the opportunity to measure any of the benefits beyond speed or accident/casualty reduction. Thus failing to take into account the very factors required to be considered when setting limits. 71% of roads which had before speeds above 26mph are now below 26mph. These changes are of significant benefit to pedestrians, cyclists and those using the streets on foot. This BANES report has failed to acknowledge those benefits.</td>
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<td>b) Some accident reduction has been observed in Bath, but accident increase, albeit slight, has been seen in outlying towns. Again, this mixed outcome seems to be reflected across the country.</td>
<td>This analysis relies heavily on very small numbers with little statistical significance. It uses a “control town” that is 8 times smaller than Bath and very different in nature. Even so there was a 23% reduction in casualties in the Bath 20mph areas in the period of the BANES report compared to only 9% in the “control”. This was not referenced or acknowledged. Successful schemes with casualty reductions were not referenced, hence wrongly implying that 20mph limits were not effective.</td>
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<td>Conclusion</td>
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<td>c) Casualty severity has worsened marginally in Bath and more so in outlying towns. Again, this is reflective of the national situation for reasons which are not yet clear. A number of the schemes have not yet been in place for 3 years and thus the casualty picture might alter over the remaining months.</td>
<td>These numbers are even smaller and in reality have no significance at all. The BANES report uses the Portsmouth findings even though the authors said little could be inferred from base numbers 3 times higher than in BNES because they were too small.</td>
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<td>d) Overall, the speed limit programme in B&amp;NES seems to have provided little in the way of persuasive argument for continuing the programme into the future.</td>
<td>This BANES report has provided little in the way of persuasive or statistically reliable analysis for not continuing the programme into the future. It has also not assessed it against the wide range of factors that DfT states should be used when setting speed limits</td>
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<td>e) Indeed, the rise in casualty numbers and severity as per the national trend (albeit with relatively small numbers in B&amp;NES) would suggest against further expansion of area based schemes.</td>
<td>The BANES report has not referenced a “national trend”, merely an implication from a report that its authors said little could be inferred.</td>
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<td>f) This analysis could be updated when all areas have 36 months of after data available and in the light of the anticipated DfT study on this subject (expected in 2017).</td>
<td>In truth this analysis can only “begin” when all areas have 36 months of after data and a far more rigorous approach is taken to the statistical significance of any of the numbers</td>
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We believe that this BANES report fails the people of Bath and North East Somerset as well as their elected representatives because it inadequately assesses the impact and benefits of the 20mph roll out in the authority. It fails on several key counts:

- It does not recognise the low confidence levels in analysing small numbers.
- It selectively quotes from guidance.
- It does not provide a balanced analysis with many selective omissions.
- It could be perceived to be biased in its recommendations and hence not compliant with local authority ethical standards
- It makes no reference to the equality aspects of vehicle speeds for those with protected characteristics of age (children), gender (mothers who predominantly walk children to school) and the disabled. Hence it is not compliant with the Equalities Act 2010.
- It advocates a change in policy on setting speed limits which arbitrarily “does not take full account of the needs of vulnerable road users” and is therefore contrary to DfT guidance.
- It advocates a policy of only using 20mph limits for “short lengths around localised hazard” which is contrary to DfT guidance

We believe that B & NES members would “not be acting reasonably” if they were to infer anything from this BANES report. It should not be accepted.

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