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## Meeting of Executive Members for City Strategy and Advisory Panel

14 July 2008

Report of the Director of City Strategy

### **VIBRATION SURVEY RESULTS FOR NORTH MOOR ROAD (WITHIN HUNTINGTON PRIMARY SCHOOL SAFETY ZONE)**

#### **Summary**

1. This report advises Members about the results of vibration monitoring surveys conducted inside residents' properties close to the speed cushions on North Moor Road, within the existing 20mph School Safety Zone. Members are asked to consider options on the way forward.

#### **Background**

2. A 20mph School Safety Zone with traffic calming measures has been in place outside Huntington Primary School since 2002. The layout of this scheme is shown in **Annex A**. Speed surveys conducted within recent years indicate that average speeds through the Safety Zone are around 23mph compared to around 33mph before the measures were introduced.
3. Residents first raised concerns about vibration levels in summer 2004. An assessment conducted by Officers at that time concluded that the situation was not a significant problem. Residents felt that things could be improved if motorists were made more aware of the traffic calming measures through the use of additional road markings and improved signing. Despite some doubts over effectiveness, Officers agreed to mount school warning signs on yellow backing boards, and paint square road markings on top of speed cushions. This was done as part of a wider review of the existing School Safety Zone, which also led to the introduction of some additional parking restrictions to manage parking congestion outside the school. These measures were introduced early in 2005.
4. Following these scheme improvements, no further complaints or concerns were raised by residents about vibration levels until early September 2007, when a previous complainant contacted Officers claiming that vibration levels had become significantly worse. This coincided with the receipt of a residents' petition, which was reported to Members at the EMAP meeting on 10<sup>th</sup> December 2007. At that meeting, Members instructed Officers to undertake a scientific method of assessing the levels of vibration affecting residents.

## Assessment Methodology

5. Vibration monitoring surveys were carried out by the Council's Environmental Protection Unit (EPU) at the two properties closest to the speed cushions: one at No.13 North Moor Road; and the other at No.7 Garth End (see **Annex B**). The surveys were undertaken on 9<sup>th</sup> and 10<sup>th</sup> April 2008 respectively over three hours between 6am and 9am. Officers agreed with residents to conduct the surveys during this period, because this was the time that gave them the most concern.
6. Vibration levels are measured by the monitoring equipment in two ways. The first method measures the Peak Particle Velocity (PPV), which is used to assess the likelihood of vibration damage to adjacent properties. Measured levels of vibration were compared with the threshold level for vibration induced building damage as detailed in BS 7385 Part 1: 1990; and Part 2: 1993, whereby a PPV measurement of 10mm/second is recognised as the level at which cosmetic damage to buildings may start to occur.
7. The second method measures the Vibration Dose Value (VDV), and this is used to evaluate residents' exposure to vibration within their properties, and provide an indication of the effect that vibrations have on the quality of life of residents living nearby.
8. BS 6472: 1992 provides guidance on the evaluation of human exposure to vibration within buildings. **Table 2** from BS 6472 defines three ranges of VDV which are likely to generate different degrees of adverse comments from residents as a result of their exposure to vibration within their properties. The table differentiates between the effects that vibration can have on people within buildings during the daytime, and also during the night. This is because the effects of vibration at night are usually more perceptible, given that most people will sleep during the hours of darkness, and the levels of background noise are somewhat reduced in comparison to daytime levels, meaning that any peaks are more noticeable.

**BS 6472 – Table 2: Summary of VDV levels and the likelihood of receiving adverse comment from residents.**

<b>Vibration Dose Value (m/s<sup>1.75</sup>) above which, various degrees of adverse comment may be expected in residential buildings.</b>			
<i>Place</i>	<b>Low probability of adverse comment</b>	<b>Adverse comment possible</b>	<b>Adverse comment probable</b>
Residential Buildings (16 hour day – 7am to 11pm)	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Residential Buildings (8 hour night – 11pm to 7am)	0.13	0.26	0.51

9. In addition to the detailed vibration surveys carried out by the EPU, a vehicle speed survey was also carried out at the same time. This focused on the speed of the larger vehicle types (including buses), as these were the main cause of concern for residents. A record of each vehicle's alignment with the speed cushions was also made to assess whether not straddling the measures centrally produced any increase in the severity of vibration levels. Another benefit of this survey was that it also enabled some non-traffic related incidents during the survey to be identified (such as closing doors or cupboards within the properties), which needed to be removed from the traffic vibration data. The results of these surveys are contained within the EPU's Technical Report (see Background Papers). The main findings are presented below.

## **Survey Results and Conclusions**

### *Vibration Monitoring – PPV Analysis*

10. The highest traffic related PPV values recorded from both properties are 1.004mm/second at No.13 North Moor Road, and 1.976mm/second at No.7 Garth End. These values are well below the threshold level for cosmetic damage in buildings (10mm/second).

### *Vibration Monitoring – VDV Analysis*

11. The values recorded at No.13 North Moor Road were measured at 0.12 in the night-time period and 0.14 in the daytime hours. Correspondingly, the values recorded in the surveys at No.7 Garth End were measured at 0.1 in both the night-time and daytime periods. Therefore, at both properties the VDV levels actually fall below the lowest of the three defined categories: 'low probability of adverse comment', as set out in **Table 2** of BS 6472.

### *Vehicle Alignment Surveys*

12. The vehicle alignment monitoring showed that taking a poor alignment over the speed cushions can produce a slightly higher level of vibration than taking a good alignment (i.e. straddling the cushion), at similar speeds. Nevertheless, the levels of vibration are still below the lowest category of **Table 2** in BS 6472.

### *Speed Surveys*

13. The surveys which monitored the speed of larger vehicles during the course of the noise and vibration surveys (i.e. between 6am and 9am) indicate an average speed of 25mph. This is slightly above the average speed of 23mph (as referred to in paragraph 2) for all types of traffic, but is still significantly below the average speed of 33mph for all traffic types prior to the School Safety Zone's introduction.

## **Member Views**

### **Ward Members**

14. Councillors Keith Hyman, Keith Orrell and Carol Runciman have been made aware of the results of the vibration monitoring and the EPU's conclusions, and

asked for their views on the matter. At the time of writing this report, the only comments received have come from Cllr Hyman, who said:

*“...residents will be disappointed with the findings as they still perceive that vibration that affects their lives is happening and by not carrying out some changes to the humps nearest their homes they will continue to suffer. They have been patient in waiting for these tests to be carried out and are fully supportive of the School Safety Zone but still feel that there are certain movements through the zone that cause excessive vibration even if these were not picked up during the tests. Whilst accepting the scientific nature of the tests I am disappointed that no action is recommended.”*

Should we receive any other comments following submission of this report, they will be reported as an update at the meeting.

### **Other Members**

15. Councillors Ian Gillies and Ruth Potter have also been made aware of the results of the vibration monitoring and the EPU's conclusions, and asked for their views on the matter. Again, at the time of writing this report, no comments have been received. Should we receive any comments following submission of this report, they will be reported as an update at the meeting.

### **Options on the Way Forward**

16. There are two basic options for Members to consider:

Option One – make no changes to the existing School Safety Zone;

Option Two – remove the School Safety Zone or make alterations to the traffic calming measures in an attempt to reduce the current traffic vibration levels.

### **Analysis of Options**

17. The residents have already stated that they accept the principles of the School Safety Zone and the associated traffic calming measures. Officers consider that the speed cushions in question are an important feature, which is needed to control entry speeds into the Zone. The resultant reduction in speed at this point is crucial, given that it prepares motorists in advance of the speed table, which the School Crossing Patrol Warden uses to assist children in crossing the road.
18. The results from the vibration monitoring surveys show that at both properties, the VDV is very low. The conclusion of the EPU report is that current vehicle speeds are producing acceptable levels of vibration, which should not adversely affect the quality of life of residents living nearby to any significant degree.
19. However, it is recognised that some people are perceptive to low levels of vibration, and minor effects can be alarming and irritating. Nevertheless, this is a drawback that must be balanced against the benefits that the traffic calming measures provide outside the school. Under these circumstances, there is little

justification for making changes to the existing School Safety Zone. The nature of any changes that would seek to reduce the already low vibration levels would be likely to compromise the effectiveness of the existing traffic calming measures.

20. A number of alternative measures have been considered, but Officers feel that none would provide an adequate level of speed reduction that would maintain an effective School Safety Zone. These were discussed in the previous EMAP report, dated 10<sup>th</sup> December 2007 (see Background Papers).
21. The suggestion in the petition of finding an alternative measure to replace the speed cushions has thus been considered, and although there are obviously strong feelings held by nearby residents about the negative aspects in relation to traffic induced vibration, Officers consider that the vibration effects are not at a high enough level to warrant making changes to the existing layout. Therefore, Option One is recommended.

### **Corporate Priorities**

22. Retaining the existing measures that help to reduce the speed of traffic outside Huntington Primary School, and particularly on the approach to the speed table crossing point, would help meet the Council's Corporate Priorities for improving the health and lifestyles of York's residents. In particular, it should continue in encouraging local people to walk and cycle.

### **Implications**

#### **Financial/Programme**

23. No funding provision would be required, assuming that the Officer's recommendation is approved (in accordance with Option One above). Funding provision, perhaps up to £15,000 would need to be made within the Capital Programme, if Members consider that Option Two (removing or modifying the scheme) should be supported. It is likely that funding of this level could be accommodated within the 2008/09 Capital Programme. Proposals to fund any changes to the zone would be presented to Members at the Monitor 2 reporting stage in September if required.

#### **Human Resources (HR)**

24. There are no human resources implications.

#### **Equalities**

25. There are no equalities implications.

#### **Legal**

26. There are no legal implications.

#### **Crime and Disorder**

27. There are no crime and disorder implications.

## Information Technology (IT)

28. There are no information technology implications.

## Property

29. There are no property implications.

## Risk Management

Risk Category	Impact	Likelihood	Score
Physical	Very High	Remote	5
Financial	Low	Possible	6
Organisation/Reputation	Low	Highly Probable	10

30. In compliance with the Council's risk management strategy, the main risks that have been identified in this report are physical harm linked to road traffic accidents (Physical), higher than expected construction costs (Financial), or damage to the Council's image and reputation because the proposals may remain unpopular with many people (Governance). Measured in terms of impact and likelihood, the risk scores have all been assessed at less than 16. This means that at this point the risks need only to be monitored, as they do not provide a real threat to the achievement of the objectives of this report.

## Recommendations

31. That the Advisory Panel advise the Executive Member to approve Option One (make no changes to the existing School Safety Zone) and authorise Officers to formally notify the residents of the decision taken.

**Reason:** The levels of vibration recorded do not warrant making any changes to the existing layout. Making no changes to the existing School Safety Zone means that an effective form of traffic calming can be retained outside the primary school in order to maintain low vehicle speeds and control traffic speeds on the approach to the speed table crossing point, thereby maintaining a safer environment for school children and village residents.

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#### Chief Officer Responsible for the report

Damon Copperthwaite  
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Report Approved



Date 30 June 2008

### Specialist Implications Officer(s)

There are no specialist implications.

**Wards Affected:** Huntington & New Earswick

All

**For further information please contact the author of the report**

**Background Papers:**

“An Assessment of Vibration Due to Traffic Calming Measures at North Moor Road, Huntington” – report from Environmental Protection Unit, June 2008

“Petition From Residents of North Moor Road Re Huntington Primary School Safety Zone” – report to the Meeting of Executive Members for City Strategy and Advisory Panel on 10 December 2007

“Huntington 20mph School Safety Zone” – report to Planning and Transport (North-East Area) Sub-Committee meeting on 14 October 2004

“Huntington 20mph School Safety Zone” – report to Planning and Transport (North-East Area) Sub-Committee meeting on 3 December 2001

**Annexes:**

Annex A - Layout of Huntington School Safety Zone

Annex B – Properties where vibration monitoring was carried out.