

Gipsy Patch Lane noise survey and assessment

Non-Technical Summary

18 October 2022

INTRODUCTION

The Gipsy Patch Lane carriageway has been widened on its southern side as part of the Cribbs Patchway metrobus extension (CPME) scheme. As a result of there being an “altered highway”, South Gloucestershire Council must fulfil its obligations to review eligibility for grants towards noise insulation under the Noise Insulation Regulations (NIR) 1975.

An Environmental Impact Assessment (EIA) was undertaken in 2017/18 to support the planning applications for the CPME scheme and a noise assessment was conducted as part of this. That assessment identified that seven residential properties on Gipsy Patch Lane may be eligible for a grant towards noise insulation as a result of the widened carriageway, but concluded that final eligibility under the NIR should be determined once the scheme is open.

A noise assessment has therefore been undertaken following the completion of the CPME scheme’s main construction to determine if any households are eligible for a grant. This non-technical summary summarises the results of the noise assessment, which included a series of noise measurements undertaken at three residential properties near to Gipsy Patch Lane. The full technical report is available separately.

The assessment includes determining whether noise levels meet or exceed a threshold set by the NIR of 68dB(A)¹ – if noise levels are below this level then this would not warrant eligibility for a grant towards noise insulation under the NIR.

Noise levels perceptible by the human ear range from the threshold of hearing at 0 dB(A) to levels of over 130 dB(A) at which point the noise becomes painful. Noise levels over 80 dB(A) are considered potentially damaging to hearing.

Generally, a change of 1 dB(A) in environmental noise is the minimum change perceptible. A change of around 5 dB(A) is easily perceptible and most people perceive a 10 dB(A) change as halving or doubling the noise level.

ASSESSMENT OVERVIEW

Independent consultants have been commissioned by South Gloucestershire Council to undertake the assessment to determine eligibility for grants. This assessment is required by the NIR which only applies to residential properties. In order for any dwellings to be eligible for insulation grants under The Noise Insulation Regulations 1975, the road traffic noise level at any time in 15 years from now would need to be 68 dB(A) or greater.

The purpose of the assessment is to determine the actual noise levels being experienced during the operation of the widened carriageway. This assessment has been undertaken using measurements of the noise levels.

¹ The A-weighting correction is applied to instrument-measured sound levels to approximate the hearing range perceived by the human ear.

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In June 2022, noise surveys were undertaken at three separate locations, as follows:

- Location 1 - 26 Gipsy Patch Lane
- Location 2 - 32 Gipsy Patch Lane
- Location 3 - 22 Smithcourt Drive

The noise survey at 26 Gipsy Patch Lane (GPL) was undertaken as an unattended exercise monitoring noise levels continuously for six days, as the equipment was able to be left in the rear garden secured by a locked gate. The surveys at 32 GPL and 22 Smithcourt Drive were undertaken as attended exercises monitoring noise levels continuously for a period of three hours. The methodologies for each survey are discussed further below. Figure 1 provides a plan of the survey locations.

FIGURE 1: NOISE MONITORING LOCATIONS



The noise survey at location 1 (26 GPL) was undertaken to compare the results with an identical survey from 2017. In addition, the results have been used to quantify the specific noise from the railway.

Noise measurements at locations 2 and 3 were undertaken specifically to quantify noise levels to determine whether these properties and any others may be eligible for noise insulation grants. These surveys were three-hour measurements in accordance with procedures set out in the Calculation of Road Traffic Noise (CRTN)². CRTN was produced in 1975 (updated in 1988) by the Department of Transport as a methodology to calculate road traffic noise. It also contains a detailed methodology to be used when undertaking road traffic noise surveys for the purpose of determining eligibility for noise insulation.

² The 3-hour survey methodology (known as the 'Shortened Measurement Procedure') is described within the Calculation of Road Traffic Noise (CRTN) and can be used where a full 18-hour or longer survey may not be possible.

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It should be noted that of these two properties, only 22 Smithcourt Drive was identified within the EIA from 2017/18 as potentially being eligible for noise insulation. The other six identified properties within the EIA were on Smithcourt Drive, and the noise measurement undertaken at 22 Smithcourt Drive is representative of these other properties because of their proximity to each other and the widened carriageway.

SIX DAY UNATTENDED SURVEY – RESULTS OVERVIEW

At 26 GPL (Location 1), the daytime noise level was 53.4 dB(A)³ and the night-time noise level was 49.2 dB(A). Both of these time periods show a reduction in noise of around 2 dB(A) from the survey undertaken in 2017. This reduction in noise is likely to mainly be due to the installation of an acoustic fence at this location, which is between the GPL carriageway and the measurement location.

Examining the noise from individual train movements measured at 26 GPL, in April 2017 the average noise level from passing passenger trains was 67 dB(A) whereas in June 2022 this was 65 dB(A). This reduction of 2 dB(A) may be due to the introduction of some electric services in the five years between the noise surveys. The noise from individual freight train movements has remained the same at 73 dB(A).

THREE HOUR ATTENDED SURVEYS – RESULTS OVERVIEW

- 32 GPL (Location 2) - A three-hour noise measurement was undertaken between 13:14hrs to 16:14hrs on Wednesday 15 June 2022. The noise level determined in accordance with CRTN was 60.7 dB(A).
- 22 Smithcourt Drive (Location 3) - A three-hour noise measurement was undertaken between 10:27hrs to 13:27hrs on Wednesday 22 June 2022. The noise level determined in accordance with CRTN was 57.7 dB(A).

Calculations have also been undertaken to predict the additional noise level that may arise once metrobus commences operation along Gipsy Patch Lane, due in early 2023. It is predicted that this may increase these noise levels by 0.4 dB(A) at Location 2 and 0.8 dB(A) at Location 3. The final determined noise levels for each location are therefore:

- Location 2: 61.1 dB(A)
- Location 3: 58.5 dB(A)

DETERMINATION OF ELIGIBILITY FOR A GRANT

The noise levels at all three locations are below the 68 dB(A) threshold. In order for dwellings to become eligible for insulation grants, the road traffic noise level at any time in 15 years from now would need to be 68 dB(A) or greater. In order for this threshold noise level to be achieved, the traffic using GPL would need to increase in flow by over four times (i.e. 400%) from that in 2022.

³ This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

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Even with local developments either planned or under construction, this increase in traffic flow is not realistically possible within 15 years. Overall traffic levels in the West of England area are predicted to potentially increase by up to 26% by 2036, which is significantly less than the 400% needed to reach the noise level threshold. Even if traffic levels in the area were to increase by 400%, this level of traffic could not be accommodated on Gipsy Patch Lane in any event because of the form of the junctions at either end.

CONCLUSION

As the 68dB(A) threshold is not reached at any of the three survey locations, nor predicted to be reached, no dwellings on or near to Gipsy Patch Lane are eligible for a grant towards noise insulation as a result of the CPME scheme.