

<b>Committee(s)</b>	<b>Dated:</b>
Port Health and Environmental Services	25 <sup>th</sup> September
<b>Subject:</b> Update on the issue of operational rail noise from London Underground affecting the Barbican Estate.	<b>Public</b>
<b>Report of:</b> Director of Markets and Consumer Protection	<b>For Information (PHES)</b>
<b>Report author:</b> Rachel Pye, Assistant Director, Public Protection.	

### Summary

Operational rail noise from London Underground (LU) sub-surface Circle, Hammersmith and City and Metropolitan lines running beneath the Barbican Estate, between Barbican and Moorgate Stations continues to affect residents of the Barbican Estate.

The importance of this as a public health issue is recognised and officers have commissioned an independent investigation and subsequent report, examining -

- The potential public health impact to residents;
- The acceptability of existing noise / vibration levels experienced;
- The potential impacts of night tube to residents;
- Mitigation options.

The initial measurements of noise and vibration have been completed and will be used to inform a further strategy for measurements, and discussion on the causes and options for mitigation. A full report will be presented to your January 2019 committee meeting.

This work meets the key aims of the City's Noise Strategy 2016 to 2026 and the Corporate Plan outcome "People enjoy good health and wellbeing".

### Recommendation

The contents be noted, subject to any comments by this committee.

### Main Report

#### Background

1. Parts of the Barbican Estate, specifically Brandon Mews, Defoe House and Lambert Jones Mews are affected by noise and vibration generated by London Underground trains running on the Circle, Hammersmith and City and Metropolitan Lines between Moorgate and Barbican Stations.

2. Vibration created by LU train services propagates through the ground and surrounding structures and results in the vibration of floors, walls and ceilings, this can be heard as a low frequency 'rumbling' sound.
3. The effects of noise and vibration from the railway were considered at the construction stage in the 1960's and historical records show that mitigation in the form of separation to the railway and the Barbican structure and the placing of the precast deck on rubber blocks was part of the design, see appendix 2.
4. Complaints however, began to emerge in the late 1970's and there is written evidence of complaints and subsequent noise studies dating back to the 1990s in LUL and City archives.
5. More recently residents are reporting an increase in the noise and vibration experienced and a number of previously unaffected properties have raised complaints.
6. City officers have been in discussion with LUL for some time to determine the level and extent of the disturbing noise and vibration, the primary causes and an examination of measures that could be implemented to mitigate.
7. The Chairmen of Port Health and Environmental Services (PHES) and Planning and Transportation Committee's raised the issue of operational train noise in July 2016, November 2017 and again in July 2018 in letters to Mark Wild, the Managing Director of London Underground (appendix 1). Positive responses were received.
8. Whilst improvements have been secured on other parts of the network through activities such as rail grinding and issues with construction noise have now been resolved, the disturbance from operational rail noise under the Barbican remains.
9. To assist the investigation the City has appointed independent expert consultancy, Cole Jarman to review the work undertaken to date, carry out independent measurements and provide input into those ongoing discussions.

### **Measurement Summary**

10. Independent initial measurements have been carried out to determine levels of noise and vibration generated at four properties (1 property in each of Brandon Mews, Defoe House, Lambert Jones Mews and Gilbert House) on the Barbican Estate located above the LUL railway lines.
11. In summary, the measurements confirm subjective impressions that ground borne noise is clearly audible in three of the properties and vibration perceptible in three of the properties. It is audible and feelable in two properties.
12. The measurements are broadly in line with those most recently recorded by LUL except for Lambert Jones Mews where the measurements indicate significantly higher levels and the reasons for this are subject to further investigation.
13. Noise level changes, although identifiable, are less obvious than vibration level changes because LUL pass-by noise levels are not significantly higher than the

background noise during parts of the day when people are active. Vibration level changes are more identifiable as very few naturally occurring sources can excite a building structure to the same extent as an underground train.

14. The data acquired over different times of the day show that both noise and vibration generated by LUL train pass-bys exceed the background levels by a greater amount in the very early morning or late evening and are more perceptible, seeming louder and are more disturbing.

### **Further Actions**

15. LUL have been tasked with providing details of the track form and surrounding structures for the extent of railway under the Barbican Estate and track walks have been scheduled for LUL to facilitate the provision of the details required.
16. Historical records, previous reports and plans are in the process of being collated.
17. LUL have programmed the replacement of ballast, rails and sleepers along a 196m section of the Westbound Circle Line during a weekend closure on the 14<sup>th</sup> September which sits beneath Defoe House, Gilbert House and Lambert Jones Mews which may result in some improvement to affected properties.
18. Further measurements of noise and vibration will be taken to determine if the rerailing works have contributed to an improvement in measured levels.
19. The measured levels will be compared to the current relevant guidelines, currently the Local Authority guidelines developed for HS1 and assessment criteria for Crossrail, British Standard BS6472:2008 which looks at vibration dose value and those published by the World Health Organisation (WHO), currently the Night Noise Guidelines for Europe 2009. New WHO guidelines for environmental noise including rail are due to be launched on the 10<sup>th</sup> October and will be factored into the study.
20. All the available information will then be analysed, forming the basis of further discussion with LUL, and recommendations made as to potential mitigation measures.
21. LUL have committed to the formation of a Residents Transport Forum to enable liaison between residents and LUL on matters related to the underground railways including Crossrail.

### **Proposals**

22. I propose that, subject to comments received, the above actions are progressed and reported back fully to this committee for its January 2019 meeting.

### **Legal Position**

23. The Environmental Protection Act 1990 places responsibility for investigation and enforcement of noise nuisance and issues that are prejudicial to health with the Local Authority.

24. In relation to railways, section 122 of the Railways Act 1993 provides train operators with a statutory defence against a nuisance case brought by the local authority.
25. Officers are investigating the extent of the statutory defence under section 122 and whether the defence applies in these circumstances.

### **Financial Implications**

26. The consultant costs of the investigation have been funded from underspend in the Port Health and Public Protection Service budgets.
27. The financial implications for the City of London or London Underground of implementing any mitigation measures are not yet known.

### **Corporate and Strategic Implications**

28. The work on noise supports the aims and objectives of the City of London Noise Strategy 2016 to 2026 and the key Corporate Plan outcome: 'People enjoy good health and wellbeing'.

### **Conclusion**

29. The City Corporation has commenced an investigation to determine the level and extent of the operational rail noise affecting the Barbican Estate. The results of which will inform:
  - the location and type of further measurements to be taken to define the extent of the LUL train pass-by noise and vibration effects throughout the Barbican Estate.
  - a report on the primary causes and recommendations as to what measures can be implemented to mitigate it.

Subject to comments received at your meeting, the proposed work outlined above will be undertaken and reported back to this committee.

### **Appendix 1**

Correspondence between the Chairman and the Managing Director of London Underground.

### **Appendix 2**

Engineering and Public Works Review November 1964

### **Contact:**

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