Committee(s)	Dated:
Port Health and Environmental Services	14th January 2020
Subject: Update on the outcome of the Temporary Speed Restriction Trial under Brandon Mews on the Barbican Estate.	**Public**
Report of: Director of Markets and Consumer Protection	**For Information (PHES)**
Report author: Rachel Pye, Assistant Director, Public Protection.	

Summary

Operational rail noise from London Underground Limited (LUL) sub-surface Circle, Hammersmith and City and Metropolitan lines running beneath the Barbican Estate, between Barbican and Moorgate Stations continues to affect the residents of Brandon Mews, and is considered a public health issue.

Significant improvements have been achieved for residents of Defoe House and Lambert Jones Mews, with further mitigation works proposed post 2021 when the remaining rail joints will be removed following completion of the signalling upgrade.

LUL have conducted a 15mph Temporary Speed Restriction (TSR) Trial under Brandon Mews to understand the effect of train speed on noise and vibration experienced by residents as the trains pass over points and crossings.

This work meets the key aims of the City's Noise Strategy 2016 to 2026, the City of London Transport Strategy 2019 and the Corporate Plan outcome 'People enjoy good health and wellbeing'.

Recommendation

The contents of this report be noted.

Main Report

Background

1. Parts of the Barbican Estate, specifically Brandon Mews, Defoe House and Lambert Jones Mews have been 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 LUL train services passing over rail discontinuities such as joints, points and crossing 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. City officers have been in discussion with LUL for some time assisted by the City’s appointed independent expert consultancy, Cole Jarman to determine the level and extent of the disturbing noise and vibration, the primary causes and a detailed examination of measures that could be implemented to mitigate it.

4. Whilst significant improvements have been secured for Defoe House and Lambert Jones Mews by activities such as rail grinding, re-packing of ballast and ballast track replacement; and issues with construction noise on the running tunnels and stations have now been resolved, the disturbance from operational rail noise under Brandon Mews remains, caused by a set of points and crossings.

5. LUL committed to undertake a detailed investigation of a Temporary Speed Limit whilst traversing the Brandon Mews crossover (points 35A), to examine both noise/vibration issues and operational implications including any additional costs. The detailed noise and vibration report is shown in full in appendix 1.

Temporary Speed Restriction Trial

6. LUL carried out a 15mph TSR trial on the outer road which carries the eastbound trains on 8th November for a 3-hour 20-minute period between 20.31 and 23.53 with a measurement location in a residential property in Brandon Mews.

7. The time was selected as previous surveys and the resident’s experiences have shown that the evening period has much higher noise levels than the earlier parts of the day. The character of the noise experienced is a deep and loud impulsive noise where the heavily loaded wheel bumps across the open gap at the crossover of about 10cm.

8. The lead car of the trains on the outer road goes through the crossover at maximum speed which is 35mph, this produces the highest noise levels of the pass by as the train slows down thereafter and the magnitude of each subsequent impulse is reduced as each bogie and car traverses the crossover.

9. LUL report that during the TSR, averaged readings in the Brandon Mews property show a reduction of 7dB, on average with positive subjective feedback from the resident that’s the extreme thumps and vibrations were significantly lower.

10. The report shows that outer trains had their average speed reduced by approximately 55% from 35mph to 15mph. The resulting train pass-by time increased, correlating with the reduction in speed from ~11 seconds to ~24 seconds, ~13 seconds total.

Discussion

11. The trail now provides a better understanding of the correlation between train speed and noise levels, and we acknowledge the reduction gained from 35mph to 15mph. It can now be discussed whether a permanent implementation of a 15mph speed limit reflects a speed that LUL can accept for normal operations.

12. There would be benefit for all train pass-bys in this location to henceforth operate at this reduced speed, but if not operationally feasible then at the very least to apply the restriction to the most sensitive night time period of 2300 to 0700.

13. The noise level trace shown in appendix 1 gives rise to the conclusion that the TSR is in fact 10db better than normal operations and further clarification is being sought on how the 7db has been calculated to ensure no pertinent issues have been missed. City officers have requested some further analysis as the methodology used to average the noise reduction may downplay the potential benefits of the TSR.

14. LUL have advised that removal or moving of the crossover is not operationally possible but this remains the most beneficial outcome in terms of exposure to operational rail noise.

Further Actions

15. City officers will review pursue answers to their technical queries in relation to the calculation methodologies used in the report and the discussion and decision on the feasibility of implementing a permanent TSR in this location, and report progress these to this committee.

16. City officers supported by Cole Jarman Associates will continue to work closely with LUL and press for improvements to the noise and vibration experienced by residents of the Barbican Estate.

Financial Implications

17. The consultant costs for providing technical advice have been funded from underspend in the Port Health and Public Protection Service budgets.

18. The financial implications for the London Underground of conducting trials and potential implementation of a TSR are not yet known.

Corporate and Strategic Implications

19. The work on noise supports the aims and objectives of the City of London Noise Strategy 2016 to 2026, the City of London Transport Strategy 2019 and the key Corporate Plan outcome: ‘People enjoy good health and wellbeing’.

Conclusion

20. LUL have previously undertaken some interventions to reduce noise and vibration experienced by the residents of Brandon Mews by way of mitigation works in the form of ballast track renewal and subsequent ballast packing. Unacceptably high levels of noise and vibration are still being experienced by some residents of Brandon Mews caused by the trains passing over points 35A.

21. LUL carried out a 15mph TSR trial on the outer road on 8th November between 20.31 and 23.53 with a measurement location in Brandon Mews. A report on the levels of noise and vibration experienced in Brandon Mews, an explanation of the cause, details of previous mitigation works undertaken and some discussion has been produced and provided to the City.

22. Detailed discussion and a decision on the feasibility of implementing TSR on a permanent basis is awaited.

23. City officers assisted by specialist consultants Cole Jarman have raised some technical queries in relation to the calculation methodology used to achieve the average reduction and a response is awaited.

24. Officers continue to meet LUL and lobby for noise and vibration mitigation to be considered and implemented.

Background Papers

Update on the issue of operational rail noise from London Underground affecting the Barbican Estate September 2018

Measurement and mitigation options for operational rail noise from London Underground affecting the Barbican Estate January 2019

Update on the issue of operational rail noise from London Underground affecting the Barbican Estate July 2019

Update on the issue of operational rail noise from London Underground affecting the Barbican Estate September 2019.

Appendix 1

Noise & Vibration Investigation Brandon Mews Barbican 16th November 2019

Contact:
Rachel Pye
Rachel.pye@cityoflondon.gov.uk
020 7332 3313