



SkyTrain Noise Study – Project Update

Please note – this is an interim summary document and not the official Phase 1 report of the Noise Mitigation Strategy Project. This document was created to provide a brief update on progress to date.

The 2018 SkyTrain Noise Study resulted in recommendations that TransLink undertake further investigations of the feasibility and effectiveness of six mitigation measures:

1. Improvements to switch maintenance practices
2. Investigation of harder rail steel as a measure to improve long-term rail condition
3. Re-introduction of top of rail friction modifiers to improve long-term rail condition
4. Improvements to rail grinding practices to improve long-term rail condition
5. Rail dampers to reduce noise radiated from the rails and hence reduce overall noise
6. Development of guidelines for new developments near SkyTrain

This update on the progress of the mitigation investigations is provided for the information of the Community Advisory Committee.

The recommended noise mitigation investigations have been divided into two phases, on the basis of the duration required to investigate the various mitigation options. Phase 1 of the mitigation study is currently underway and expected to run throughout 2019 with some pilot studies likely to extend into 2020. The scope of Phase 1 is investigations of all mitigation measures except for top of rail friction modifiers and improvements to grinding practices, which require more time to investigate and will be addressed in Phase 2 (through 2020 and beyond). The objective of Phase 1 is to develop recommendations for implementation of noise mitigation measures for the Expo and Millennium Lines.

Switch Maintenance Update

Recent activity has involved collecting passby noise and vibration data before and after various switch repair and replacement activities. The data collected is being analyzed to quantify the noise benefit of the various repair and replacement activities, and to understand what ongoing monitoring is required to assist in scheduling maintenance interventions on the basis of noise emissions.

Harder Rail Steel Update

The SkyTrain system includes areas of harder rail steels in recently replaced sections of track as a result of changes in steel standards over time. Analysis of noise data from different parts of the network to determine differences in noise associated with different rail hardness is underway. Consultation is also underway with other transit agencies to understand the potential implications of transitioning to harder rail steels. Preliminary findings indicate that increasing rail hardness for future rail replacement may reduce noise levels (harder rail increases the time rail stays in good condition after grinding) but may impact wheel wear rates negatively.



Rail Damper Update

Two trials of off-the-shelf rail dampers have now been completed. The first trial showed improvements up to 4 dB with one rail damper per track metre. Analysis indicated that further improvement could be gained by increasing the frequency of rail dampers applied, or by developing a customized rail damper design tuned to suit the Vancouver SkyTrain system. The second trial, which increased the frequency to two rail dampers per metre, was trialled near Nanaimo Station with noise reductions of up to 5 dB. The trial of customized rail dampers will also quantify the noise benefit compared to the off-the-shelf dampers. This trial is likely to extend into 2020.

Guidelines for New Developments

This task will commence shortly following finalization of a contract for a consultant to lead the development of the guidelines with municipalities.