

Legislative Council Panel on Environmental Affairs

PWP Item No. 766TH — Retrofitting of Noise Barriers on Po Lam Road North

PWP Item No. 817TH — Retrofitting of Noise Barriers on Po Ning Road

Follow-up Actions

In response to the enquiry of the Panel on Environmental Affairs: “The Administration is requested to provide information on enhancements (if any) made over the years to the designs, materials and maintenance procedure of noise barriers; and how such enhancements have improved the noise reduction performance and/or reduced the construction or maintenance cost of noise barriers”, the Highways Department (HyD) and the Environmental Protection Department (EPD) provide the following supplementary information:

2. To mitigate the traffic noise impact of existing roads on neighbouring residents, it is the Government’s policy to control the noise at source, where practicable and resources are available, through implementing direct noise mitigation measures at existing road sections in which the traffic noise exceeds 70 dB(A). Similar to other cities, the direct noise mitigation measures adopted in Hong Kong mainly comprise road resurfacing with low noise surfacing materials and retrofitting of noise barriers or enclosures. HyD and EPD improve the noise reduction performance and cost effectiveness of the mitigation measures through different options and development described below.

Develop low noise surfacing materials suitable for local roads

3. Since local road sections (such as Po Lam Road North and Po Ning Road) generally have more ingress/egress, traffic lights, and bus stops, vehicles often need to stop/start, causing rapid damage to the low noise surfacing material. Hence the prevailing low noise surfacing materials applied on expressways is not suitable for local road sections. By making reference to overseas experiences, we are now studying and testing a new “thin surfacing low noise material” that is more suitable for paving local roads. Preliminary results indicate that paving roads with the “thin surfacing low noise material” can reduce traffic noise by about 3 dB(A).

Apply a combination of low noise road surfacing and noise barriers

4. As the cost of paving roads with low noise surfacing materials is lower than erecting noise barriers, we will give priority to road resurfacing with low noise surfacing materials to alleviate road traffic noise. However, roads resurfaced with low noise surfacing materials require more frequent maintenance and the noise reduction performance is limited. Along some existing road sections with more serious noise problems, the traffic noise level may still exceed 70 dB(A) after applying low noise surfacing materials. Noise barriers or enclosures remain an effective and essential noise mitigation measure. Therefore, we will consider adopting different combinations of low noise road resurfacing and noise barriers to come up with the most cost effective mitigation scheme.

5. For instance, in the two noise barrier retrofitting projects on Po Lam Road North and Po Ning Road, consideration has been given to adopt appropriate design options, project scopes and types of noise barriers having regard to the actual site environment. Currently, the mitigation schemes include the aforesaid road resurfacing with low noise surfacing materials in order to reduce the extent of noise barriers and hence the overall construction cost.

Designs, materials and maintenance procedure of noise barriers

6. For the design of noise barriers, we will give priority to adopting vertical noise barriers or cantilever noise barriers depending on the noise reduction required, and will consider using larger semi-enclosures or full noise enclosures only when there is a need. The actual site conditions, including traffic flow, the orientation and design of nearby buildings, available spaces at roadside, emergency vehicular access, traffic safety such as the standard sightline distances and distances between the carriageway and the buildings, need to be taken into account when designing the appropriate noise barriers or enclosures.

7. The aesthetic design of noise barriers or enclosures make full use of the nearby natural terrain and features. Through landscape and architectural designs (such as the use of transparent, translucent panels, curvature design), the appearance of the noise barriers blends in with the surrounding environment and scenery, enhancing the aesthetic appeal. In addition, noise barriers or enclosures are mainly composed of steel structures with polymethyl methacrylate (also known as acrylic) panels. These materials are

comparatively light and can reduce the loading on the foundations, thereby reducing the related construction cost of the noise barriers. For the height of noise barriers, we will also carefully consider and optimise the design, not only to meet the noise reduction required, but also to minimise the related construction cost.

8. In terms of material selection for noise barriers or enclosures, as compared with concrete and opaque sound-absorbing panels used in the past, transparent or translucent materials currently adopted can minimise impact on landscape and increase natural lighting. Transparent panels are commonly installed at appropriate vertical sections of noise barriers or enclosures, and translucent panels (i.e. non-reflective polished materials) are used on the top sections of barriers or enclosures to reduce glare from sun reflection. Lines or patterns will be inlaid in the transparent panels to deter birds from colliding with the panels. In situations where there are residents affected by traffic noise on both sides of the road section, we will adopt sound-absorptive panels from the bottom of the barrier to 3 metres above in order to minimise reflection of traffic noise which affects the noise reduction performance.

9. As for maintenance procedure, materials that can resist rusting and splashes of rubble, and can reduce dust deposition on surface and easy to clean, will be chosen. HyD will be responsible for the maintenance of the proposed noise barriers after completion and will arrange regular cleansing on a need basis. In general, HyD will arrange contractors to clean noise barriers every six months. Regarding Members' concern on the cleanliness of the noise barriers/enclosures along Tuen Mun Road near Tuen Mun town centre, HyD arranged their contractor to carry out cleansing work in December 2020 and will carry out enhanced cleansing work within March 2021.

Future studies and the way forward

10. HyD is planning to engage a consultant to study and review the materials and designs of noise barriers within this year with a view to further optimising the materials and designs of noise barriers and reducing the construction cost. It is expected that the study and review will be completed by the end of 2022.

11. With regard to the development of low noise surfacing materials, we will continue to explore and run trials on paving the local roads with the "thin surfacing material". It is expected that the study will be completed by the end of 2022.

Conclusion

12. In sum, in the proposed traffic noise mitigation measures, we have attempted to control the construction cost and optimise the materials and designs of noise barriers whilst achieving the required noise reduction performance.

--End--