



Research and Technology

We continue to focus our research on environmentally friendly technology, such as further development of low noise road surfacing, incorporation of recycled material into our road pavement, adoption of common utility enclosure to reduce road opening, and improvement in information technology to enhance efficiency.

Low Noise Road Surfacing (LNRS)

Our trial on the new polymer modified friction course material at Chui Tin Street, a local road in Shatin, continued. After 24 months of laying, the best performing trial section still has a noise reduction of 2.5 dB(A) when compared with the original bituminous surfacing. This showed a significant improvement over previous LNRS trials. In view of the encouraging results, the noise measurement will continue for another two years to further monitor the change in noise

reduction performance with time. The noise performance benchmarking exercise of the various types of friction courses at the Fanling Highway continued. The traffic noise at the trial sections is regularly measured using both the statistical pass-by method and the close-proximity method. In addition, the hydraulic conductivity of the sections is also measured. The results from the first year monitoring indicate that the thicker layer of the new polymer modified friction course provides the quietest surfacing.



Noise measurement at Chui Tin Street



Recycled Materials

Recycled Aggregates as Sub-base

We continue monitoring the performance of the sections of Fo Tan Road where sub-base comprising recycled aggregates has been used. The trial sections of footpath and carriageway are still performing satisfactorily. We continue our long term monitoring so as to assess whether reflective cracking in the asphalt pavement will occur owing to cracking of the cemented sub-base.

Study on Asphalt Rubber (AR)

Our study on the performance of AR mixtures under laboratory tests has been completed. The results indicate that AR mixtures are more durable when compared with conventional bituminous mixtures, but less durable than a similar mixture incorporating a pre-blended polymer modified binder. To assess the on-site performance of the materials, we are planning to conduct further tests on the alternative asphalt mixtures after an accelerated pavement testing facility becomes locally available in 2009.

Paving Blocks with Recycled Glass

Waste glass cullet can be used to substitute part of the aggregates in concrete paving blocks. We have laid a trial section of public footpath at Wang Kwong Road, Kowloon Bay using such paving blocks. The site performance of the paving blocks with recycled glass will be monitored for a period of one year.



Paving blocks with glass at Wang Kwong Road

Thermal Patcher

We have carried out site trials in 2008 on using a thermal patcher to perform minor asphalt pavement repair works. The performance of patching was found satisfactory. The thermal patcher is a machine with a heating panel that can heat up and soften the asphalt pavement surface through infra-red radiation. The pavement surface material is ploughed loose as it reaches a suitable working temperature range. With the mixing of a small amount of new asphalt material, the pavement surface can be compacted by roller to complete the



repair. This method reduces construction noise by eliminating the need to break up the pavement with conventional construction equipment, and can re-use the existing asphalt material. It is suitable for minor asphalt pavement maintenance, such as repairing small depressions and surface cracks. The equipment is now used in the two new road maintenance contracts commenced in April 2009.



Common Utility Enclosure (CUE)

We have resolved outstanding administration issues regarding the use of the two small scale CUEs at in Horizon Drive in Chung Hom Kok and at Yan Cheung Road in West Kowloon. We are inviting the power and telecom companies to lay their services within these two CUEs, which adopt a crossroad type of design.



CUE at Yan Cheung Road

Development of the Excavation Permit Management System (XPMS)

The XPMS is a newly developed web based system to replace the existing Utility Management System and its Internet Interface. The new system improves the efficiency, transparency and user-friendliness of excavation permit processing and management. Phase I of the system, which processes Road Works Permit in the Tsing Ma Control Area and Expressway Works Permit, has been rolled out in January 2009. The system will be fully implemented when Phase II on Road Excavation Permits is rolled out in late 2009.

