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Panel on Transport

Background brief on road maintenance in Hong Kong

Purpose

This paper presents the background to the road maintenance in Hong Kong and summarizes views and concerns expressed by members of the Panel on Transport ("the Panel") on the subject.

Background

2. Highways Department ("HyD") is responsible for the repair and maintenance of highways in Hong Kong. Its primary duty in highway maintenance is to rectify road defects, so that highways are always in their best condition for use by drivers. Highway repair and maintenance works can be divided into two types: corrective repairs and planned maintenance.

3. Corrective repairs focus on rectification of defects. After receiving reports of damaged road facilities from the public or identification of road defects during regular inspections, the defective road surface would be reinstated as soon as possible. Corrective repairs mainly include patching of pot holes, sealing of cracks on pavements, fixing damaged traffic signs and soon.

4. Planned maintenance is in contrast preventive in nature, the priorities and programmes of which are determined on the basis of the design standard and current conditions of individual highway facilities, as well as the quality and durability of the materials employed. The aim of these maintenance works is to allow more comprehensive rehabilitation works bringing long lasting improvement. Maintenance works will be carried out after the facilities show signs of the wear and tear, but before serious defects emerge. Such works are usually of a larger scale and take more time to complete.

5. HyD has an established practice of conducting regular inspections on public road across the territory to identify, as early as possible, defects that pose dangers or cause inconvenience to the public and arrange for follow-up actions. The frequencies of these "safety inspections" mainly depend on road types: expressways carrying high-speed traffic and high traffic throughput are inspected daily; trunk roads and other primary distributor roads in urban areas are inspected weekly; other roads are inspected once every one to three months. In addition, HyD's road inspection teams also conduct "detailed inspection" for all road types once every six months to determine the surface and structural conditions of the roads and collect relevant data for planning mid- and long-term repair works so that maintenance could be done in an organized manner for preventive purpose.

Highway repair and maintenance

6. On 28 January 2011, the Panel was briefed on the approach and development of highway repair and maintenance by HyD, and the efforts made to seek improvement in highway design to meet rising public aspirations. Members noted that HyD had made special efforts in integrating environmental considerations into all stages of its work so as to increase environmental and greening elements in the planning, design and construction of capital works projects. Efforts made by HyD include:

- (a) introducing a Geographic Information System for the ease of record-keeping and speedy searches of information on public roads or street furniture maintained by HyD;
- (b) carrying out, on the basis of actual need, streetscape enhancement works such as planting at suitable locations and improving road surfaces, lighting and street furniture;
- (c) recycling used bituminous materials to minimize the amount of waste generated by road works and introducing, on a trial basis, a thermal patcher¹ that is suitable for performing minor repair works on bituminous pavement; and
- (d) incorporating environmental considerations in the design and use of materials for street furniture.

¹ Thermal patcher adopts an engineering principle known as hot-in-place recycling. Simply speaking, thermal patcher is a truck-mounted machine that equipment heats up and softens the existing bitumen in a defective area. The softened material is then mixed and compacted with an appropriate amount of new asphalt material to form a uniform and seamless repaired surface from the original pavement. This technology promotes the re-use of existing bituminous materials to reduce the generation of construction waste, and reduces the construction noise.

7. At the same meeting, Panel members expressed the following concerns.

Disruption of traffic caused by roadworks

8. Some members were concerned about the disruption of traffic caused by roadworks. The Administration advised that apart from the road works conducted by HyD, public utilities companies also conducted excavation works from time to time. To this end, regular meetings with utilities operators were held to better co-ordinate road works and develop common utility trenches to minimize excavation works and disruptions. When making corrective repairs to rectify road surface defects, HyD would try to adopt methods that could reinstate the road promptly with minimum impact on traffic. In addition, planned maintenance of road surfaces would be carried out under temporary traffic arrangements.

Greening works conducted by HyD

9. Regarding members' concern about the scale of greening works on roads, the Administration advised that every year HyD would identify locations suitable for greening, having regard to its road infrastructure and maintenance projects, and set out the objective for greening works. The actual planting was implemented by the contractors of relevant projects; whereas HyD conducted regular checks to monitor the implementation of greening works to ensure that the objective in this regard could be met.

Maximizing reuse of waste in road maintenance

10. Some members asked the Administration to consider increasing the percentage of recycled asphalt pavement ("RAP") for use in bituminous materials for paving the road surfaces so as to maximize waste reuse. The Administration advised that the feasibility of further increasing the percentage of RAP content in bituminous materials would be explored.

Trial use of thermal patcher by HyD for small scale resurfacing of bituminous pavements

11. In March 2012, the Panel was informed by means of a paper on the process and results on the trial use of thermal patcher for small scale resurfacing of bituminous pavements. Members noted that HyD commenced the trial on the use of small-size thermal patcher on "corrective maintenance work", as an alternative option for corrective maintenance of bituminous pavements. For road maintenance contracts commencing

from 2009 onwards, HyD had stipulated the preferential use of thermal patcher to perform bituminous pavement repair works for an area not exceeding 2.5m². According to the Administration, experience on the trial had revealed that the performance of the thermal patcher in pothole and unevenness repair works was satisfactory.

12. Members also noted that HyD had further explored wider application of thermal patcher in pavement preservation, and its feasibility in carrying out larger-scale "planned maintenance work". According to the Administration, a series of field trials on large-size thermal patcher were conducted in 2010 to ascertain the performance and effectiveness of its application under local working conditions. In light of the successful experience, for road maintenance contracts commencing from 2011 onwards, HyD had included the provision on the use of large-scale thermal patcher as an alternative option for small scale resurfacing of bituminous pavements.

Latest development

13. The Administration plans to introduce to members the recycling of asphalt pavement in Hong Kong; current application in road maintenance contracts; production process in the asphalt production plant; in-situ recycling and so on at the Panel meeting to be held on 21 June 2013.

Relevant papers

14. A list of relevant papers is in the **Appendix**.

Road maintenance in Hong Kong

List of relevant papers

Date of meeting	Meeting	Minutes/Paper	LC Paper No.
28.1.11	Panel on Transport (TP)	Administration's paper on highway repair and maintenance by Highways Department - current approach and future development	CB(1)1130/10-11(04) http://www.legco.gov.hk/yr10-11/english/panels/tp/papers/tp0128cb1-1130-4-e.pdf
		Minutes of meeting	CB(1)1539/10-11 http://www.legco.gov.hk/yr10-11/english/panels/tp/minutes/tp20110128.pdf
		Administration's follow-up paper	CB(1)2249/10-11(01) http://www.legco.gov.hk/yr10-11/english/panels/tp/papers/tp0128cb1-2249-1-e.pdf
--	TP	Administration's paper on trial use of thermal patcher for small scale resurfacing of bituminous pavement	http://www.legco.gov.hk/yr11-12/english/panels/tp/papers/tpcb1-1157-4-e.pdf