

Urgent by Fax (2543 9197)

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4 November 2019

Mr Anthony Chu
Clerk to Public Accounts Committee
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong

Dear Mr Chu,

Public Accounts Committee

Consideration of Chapter 1 of the Director of Audit's Report No. 72

Planning, provision and management of public parking spaces

I refer to your letter of 11 October 2019, seeking further information to facilitate the Public Account Committee's consideration of Chapter 1 of the Director of Audit's Report No. 72.

The requested information in English and Chinese is now enclosed for your reference, please.

Yours sincerely,



(LAU Hon-wai, Simon)
for Commissioner for Transport

c.c. Transport and Housing Bureau [Attn: PAS(T)2] Fax No. 3904 1774

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Public Accounts Committee

Consideration of Chapter 1 of the Director of Audit's Report No. 72 Planning, Provision and Management of Public Parking Spaces

Enquiries from Clerk of the Public Accounts Committee dated 11 October 2019

The Administration was requested to provide the following information:

According to paragraphs 5.20 to 5.22 of the Audit Report, Audit Commission noted that since the release of the Second Parking Demand Study Final Report in 2002 (“2002 Study Report”), no record was available showing that the Transport Department had commenced a relevant pilot study on the automated parking systems until 2018, please advise:

- (a) any studies on automated parking systems had been conducted between 2002 and 2018. If yes, details including findings of the studies. If no, reasons for not following up the 2002 Study Report in this respect; and**
- (b) what is the progress of the pilot study?**

Reply

- (a) For automated parking system (“APS”) (also known as mechanical parking system), the Government has put in place guidelines to facilitate planning of any such system¹ (copy at **Annex 1**) in addition to the legal requirement² since 2001 (before the Second Parking Demand Study (“PDS-2”). While the use of APS aims at increasing the provision of parking spaces, the PDS-2 recommended their use as a possible measure for addressing parking problems in the long term. In fact, the PDS-2 identified that, in 2000, there was a surplus of 97,000 and 82,000 parking spaces at day-time and night respectively, and forecasted the surplus condition would remain in 2006 and 2011. On this basis, we subsequently reviewed the Hong Kong Parking Standards and Guidelines

¹ Transport Planning and Design Manual by TD and Practice Note Issue No. 2/2000 “Car Parking Requirement Mechanical Parking System” by Lands Department.

² The design, construction and the maintenance of mechanized vehicle parking system was governed by Cap 327 (Lifts and Escalators (Safety) Ordinance), which was repealed by the current Cap. 618.

(“HKPSG”), with revisions promulgated in 2009 and 2014 for subsidised housing developments and private housing developments respectively. Both reviews recommended a reduction in the parking provision to reflect the then demands. In view of the prevailing and forecasted surplus of parking spaces³, there was no imminent need at that time to push for the wider use of APS. TD has kept monitoring the situation and conducted regular surveys on the utilisation of the short term tenancy (“STT”) car parks and public car parks managed by TD with a view to keeping track of the general demand for parking spaces. As revealed from the surveys, the average utilisation of the public car parks managed by TD remained at a relatively low level (below 50%) before 2014 and gradually increased to over 70% thereafter (**Annex 2**).

To identify various factors contributing to the overall road traffic congestion and to formulate short, medium to long term measures to contain road traffic congestion, the Government invited the Transport Advisory Committee (“TAC”) to conduct the Study of Road Traffic Congestion in Hong Kong in 2014. TAC recommended, among others, the review of the parking policy to find out the optimum level of parking provision. The Government then completed the parking policy review in 2017 and recommended that an appropriate number of parking spaces should be provided if the overall development permits, while not attracting commuters to opt for private cars in lieu of public transport, thereby aggravating the road traffic congestion. The Government formulated various measures to increase the parking supply. APS was identified as a potential measure that was worth further investigation. In 2018, the Government proceeded to pursue various measures with a view to increasing the provision of public parking spaces in suitable government projects following the principle of “single site, multiple uses”. TD then considered that a more focused study on the latest APS technology and applicability at six pilot sites in Hong Kong should be conducted, and commissioned the pilot study on APS in early 2018.

- (b) TD is conducting a consultancy study on the use of APS for several parking sites to ascertain feasibility and applicability of APSs in Hong Kong. The study is scheduled for completion by early 2020.

³ The parking space to private car ratio remained at a relatively high level in the 2000s and early 2010s (e.g before 2012, the ratio was maintained at about 1.3 or higher)

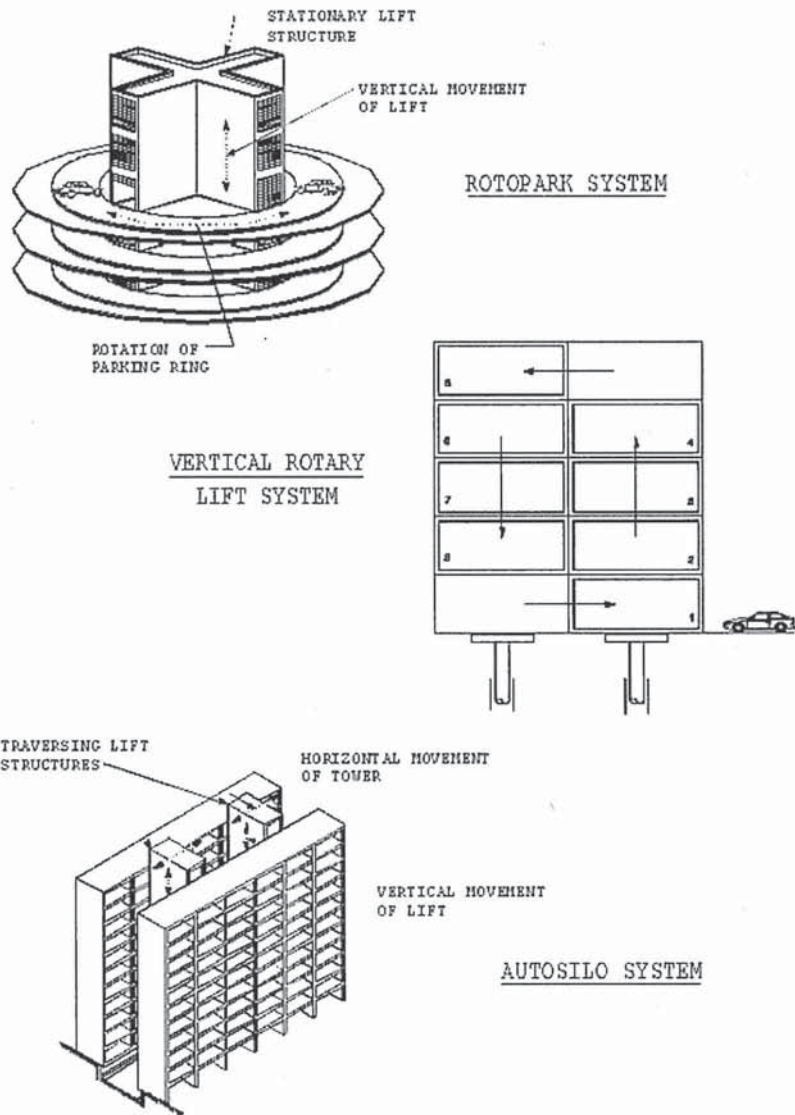
Meanwhile, TD is taking forward a total of six pilot projects so as to acquire and consolidate experience in building, operating and managing different types of APSs and the associated financial arrangements. This will facilitate preparation for the wider application of APSs in government car parks and privately operated car parks in future. So far, TD has identified four sites for implementing APS pilot projects, having regard to such criteria as parking demand, restrictions relating to geographical environment and planning, and impact on local traffic. Specifically, TD is actively considering a STT site in Tsuen Wan, an open space at the junction of Yen Chow Street and Tung Chau Street in Sham Shui Po, the proposed government building on Chung Kong Road in Sheung Wan and the proposed government building on Sheung Mau Street in Chai Wan. For the STT site in Tsuen Wan, support from the Tsuen Wan District Council (“DC”) was obtained in May 2019. TD is working with other relevant government departments on the implementation details. The target is to invite tenders for the site by early 2020. For the pilot project in Sham Shui Po, support from the Sham Shui Po DC was obtained in April 2019 and technical feasibility is currently being assessed. For the two government buildings in Sheung Wan and Chai Wan, consultation with the relevant DCs will be conducted in due course. As regards the two remaining sites, TD will work with relevant departments to actively explore the preliminary technical feasibility. The public will be informed of the locations of the proposed sites and relevant DCs will be consulted in due course.

7.4.5 Mechanical Car Parks

- 7.4.5.1 A mechanical car park is a multi-storey car park in which one or more forms of mechanical devices are employed to deliver the car between the entrance/exit of the car park and the parking stall.
- 7.4.5.2 Mechanical means may be used to move cars in a vertical direction, in a horizontal direction, or a combination of the two. Different proprietary systems are available some of which are illustrated in Diagram 7.4.5.1.
- 7.4.5.3 As the simplest form of mechanical device, a car lift takes the place of ramp systems and serves vertical transportation of cars. The number of car lifts to be provided depends on the rate of arrival/departure of cars during the peak period, the number of floors in the car park, and the running speed of the lift. Since cars entering the car park could form a queue at the lift, it is important to estimate the length of the queue and to provide adequate reservoir space so that traffic flow on the main road would not be affected. Each case should be evaluated individually by queuing theory. As a rough guideline, at least 5 queuing spaces should be provided for each car lift. Consideration should also be given to providing back-up facilities at times of maintenance or equipment failure.
- 7.4.5.4 The horizontal movement of cars entering/exiting a car lift can also be achieved by employing mechanical devices. In a simple example, a car lift serves parking stalls at the back and front of the lift shaft on each floor. An arriving car is left in front of the lift with the brakes released. The attendant, by push-button control, causes a dolly to extend from the lift platform which moves the car onto the latter. On arrival at the selected floor, the dolly moves the car backward or forward into an empty stall.
- 7.4.5.5 Numerous other mechanical systems have been used worldwide, and devices are available, for example, in which movable plates are electrically operated along access aisles to locate cars in position. Great savings in space are achieved as the aisle widths and parking stall dimensions can be substantially reduced.
- 7.4.5.6 Mechanical parking, compared to conventional parking, has the obvious advantage of accommodating more car parking spaces per unit site area, which is achievable through the elimination of ramps and, in the case of more complex systems, the elimination of aisles.
- 7.4.5.7 A main disadvantage of mechanical parking is the need for regular maintenance of the mechanical and electrical plant. There are also obvious troubles during equipment failure.

7.4.5.8 An additional disadvantage of mechanical parking is the rate of handling traffic. It is unable to accept surges of inbound or outbound traffic, thus requiring a large reservoir area at the entrance. It should be noted that the Building Authority may require any excessive area more than needed be counted for GFA. Mechanical car parks generally provide satisfactory service only when the parking demand is relatively uniform throughout the day without sharp peaks.

DIAGRAM 7.4.5.1: MECHANICAL CAR PARKS





**Lands Administration Office
Lands Department**

Practice Note

Issue No. 2/2000

**Car Parking Requirement
Mechanical Parking System**

Lease conditions usually contain clauses specifying the number of parking spaces to be provided in the development on the lot. The purpose is to ensure that an appropriate number of spaces is provided to serve the occupants of the building. The conventional approach to meet this requirement is to construct sufficient floors to accommodate all these spaces (the conventional system).

A mechanical car parking system may be an alternative way to achieve the same goal. When such a system is proposed as a means to achieve the compliance with the car parking requirement, I am prepared to grant approval under the lease to plans showing this subject to the following information being provided to my satisfaction:-

- (a) the type of mechanical parking system proposed;
- (b) the waiting area proposed together with an assessment report demonstrating that such area will be large enough to accommodate the anticipated vehicles waiting to enter the car park without causing a tail-back onto the public road; and
- (c) a layout plan, together with relevant elevation plans demonstrating that the system is capable of satisfying any stipulated parking requirement including space requirement for light vans which are categorized as private car.
- (d) the number of parking spaces provided does not exceed the minimum number stipulated in the lease.

always provided that not less than one-sixth of the total number of space provided shall be accommodated in the conventional system.

This practice note deals only with how car parking spaces may be provided. The car parking proposal should also satisfy other conditions contained in the car parking or other clauses of the Conditions of Grant governing the development.

*(R.D. Pope)
Director of Lands
February 2000*

Information required under the assessment report

The prime objective is to ensure no public road is affected by the car park. To achieve this objective no car is allowed to wait at the public street to enter the car park. A waiting area is therefore required to be provided inside the car park. In assessing the size of the waiting area required the following factors should be taken into account:-

- (a) The estimated hourly traffic volume at the entrance of the car park during peak hours. If the proposed mechanical parking system is inside a conventional car park, the hourly traffic volume that would use the parking system and the ordinary parking spaces should also be separately provided.
- (b) The longest time taken to park a car at the most remote location of the mechanical parking system. In case of tower parks, it means the time cycle between two cars leaving the waiting area assuming that both cars which arrive at the car park at the same time are using the same car lift or entering the same tower park. In case of stacking machines, it means the time taken to park the car at the upper space with the lower space being occupied.
- (c) The average waiting period during peak hours.

The assessment report should also provide a contingency plan to demonstrate the operation of the car park in case of mechanical failure during peak hours. The report should also provide a route inside the car park to divert traffic back onto the public road.

