



# 市區防洪策略

## Flood Prevention in Urban Area

### 市區的水浸問題

#### Flooding Problem in Urban Area

在早期發展的市區，雨水排放系統是按多年前的防洪標準及流量需求建造，並日趨老化，未能配合市區持續發展，以致這些地區容易發生水浸，特區政府因此為這些地區計劃及進行一系列防洪工程。

In old urban areas, flooding frequently occurs because stormwater drainage systems built decades ago to the old protection standards are becoming inadequate due to aging of the systems and expansion of the built-up area. The Government has planned and is now implementing a series of flood protection works for these areas.

建造中的上環雨水抽水站及相關渠務工程  
Construction of Sheung Wan Stormwater Pumping Station and other associated drainage works in progress



建造中的皇后大道中截流渠  
Construction of intercepting drains at Queen's Road Central in progress

### 我們的抱負 Our Vision

提供世界級的污水和雨水處理排放服務，以促進香港的可持續發展。

To provide world-class wastewater and stormwater drainage services enabling the sustainable development of Hong Kong.



## 市區的防洪策略

### Flood Prevention Strategy for Urban Area

渠務署採用以下不同方案以紓緩市區的水浸問題：

- 提升現有雨水排放系統的排洪能力 — 這個方案藉擴大或更換現有的管道或明渠，提升其排洪能力。
- 蓄洪及泵水系統 — 在低窪地區建置蓄洪池，以便暫時儲存部份上游集水區的雨水，減低下游排水系統在高峰期的負荷，當高峰期過後，水泵便把儲起的雨水排出。
- 雨水排放隧道 — 雨水排放隧道系統將高地集水區的雨水直接截流引到大海，而毋須流經下游市區的雨水排放系統，可紓緩其對下游雨水排放系統的負荷，也大大減少了在下游地區開掘道路以鋪設渠道的需要。

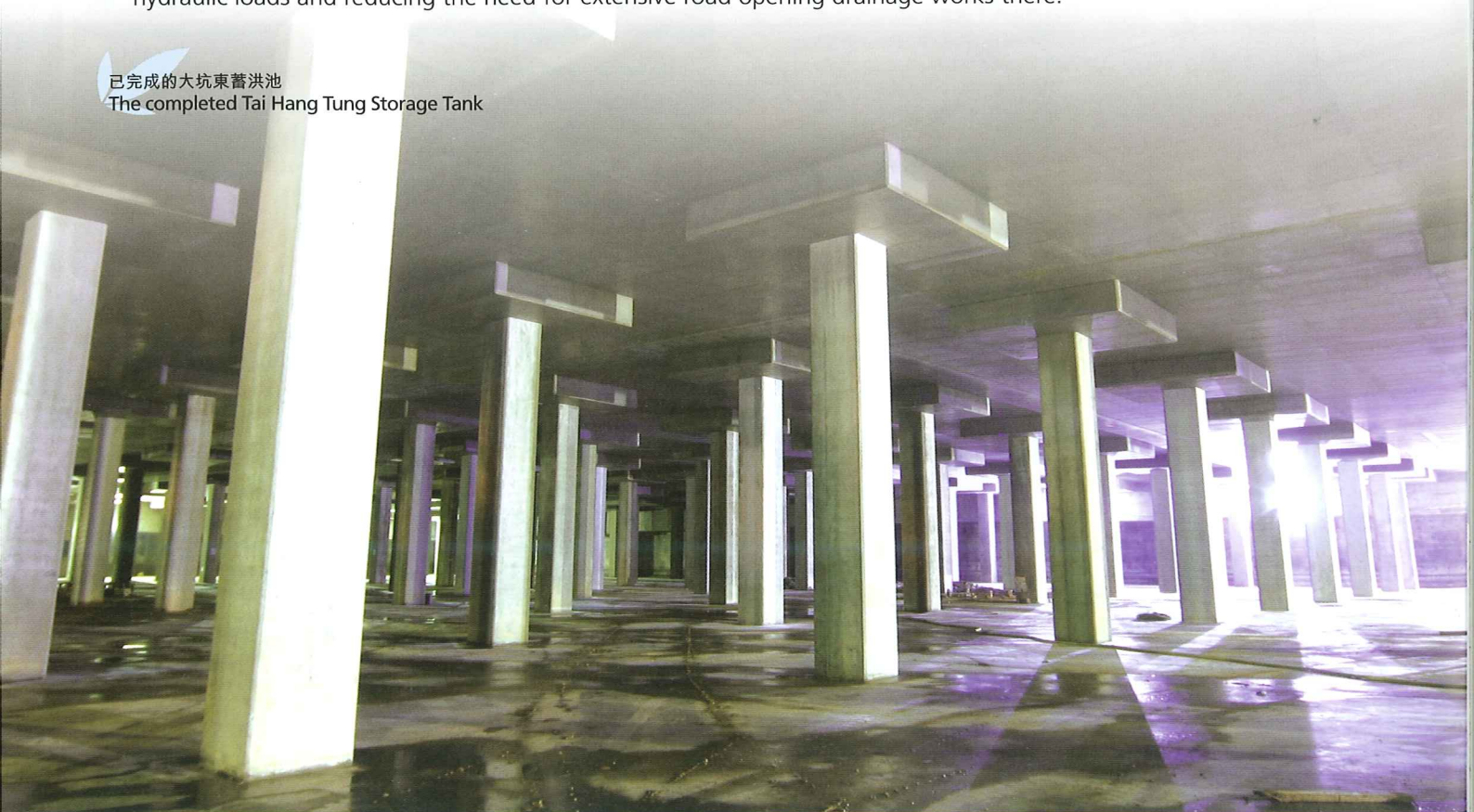


一九九七年旺角彌敦道的水浸情況  
Flooding at Nathan Road, Mong Kok, in 1997

**To mitigate flooding problem in urban areas, the Drainage Services Department (DSD) has adopted the following flood prevention strategies:**

- Upgrading Existing System - Improvement of the flow capacity of the local stormwater drainage networks by means of widening, enlargement or replacement of the existing drainage systems in order that stormwater would be collected and conveyed efficiently.
- Flood Storage and Pumping – Flood storage facilities are provided at low lying areas to detain the flow from upstream catchment and to attenuate the peak runoff in the downstream drains. Pumps are often used to convey the stored flood water to downstream drains when the peak flow is over.
- Tunnelling – A tunnel system is used to intercept and divert storm runoff from upland catchment directly to the sea instead of passing through the drainage systems at downstream urban areas, hence relieving substantially their hydraulic loads and reducing the need for extensive road opening drainage works there.

已完成的大坑東蓄洪池  
The completed Tai Hang Tung Storage Tank







啟德雨水轉運計劃隧道  
Kai Tak Transfer Tunnel

## 市區防洪工程進展

### Progress of Urban Flood Prevention Projects

自九十年代末，特區政府在港島北、九龍、荃灣及葵涌等市區進行一系列的市區防洪工程，總造價約達八十億元。

Since late 90's, the Government has been implementing about \$8 billion of drainage works in the urban areas of Hong Kong Island, Kowloon, Tsuen Wan and Kwai Chung.

## 東九龍

### East Kowloon

東九龍雨水排放系統改善工程已於二零零五年展開，預計在二零一一年完成，整項計劃費用超過五億元。工程包括提升多個早期發展地區的現有雨水排放系統如紅磡、九龍城、觀塘、彩虹等。

The drainage improvement works at East Kowloon, with an estimated cost of over \$500 million, have commenced in 2005 for completion by 2011. The works include the construction of stormwater drains in old urban areas such as Hung Hom, Kowloon City, Kwun Tong and Choi Hung.



## 西九龍 West Kowloon

截至二零零八年底，渠務署已在西九龍完成超過二十億元的防洪工程。這些工程包括在尖沙咀、油麻地、旺角、九龍塘、深水埗、長沙灣和荔枝角等地方興建長42公里的雨水渠，一條長1.5公里的啟德雨水轉運隧道和一個容量達十萬立方米位於大坑東的地底蓄洪池。

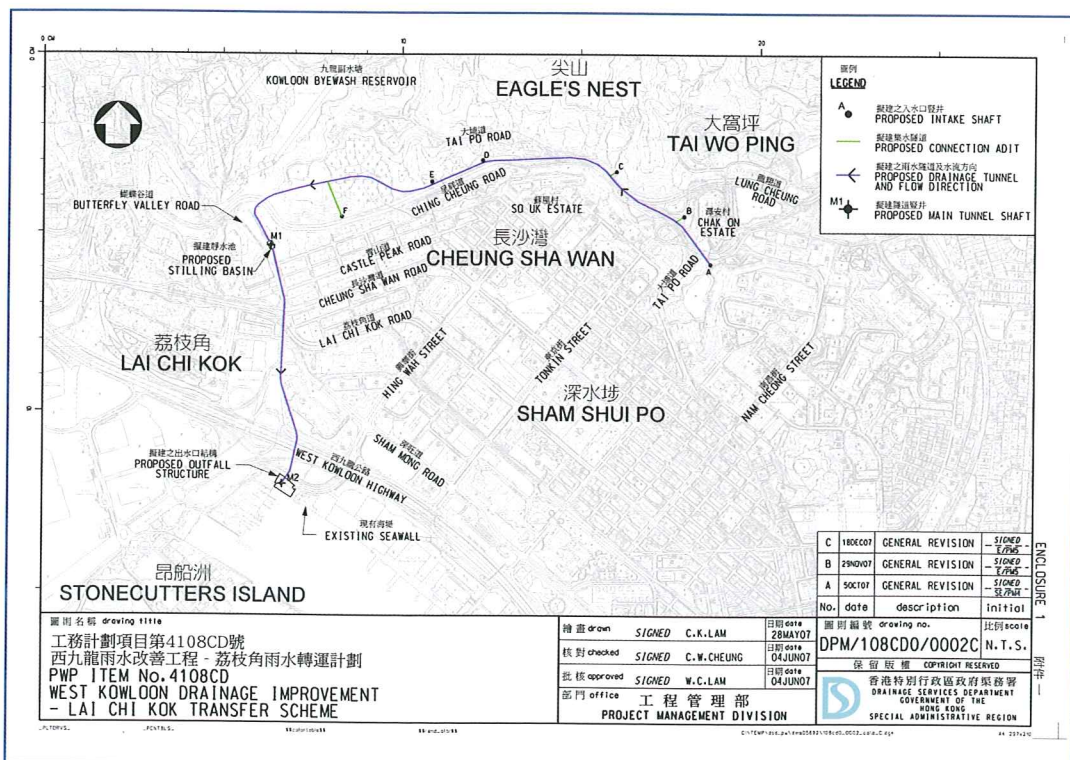
啟德雨水轉運隧道是香港首條採用轉運雨水概念的大型隧道，這隧道能將集水區上游約六成雨水截流並經啟德明渠排放到維多利亞港。在持續大雨時，部份下游未能及時排放的洪水，會暫時儲起在大坑東蓄洪池內，以待雨勢轉弱時才排放到下游渠道。

為徹底解決九龍區的水浸問題，渠務署已於二零零八年十一月開展估計造價約十七億元的荔枝角雨水排放隧道工程，預計在二零一二年完成。當這些工程完成後，可大大減低水浸的風險。

Up to 2008, DSD had completed over \$2 billion drainage works in West Kowloon. These drainage works include 42km stormwater drains in Tsim Sha Tsui, Yau Ma Tei, Mong Kok, Kowloon Tong, Sham Shui Po, Cheung Sha Wan and Lai Chi Kok; a 1.5 km Kai Tak Stormwater Transfer Tunnel and a 100,000 cubic metre underground flood storage tank in Tai Hang Tung.

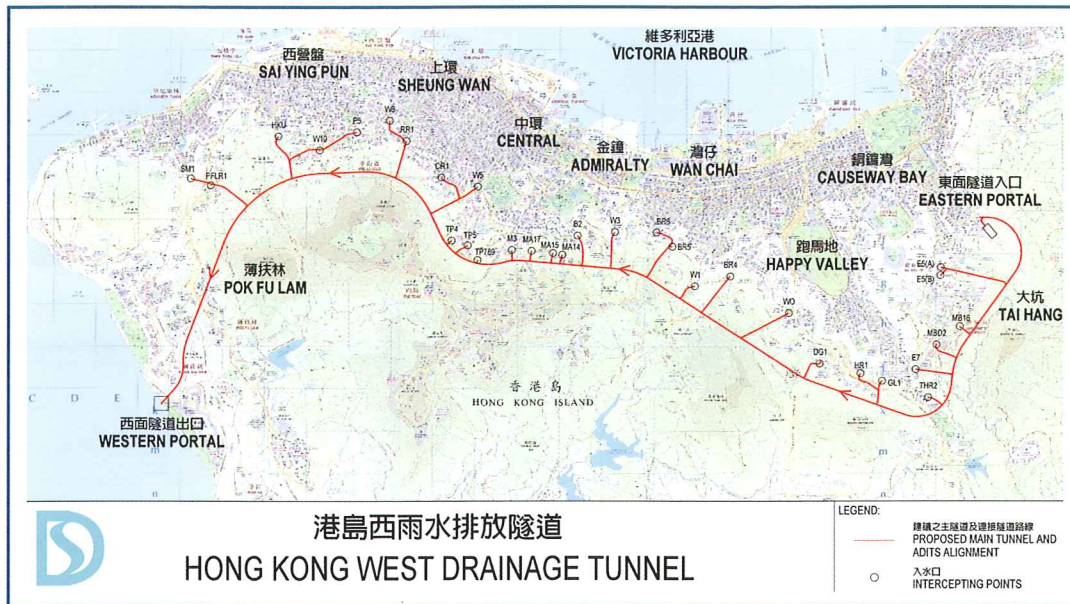
Kai Tak Stormwater Transfer Tunnel is the first large-scale tunnel in Hong Kong for transferring stormwater. This tunnel can intercept almost 60% of stormwater from upstream catchment and convey the flow to Victoria Harbour through Kai Tak Nullah. Tai Hang Tung Flood Storage Tank was designed to store floodwater temporarily when the downstream system is overloaded under prolonged heavy rain.

The completion of these projects greatly reduces the risk of flooding in West Kowloon. In order to further enhance the flood protection level in Sham Shui Po, Cheung Sha Wan and Lai Chi Kok, a 3.7 km Lai Chi Kok Drainage Tunnel at an estimated cost of \$1.7 billion is under construction for completion by 2012.



荔枝角雨水排放隧道走線圖  
Alignment of Lai Chi Kok  
Drainage Tunnel





港島西雨水排放隧道走線圖  
Alignment of Hong Kong West Drainage Tunnel

## 港島北 Northern Hong Kong Island

上環永樂街一帶的低窪地區在暴雨或維多利亞港大潮時容易受水浸威脅。為了長遠解決上環低窪地帶的水浸問題，渠務署已在二零零九年初完成一項總值二點二億元的工程計劃，包括於在二零零六年開始建造長約660米的皇后大道中雨水截流渠及上環雨水抽水站。

為進一步紓緩市區下游集水區已發展地區的水浸威脅，我們已展開興建港島西雨水排放隧道。

港島西雨水排放隧道工程是渠務署致力紓緩港島北部水浸問題的主要改善措施。當中包括一條長約11公里由半山大坑至薄扶林的深層地底隧道、分佈於半山的三十多個截流進水口和長約8公里的連接隧道。此隧道收集港島北上游集水區的雨水，並帶往近數碼港的水域排放而毋須經過下游的雨水排放系統。這項估計造價約三十億的設計與建造工程已於二零零七年年底展開，預計二零一二年完成。

The low-lying Wing Lok Street, Sheung Wan is vulnerable to flooding under the combined effect of a rainstorm and high tide. DSD has completed in early 2009 a \$220 million project to resolve the flooding problem of the Sheung Wan low-lying area. The project, which commenced in 2006, comprises construction of 660 m intercepting drains along Queen's Road Central and an underground storage tank and stormwater pumping station at the waterfront.

To further protect the public from flooding caused by rapid overland flows from the hillside, DSD has commenced the construction of the Hong Kong West Drainage Tunnel.

Hong Kong West Drainage Tunnel is designed to relieve the flooding problem at Northern Hong Kong Island. It consists of a main tunnel to be built deep underground at mid-levels extending from Tai Hang to Pokfulam. It will collect and divert stormwater from the upper catchment of Northern Hong Kong Island into more than thirty intakes and divert the flow via about 8 km connection adits and 11 km main tunnel to the outlet near Cyberport. This design-and-build contract, at an estimated cost of about \$3 billion, commenced in late 2007 for completion by 2012.



## 荃灣

### Tsuen Wan

同時，渠務署亦已開始興建荃灣雨水排放隧道，以減低荃灣和葵涌區的水浸風險。此工程項目包括建造長約5.1公里的雨水排放隧道、三個分別位於城門道、老圍及曹公潭的進水口及一個位於油柑頭的排水口。這項估計造價約十一億元的荃灣雨水排放隧道工程已於二零零七年年底展開，並預期可於二零一一年完成。

The Tsuen Wan Drainage Tunnel is being built to relieve the flooding risk in Tsuen Wan and Kwai Chung areas. This project consists of a 5.1 kilometres of drainage tunnel, three intakes at Shing Mun Road, Lo Wai and Tso Kung Tam respectively and an outfall at Yau Kom Tau. The \$1.1 billion tunnel contract commenced in late 2007 for completion by 2011.



荃灣雨水排放隧道走線圖  
Alignment of Tsuen Wan Drainage Tunnel