



## Highways

Hong Kong's roads are among the most heavily used in the world, with over 570 000 vehicles on 2 046 kilometres (km) of roads — 446 on Hong Kong Island, 457 in Kowloon and 1 143 in the New Territories. Together with the dense development and difficult terrain, it imposes a constant challenge to the highway engineers.

There are 14 major road tunnels, 1 233 flyovers and bridges as well as 1 138 footbridges and subways to keep people and goods on the move.

**Hong Kong Island:** On Hong Kong Island, the earliest route out of Victoria went around the west end of the Island to Aberdeen. Two roads were built subsequently, one over the centre of the Island and one around its eastern end. Since the opening of the Cross Harbour Tunnel in 1972, the Kowloon Peninsula has been linked with Hong Kong Island.

With the rapid development on the Island, the westerly route along Pok Fu Lam Road has been widened in stages to four lanes. To cater for the growing development on the southern Ap Lei Chau Island, two bridges were completed in 1980 and 1994 to provide direct access to this island.

A north-south route, the section of Route 1 through the centre of the Island, comprising the Aberdeen Tunnel and grade-separated road networks at its approaches, was completed in early 1982, linking Aberdeen with Happy Valley and the Cross Harbour Tunnel.

The construction of the Eastern Harbour Crossing was completed in September 1989. It connects Cha Kwo Ling on Kowloon Peninsula with Quarry Bay on Hong Kong Island.

On the north shore, a dual three-lane road runs from Central to Causeway Bay and connects to the Island Eastern Corridor, which is a dual three-lane expressway, extends 9km eastward to Chai Wan. Construction commenced in early 1981 and was completed in October 1989. The corridor is mainly built either on elevated structures along the shoreline or as a ground level road on reclaimed land. Improvement works to the corridor from North Point Interchange to Sai Wan Ho was completed in 2003.

Another highway scheme, the section of Route 4 on the north shore of the Island, was completed in January 1990. It provides a free-flow facility in an east-west direction along Connaught Road through Central via the Rumsey Street Flyover, Pedder Street Underpass and the Harcourt Road Flyover. Extension of Route 4 to Kennedy Town was completed in February 1997.

A pedestrian link with escalators and travelators between the central business district and the residential areas in Mid-Levels was completed and opened to the public in January 1994. The covered walkway system provides a direct access for pedestrians so as to minimise the use of private cars and public transport.

A two-way link between Smithfield and Pok Fu Lam Road was completed in January 1998. It improves traffic

flow and copes with the increase in traffic from the Western Harbour Crossing.

**Kowloon:** The first major road network constructed in Kowloon was centred on Tsim Sha Tsui and fanned outwards toward Lai Chi Kok, Kowloon Tong, Kai Tak and onwards to Kwun Tong.

With the rapid development of air travel and manufacturing industry in the early 1960s, the corridor between Kwun Tong and Mong Kok was enhanced, and in the early 1970s the Prince Edward Road Interchange in Kowloon City adjacent to the old airport at Kai Tak was completed. Traffic flow in this corridor was further improved with the completion of the Princess Margaret Road Flyover, which was the first precast pre-stressed concrete flyover constructed in Hong Kong. The increased capacity of the junction of Argyle Street and Princess Margaret Road provided better access to the then developing residential areas in Kowloon Tong. This flyover was reconstructed in the 1980s to further increase the north/south capacity of the junction in part to cope with the substantial increase in traffic originating from the New Territories. The flyover is a key element of Route 1 in Kowloon which extends from the Cross Harbour Tunnel to the Lion Rock Tunnel and beyond to the New Territories.

With the rapid growth of industry in the 1970s, a new road along the foot of the Kowloon Hills in North Kowloon was constructed to provide a more direct link to the newly developing Container Port at Kwai Chung in West Kowloon. This road, which is known as the Lung Cheung Road and Ching Cheung Road, is now part of Route 7, a trunk road linking Tseung Kwan O in the south eastern New Territories to Kwai Chung. This road has been expanded twice from an original two-lane road to the present dual three-lane configuration with grade separation at each of its eight interchanges.

After the opening of the Cross Harbour Tunnel and its Hong Chong Interchange in 1972, and as tunnel use grew, it became essential to improve the roads connecting to it. The completion of the elevated East Kowloon Way in 1981 and the Kai Tak Tunnel in 1982 provided better access to Kwun Tong, and the completion in stages of the West Kowloon Corridor between 1987 and end 1996 shortened journey time between Yau Ma Tei and Lai Chi Kok.

The Kwun Tong Bypass was completed in 1991. It connects the Tate's Cairn Tunnel and Tseung Kwan O Tunnel, and also the Eastern Harbour Crossing at Cha Kwo Ling, which opened in 1989.

The Hung Hom Bypass was completed in 1999. It links Salisbury Road in Tsim Sha Tsui East with Hung Hom Road in Hung Hom.

**New Territories:** In the New Territories, the construction of new roads, apart from those serving Tsuen Wan, continued

at a slow pace until the early 1970s when the new towns were built.

In 1967, the opportunity to link Sha Tin directly with Kowloon came with the need to build a water supply tunnel through the range of hills separating Kowloon and the New Territories. The Lion Rock Tunnel was designed to accommodate a two-lane road as well as three large water pipes. A second two-lane tunnel was subsequently built adjacent to the first and opened to traffic in 1978.

The Tsing Yi Bridge, which connects Tsing Yi Island with Kwai Chung and Tsuen Wan, was completed in 1974. The second Tsing Yi Bridge was constructed and opened to traffic in late 1987. The third Tsing Yi Bridge was constructed and opened to traffic in late 1997.

Tuen Mun Road was partially completed and opened to traffic in May 1978 to link up Tsuen Wan and Tuen Mun. It was fully completed in May 1983. The project provided a challenge to highway engineering since the route involved the construction of many bridges and culverts along terrain.

To tackle the aging problem of Tuen Mun Road and to upgrade the road to the current design standard as far as practicable, improvement and reconstruction of a section of Tuen Mun Road from Tsuen Wan to Sham Shing Hui have commenced in October 2008 for completion in 2014 in stages. Improvement to the Town Centre Section of Tuen Mun Road will also commence in end 2009 for completion in end 2013.

A 7km long dual two-lane carriageway, which is part of Route 9, links Sha Tin directly with Tsuen Wan via the Shing Mun Tunnel. The project was completed and opened to the public in 1990.

To cope with traffic generated as a result of the growth of new towns at Tai Po, Fanling and Yuen Long, together with the increasing cross-boundary traffic with Shenzhen, the construction of a high capacity trunk road, the New Territories Circular Road, commenced in 1980 to connect these new towns. The whole road was completed in January 1993.

Yuen Long Highway, completed in July 1993, provides a continuation of Route 9 from Tuen Mun to Yuen Long. To cope with increasing traffic, the highway was widening from a dual two-lane carriageway to a dual three-lane carriageway in March 2006.

To improve cross border traffic and relieve the road access to northwest New Territories, the Tai Lam Tunnel and its approaches of Route 3 commenced construction in 1995 and was completed in May 1998.

The Ting Kau Bridge forms the vital link between the Tai Lam Tunnel and Tsing Yi section of Route 3 and connects the western New Territories via Tuen Mun Road to the Lantau Link. The bridge and approach viaduct were opened to traffic in May 1998.

To cope with increasing traffic, the section of Castle Peak Road between Siu Lam and So Kwun Wat was widened to a dual two-lane carriageway in December 2000. Widening of the section between Tsuen Wan and Siu Lam was later completed in June 2007.

Tsing Yi North Coastal Road was completed in 2002. It provides a direct link of the Northwest Tsing Yi Interchange via Tsing Tsuen Road with Kwai Chung.

The widening of Tolo Highway between Ma Liu Shui and Yuen Chau Tsai from dual three-lane to dual four-lane was completed in 2003.

The construction of the new boundary bridge between Lok Ma Chau and Huanggang commenced in November 2003 and was completed in December 2004. The project provided additional dual two-lane to the existing cross boundary link to cope with the growing traffic.

The improved Tung Chung Road was opened to public use in February 2009. The original single-lane road has been improved to a single two-lane road in order to meet the traffic demand and to improve road safety.

Kong Sham Western Highway is a dual three-lane carriageway with a total length of about 5.4km, extending

from Ngau Hom Shek in the north near the shoreline to Lam Tei in the south. The majority of the Kong Sham Western Highway is in the form of viaducts. The road was opened to public use in July 2007.

The Shenzhen Bay Bridge is an additional cross boundary link from Shenzhen to join up with Kong Sham Western Highway on the Hong Kong side. It is a 5.5km dual three-lane carriageway (Hong Kong section is 3.5km whereas the Shenzhen section is 2km). This crossing alleviate the pressure on the existing crossings, enhance the trade between Hong Kong and Southern China, and facilitate further economic development in areas such as finance, logistics and tourism. The Shenzhen Bay Bridge was opened to traffic in July 2007.

Route 8 is a trunk road linking Lantau Island and Sha Tin. The North Lantau Highway and Lantau Link completed in 1997 form part of this route. The section between Cheung Sha Wan and Sha Tin (including Eagle's Nest Tunnel and Sha Tin Heights Tunnels) was commissioned in March 2008. The remaining section between Tsing Yi and Cheung Sha Wan (including Nam Wan Tunnel and a long span cable stayed bridge, i.e. Stonecutters Bridge) is scheduled to fully open to traffic in 2009.

**Airport Access:** The relocation of the airport to Chek Lap Kok requires additional road links to serve the new airport and its supporting community. A new expressway serving the airport and Tung Chung new town, comprising the North Lantau Highway, Lantau Link, Cheung Tsing Highway, Cheung Tsing Tunnel, Tsing Kwai Highway, West Kowloon Highway and Western Harbour Crossing, were completed and opened to traffic in 1997.

The whole new airport access measures a total of some 34km. Leaving the airport, drivers will come onto the 12.5km North Lantau Highway which was built along the northern coastline of Lantau Island. At the northern tip of Lantau Island it joins the 5km long Lantau Link. The Lantau Link comprises the cable-stayed Kap Shui Mun Bridge and, of course, the spectacular Tsing Ma Bridge, the span of which measures 1 377m, that makes it the longest suspension bridges in the world carrying both road and rail traffic.

At the northwestern part of Tsing Yi Island, the Lantau Link is connected with the Cheung Tsing Highway. At Lai Chi Kok the airport access continues along the 4.2km long West Kowloon Highway that runs along the western coastline of the Kowloon Peninsula. Both Tsing Kwai Highway and West Kowloon Highway are essentially on viaducts, until the route finally enters Hong Kong's first dual three-lane immersed tube tunnel, the Western Harbour Crossing, which measures 2km from the portal on the West Kowloon Reclamation near Yau Ma Tei to the exit and the end of the new airport access, at Sai Ying Pun on Hong Kong Island.

**Building For Future:** The proposed Tuen Mun-Chek Lap Kok Link and Tuen Mun Western Bypass is a 17km long dual two-lane highway between Kong Sham Western Highway and North Lantau. It will provide the most direct route between the Northwest New Territories (NWNT) and Lantau, joining Kong Sham Western Highway, the road network at Tuen Mun, the proposed Hong Kong-Zhuhai-Macao Bridge (HZMB) Hong Kong Boundary Crossing Facilities, the Hong Kong International Airport and various North Lantau developments. Upon completion, the new route will significantly reduce the journey time between the NWNT and Lantau, and will also release the urban bound traffic of the existing road network. The project is planned to commence in 2011 for completion in 2016.

The proposed HZMB will be a new cross-boundary link connecting Hong Kong to the west coast of the Pearl River Delta. The HZMB Main Bridge is a 29.6km dual three-lane carriageway in the form of bridge-cum-tunnel structure comprising an immersed tunnel of about 6.7km. It runs from

the artificial island of Zhuhai and Macao Boundary Crossing Facility to the eastern artificial island for the tunnel section just west of the HKSAR boundary. To build the HZMB Main Bridge, the governments of Guangdong Province, HKSAR and Macao Special Administrative Region together contribute about 42% of the project cost, the remaining 58% comes from bank loan. The preliminary design of the HZMB Main Bridge has been kick-started in March 2009 and the lead bank has been selected in April 2009. The HZMB project is planned to commence in end-2009 for completion by 2015/2016. The three governments will be responsible for the construction and operation of the boundary crossing facilities and the connecting roads to the HZMB within their own respective territories. The Hong Kong Link Road is about 12km, connecting the Main Bridge with the Hong Kong Boundary Crossing Facilities at the land to be reclaimed at the waters off the north-east of the Hong Kong International Airport.

The proposed Central Kowloon Route is a dual three-lane trunk road of about 4.7km connecting West Kowloon with the proposed Kai Tak Development. It will further connect the road network in Kowloon Bay. It will provide a new strategic road link across central Kowloon and relieve traffic congestion at peak hours on the existing east-west road links. The project is planned to commence in 2012 for completion in around 2016.

**Highways Department:** Highways Department undertakes the planning, design, construction and maintenance of the public road system. The department's expenditure for the 2008/09 financial year totalled \$4.9 billion, of which \$0.9 billion was for road and public lighting maintenance and \$4 billion for major highway construction. The department is also responsible for issuing Excavation Permits and conducting audits of the excavation works on public roads.

Highways Department has an establishment of approximately 449 professionals and 1 589 staff of other grades. It consists of a Headquarters, two Regional Offices — namely Urban and New Territories Regions, a Railway Development Office, a Major Works Project Management Office and a HK-Zhuhai-Macao Bridge Hong Kong Project Management Office.

The Headquarters has seven divisions, ten units which provide specialist services to other offices of the department.

The work of each Region falls broadly into district administration and highway maintenance. Owing to Hong Kong's rugged terrain, varying soil conditions, typhoons and rainfall, an emergency control centre has been established in each Region and Tsing Ma Control Area & Tsing Sha Control Area Government Monitoring Team to deal with emergency matters such as washouts, fallen trees and landslips.

The Railway Development Office oversees and co-ordinates all necessary administrative arrangements relating to railway development.

The Major Works Project Management Office is responsible for managing, planning and implementing the high priority strategic route and other major highway projects.

The HZMB Hong Kong Project Management Office is responsible for the planning and implementation of the HZMB and its related infrastructure projects including the connecting road to HZMB within HKSAR boundary crossing facilities, and various strategic highway infrastructure identified under the Northwest New Territories Traffic and Infrastructure Review.

Highways Department has strong links with the Police and Transport Department. The department also works closely with Building Authority regarding the roads and drainage aspects of private developments.