

Hong Kong's roads are among the most heavily used in the world, with over 815,000 vehicles on 2,241 kilometres (km) of roads — 450 km on Hong Kong Island, 481 km in Kowloon and 1,310 km in the New Territories. Together with the dense development and difficult terrain, it imposes a constant challenge to the highway engineers.

There are 21 major road tunnels, 1,475 flyovers and bridges as well as 1,619 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 August 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 March 1980 and July 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 March 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 9 km 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. The Central-Wan Chai Bypass and Island Eastern Corridor Link was fully commissioned in February 2019. It is a 4.5-km dual three-lane highway with a 3.7-km tunnel section connecting Central and North Point which forms a part of Route 4.

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 towards 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. 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 prestressed 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.

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 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 flyover at the junction of Argyle Street and Princess Margaret Road 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.

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.

A pedestrian subway system with travelators was completed and operated in October 2004 to link between Tsim Sha Tsui Station at Nathan Road and East Tsim Sha Tsui Station at Salisbury Road. This subway system was also extended to link with nearby hotels and commercial buildings to provide direct access for pedestrians so as to minimize their need to cross busy roads at ground level.

Tsing Sha Highway is a 13-km dual three-lane highway connecting Shatin, West Kowloon and Tsing Yi relieving the heavy traffic loading in Lion Rock Tunnel and Tate's Cairn Tunnel. Regarding the Kowloon sections of the Tsing Sha Highway, the Lai Chi Kok Viaduct (as part of the section of Route 8 between Cheung Sha Wan and Shatin) was opened to traffic in March 2008, while the Ngong Shuen Chau Viaduct (as part of the section of Route 8 between Cheung Sha Wan and Tsing Yi) was opened in December 2009.

**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 in Tuen Mun commenced in 2008 and was completed in end 2014. Improvement to the Town Centre Section of Tuen Mun Road commenced in end 2009 and was completed in February 2014.

A 7-km-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 in 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 widened from a dual two-lane carriageway to a dual three-lane carriageway. The road widening works between Shap Pat Heung Interchange and Tan Kwai Tsuen and between Tan Kwai Tsuen and Lam Tei were completed in March 2006 and July 2007 respectively.

To improve cross border traffic and relieve the road access to Northwest New Territories (NWNT), 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.

To cope with anticipated increase in traffic, Tolo Highway was widened to dual four-lane carriageway in stages. The Ma Liu Shui and Yuen Chau Tsai section and Yuen Chau Tsai to Tai Hang section were completed in 2003 and 2014 respectively. Regarding the Fanling Highway section between Tai Hang and Wo Hop Shek Interchange, the widening was completed in August 2019.

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 an additional dual two-lane carriageway 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 5.4 km, 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 5.5-km dual three-lane carriageway (Hong Kong section is 3.5 km whereas the Shenzhen section is 2 km). This crossing alleviates the pressure on the existing crossings, enhances the trade between Hong Kong and Southern China, and facilitates 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 Stonecutters Bridge, which is one of the world's longest spanning cable-stayed bridges) was also fully opened to traffic in 2009.

The Hong Kong-Zhuhai-Macao Bridge (HZMB), lying across the Lingdingyang of the Pearl River Estuary, is a 42-km-long sea crossing that connects the Hong Kong SAR, the Zhuhai City of Guangdong Province and the Macao SAR and was commissioned on 24 October 2018. It connects the Hong Kong Link Road (HKLR), the Hong Kong Port (HKP) and the Tuen Mun-Chek Lap Kok Link (TM-CLKL) to form a strategic road network connecting Hong Kong, Macao and Zhuhai.

The HKLR, connecting the HZMB Main Bridge and the HKP, is a 12-km-long dual three-lane carriageway comprising sea viaducts, a tunnel and at-grade road sections along the east coast of the Airport Island.

The HKP is situated on a 150-ha artificial island (about 130 ha for the HKP facilities and about 20 ha for the TM-CLKL Southern Landfall) at the waters off the northeast of the Hong Kong International Airport (HKIA). It connects to Zhuhai and Macao via the HKLR and HZMB Main Bridge, and to North Lantau via the Southern Connection of TM-CLKL. With the HKIA and the railway and ferry services in its vicinity, the HKP has become an important transportation hub upon completion. About 20 major buildings were built on the island including a passenger clearance building, cargo clearance facilities, etc. to provide passenger and cargo clearance services.

Heung Yuen Wai Highway, opened to traffic in May 2019, is an approximately 11-km dual two-lane carriageway connecting the Fanling Highway and the Heung Yuen Wai Boundary Control Point. The highway comprises approximately 4.8-km Lung Shan Tunnel, 0.7-km Cheung Shan Tunnel, 4.5-km viaducts and 1-km at-grade roads. There are four interchanges along the highway, facilitating the residents living near Sha Tau Kok, Ta Kwu Ling and Ping Che to access Fanling, Sheung Shui, Tai Po and Kowloon. The Highway also alleviates the cross-boundary traffic via Man Kam To and Sha Tau Kok Boundary Control Points after the commissioning of Heung Yuen Wai Boundary Control Point.

The TM-CLKL, fully open to traffic in 2020, is a 9-km-long dual two-lane highway linking the HZMB HKP with North Lantau and the NWNT. The route significantly reduces the journey time between the NWNT and Lantau, and relieves the traffic of other road network, including Tuen Mun Road, Ting Kau Bridge, Tsing Ma Bridge, etc. It also serves as an alternative and emergency route of the North Lantau Highway to HKIA.

Tseung Kwan O-Lam Tin Tunnel was commissioned in 2022. As a new trunk road linking Tseung Kwan O and the urban area, the Tseung Kwan O-Lam Tin Tunnel has a total length of about 3.8km, of which about 2.2km is in the form of a tunnel. This tunnel provides an alternative route for the existing Tseung Kwan O Tunnel to help divert traffic to and from Tseung Kwan O. It also helps to meet the traffic demand arising from the continual development in the area.

**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 34 km. Leaving the airport, drivers will come onto the 12.5-km North Lantau Highway which was built along the northern coastline of Lantau Island. At the northern tip of Lantau Island, it joins the 4.2-km-long Lantau Link. The Lantau Link comprises the cable-stayed Kap Shui Mun Bridge, the Ma Wan Viaduct and, of course the spectacular Tsing Ma Bridge. The main span of Tsing Ma Bridge measures 1,377m, making it at one time the longest suspension bridge 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 which in turn links with the Tsing Kwai Highway. At Lai Chi Kok, the airport access continues along the 4.2-km-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 2 km 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.

The TM-CLKL, fully open to traffic in 2020, is linking the HZMB HKP with North Lantau and the NWNT. It serves as an alternative and emergency route of the North Lantau Highway to the airport.

#### **Building For Future:**

The proposed Central Kowloon Route (CKR) is a dual three-lane trunk road of about 4.7 km connecting West Kowloon with the proposed Kai Tak Development. It will further connect to 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. It is estimated that upon the commissioning of the CKR the journey time between West Kowloon and Kowloon Bay via CKR would only take around 5 minutes. The construction of CKR commenced in December 2017.

**Highways Department:** The Highways Department undertakes the planning, design, construction and maintenance of the public road system as well as the planning and implementation of the railway system. The department's expenditure for the 2022/23 financial year totaled \$12.61 billion, of which \$1.67 billion was for road and public lighting maintenance and \$10.94 billion was for major highway construction works. The department is also responsible for issuing Excavation Permits and conducting audits of the excavation works on public roads.

The Highways Department has a staff establishment of close to 700 professionals and 1 600 staff in other grades. The department consists of the Headquarters; two Regional

Offices, namely Urban and the New Territories Regions, a Major Works Project Management Office and a Railway Development Office.

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

The work of each Regional Office falls broadly into district administration and highway maintenance. Owing to Hong Kong's rugged terrain, typhoons and rainfall, emergency control centers have been established in Regions and Tsing Ma & Tsing Sha Control Areas 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 Highways Department has strong links with the Police and Transport Department. The department also works closely with the Building Authority regarding the roads and drainage aspects of private developments.