

Macao has 311.3 kilometres of roads and highways, including 180.5 kilometres on the Macao peninsula, 80.3 kilometres on Taipa island and its reclaimed areas, and 40.6 kilometres on Coloane island.

## CHAPTER 13

# TRANSPORT



Transport Network (Photo: Government Information Bureau)

## Transport

### Roads and Bridges

Macao has 311.3 kilometres of roads and highways, including 180.5 kilometres on the Macao peninsula, 80.3 kilometres on Taipa island and its reclaimed areas, and 40.6 kilometres on Coloane island.

Three bridges and a strip of reclaimed land link the Macao peninsula with Taipa and Coloane. Opened to traffic in October 1974, the Nobre de Carvalho Bridge (also known as the Macao-Taipa Bridge) is 2.5 kilometres long. The 4.4-kilometre Friendship Bridge was completed in April 1994. The 2.1-kilometre Sai Van (West Bay) Bridge was completed in December 2004 and opened to traffic in January 2005. In addition, the 900-metre Lotus Flower Bridge was completed in December 1999 and opened to traffic in March 2000. Linking the reclaimed area between Taipa and Coloane with Zhuhai City's Hengqin island and connected to the Guangzhou-Zhuhai Expressway, this bridge is the second land route between Macao and its neighbouring cities.

Macao has 416 kilometres of roads for motor vehicles. This figure includes 199.6 kilometres on the Macao peninsula, 133.8 kilometres on Taipa island and its reclaimed areas, 61.4 kilometres on Coloane island, five kilometres on Nobre de Carvalho Bridge, 10.2 kilometres on the Friendship Bridge, 4.2 kilometres on the Sai Van Bridge and 1.8 kilometres on the Lotus Flower Bridge.

### Public Transport

Macao has a well-established public transport network connecting the Macao peninsula and the two islands. A variety of vehicles, including buses and taxis, are available for local residents and tourists.

#### Public Bus Service

The new bus service in Macao was launched on 1 August 2011. The total number of bus operators increased from two to three. At the end of 2011, there were 656 buses in service, including 225 minibuses, 159 medium buses and 272 large buses, running 61 bus lines.

The Government signed a seven-year contract with Transportes Urbanos de Macau, Transportes Companhia de Macau and Reolian Public Transport for the provision of mass road passenger transport in Macao. According to the contract provisions, the three companies provide services, vehicles, equipment, staff and supporting facilities, and received service charges specified in the contract with the Government.

#### Sociedade de Transportes Colectivos de Macau

Sociedade de Transportes Colectivos de Macau (TCM) (previously known as Companhia de Transporte de Passageiros entre Macau e as Ilhas) originally provided maritime passenger transportation services between Macao and the two islands. During the 1950s, it acquired several bus companies that served residents of Taipa and Coloane, and began to operate public buses.

In 1986, Companhia de Transporte de Passageiros entre Macau e as Ilhas was restructured as TCM. Under the former Portuguese administration's traffic and transportation policy, the company

fully operated the public buses serving Macao and its islands.

In August 2011, TCM entered a new government-led stage. It also purchased 63 buses that meet Euro IV standards. TCM now has a fleet of 145 buses and operates 13 bus lines on Macao peninsula connecting the Macao peninsula and the outlying islands. In 2011, it carried over 33.5 million passengers and covered 10.13 million kilometres.

## Transportes Urbanos de Macau (Transmac)

Transportes Urbanos de Macau (Transmac) was previously known as Companhia de Autocarros Fok Lei. Founded in 1952, it was restructured and changed its name to Transportes Urbanos de Macau in July 1988. It is the largest bus company in Macao. The company introduced the ISO Quality Management System in 2004 for overall management, making it the first franchised bus company in Macao to have passed ISO 9001:2008 Quality Management System.

There are more than 600 employees in Transmac, operating 21 bus lines with a fleet of 276 air-conditioned buses, covering Macao, Taipa and Coloane islands. During 2011, it carried over 75 million passengers and covered about 16 million kilometres.

## Reolian Public Transport

Reolian Public Transport is a joint venture between Veolia Transport RATP and HN Group. It has a strong management team and technicians with varied expertise from Macao, France, Australia, the US, mainland China and Hong Kong.

Reolian began operations in August 2011. It operates 26 bus lines with a fleet of 245 buses, covering 16 million kilometres a year. From 1 August to 31 December 2011, it carried 22.5 million passengers.

## Taxis

At the end of 2011, Macao had 880 licensed black taxis with cream roofs, plus 100 radio-dispatched yellow taxis. There were 10,236 licensed taxi drivers.

## Traffic Management Transport Bureau

The Transport Bureau was established in May 2008. It is responsible for: studying, planning, promoting and implementing road transport policies of the Government; pursuing road improvements; regulation of vehicles; as well as installing, maintaining and improving transportation and pedestrian infrastructure.

## Vehicle Statistics

At the end of 2011, there were 206,349 vehicles on Macao's roads, including 111,198 motorcycles, and 95,151 light vehicles. During the year, 17,702 new vehicles were registered, a slight increase of 10.09 percent over the 2010 figure. Of these, 9,390 were motorcycles and 7,632 were cars.

## Traffic Monitoring

Traffic management and monitoring are essential for ensuring the safe and orderly operation of the transport system. The Government has installed closed circuit TV (CCTV) and radar speed monitoring systems to monitor traffic conditions on the Macao-Taipa Bridge and main roads. They include 30 video cameras and six two-way speed monitoring spots on the Friendship Bridge, 52 video cameras and two one-way speed monitoring spots on the Sai Van Bridge, and 10 video cameras and two two-way speeding monitoring spots on the Ponte Governador Nobre de Carvalho. Also, 137 video cameras, 13 speed monitoring radar units, and 22 sets of electronic systems with a total of 73 cameras for monitoring vehicles jumping red lights have been installed in various downtown locations. During 2011, the monitoring systems identified 8,493 cases of speeding and 1,861 cases of red light jumping.

## Parking

As of 31 December 2011, Macao had 31 public car parks, which together provide 9,611 parking spaces for light vehicles, 954 spaces for heavy vehicles, and 5,544 spaces for motorcycles.

Public Car Parks in Macao	
Name of car park	Available parking spaces
Pak Lane Car Park	519 light vehicles
Pak Tou Car Park	211 light vehicles
Pak Lai Car Park	355 light vehicles
Pak Lik Car Park	417 light vehicles
Pak Lok Car Park	471 light vehicles, 300 motorcycles
Pak Vai Car Park	502 light vehicles
Pak Kai Car Park	208 light vehicles
Pak Wai Car Park	1,019 light vehicles
Pak Keng Car Park	171 light vehicles
Pak Ying Car Park	722 light vehicles
Pak Wu Car Park	682 light vehicles, 196 motorcycles
Pak Kong Car Park	287 light vehicles, 31 heavy vehicles

Public Car Parks in Macao	
Name of car park	Available parking spaces
Sewage Treatment Plant Car Park	276 light vehicles, 459 heavy vehicles
Vasco da Gama Garden Car Park	171 light vehicles, 113 motorcycles
Iao Hon Park Multi-Storey Car Park	406 light vehicles, 404 motorcycles
Art Garden Car Park	351 light vehicles, 446 motorcycles
Ferreira do Amaral Roundabout Car Park	247 light vehicles, 632 motorcycles
Ho Yin Garden Car Park	415 light vehicles, 542 motorcycles
Malaca Street Car Park	215 light vehicles, 563 motorcycles
Taipa Temporary Heavy Vehicle Parking Area	224 heavy vehicles
Flor de Lotus Road Heavy Vehicle Car Park	240 heavy vehicles
S. Lourenco Market Car Park	60 light vehicles, 74 motorcycles
Macao Science Center Car Park	415 light vehicles, 413 motorcycles
Lido Car Park	62 light vehicles, 24 motorcycles
Transport Bureau Car Park	148 light vehicles, 178 motorcycles
Cheng Choi Building Car Park	304 light vehicles, 518 motorcycles
Mong Sin Block Car Park	133 light vehicles, 236 motorcycles
Almirante Sergio Road Car Park	155 light vehicles, 106 motorcycles
Fai Fu Building Car Park	215 light vehicles, 194 motorcycles
Flor de Lotus Road Car Park	416 light vehicles, 512 motorcycles
Tranquilidade Road Car Park	58 light vehicles, 93 motorcycles

As at 31 December 2011, there were 10,319 parking meters and 3,443 non-metered parking spaces. There were also 40,925 motorcycle parking spaces.



## Road Safety

The Road Traffic Law promotional campaign was held in 2011, and was jointly organised by the Public Security Police, the Legal Affairs Bureau, the Civic and Municipal Affairs Bureau, the Lands, Public Works and Transport Bureau, and several non-governmental organisations. It aimed to publicise the importance of obeying traffic regulations, and to strengthen the understanding of laws and a sense of road safety among local residents, thus reducing the number of traffic accidents.

The Traffic Department of the Public Security Police also teamed up with schools, transportation companies and non-governmental organisations to stage games and lectures related to road safety. Their objective was to reinforce residents' understanding of road safety by means of long-term educational efforts. During 2011, a total of 8,191 people from 108 schools and 10 other organisations participated in the Traffic Department's road safety promotional activities.

## Cross-border Traffic

### Cross-border Land Routes

Two land routes link Macao and mainland China: the Border Gate and Lotus Flower Bridge Checkpoint (COTAI Checkpoint). The volume of cross-border traffic has grown rapidly, in line with increasing exchanges between Macao and the mainland.

The Border Gate Checkpoint is open to passengers from 7.00am to midnight daily, and for cargo from 7.00am to 9.00pm (except for authorised vehicles). The Lotus Flower Bridge Checkpoint is open to passengers from 9.00am to 8.00pm, and for cargo from 8.00am to 8.00pm. The Zhuhai-Macao Crossborder Industrial Zone Border Checkpoint is open 24 hours per day.

The Zhuhai-Macao Crossborder Industrial Zone Border Checkpoint officially commenced operations on 18 October 2006. During 2011, 141,011 Macao residents crossed the border through the checkpoint.

Some 4,135,910 vehicles entered or left Macao by land during 2011. Regarding container cargo transportation: 4,550 containers entered or left Macao (including re-exports).

During 2011, 15,299,600 visitors arrived in Macao by land, an increase of 16.9 percent over the previous year's figure. Of these, 14,160,602 entered via the Border Gate; tourists from mainland China and Hong Kong represented 81.6 percent and 12.5 percent of the total, respectively. The number of visitors who arrived via the Lotus Flower Bridge Checkpoint was 1,115,719. During the year, arrivals of Macao residents via the Border Gate totalled 24,213,705, with 385,341 via the Lotus Flower Bridge Checkpoint.

## Cross-Border Marine Transportation Services

The Outer Harbour Ferry Terminal, Taipa Ferry Terminal, and Inner Harbour Ferry Terminal provide cross-border transportation services for passengers travelling between Macao and Hong Kong and the mainland. Scheduled passenger ferries to Hong Kong and the mainland are operated by the Shun Tak-China Travel Ship Management Limited; Far East Hydrofoil Company; Hong Kong-Macau Hydrofoil Company; First Ferry (Macao); Yuet Tung Shipping Company; Cotai Waterjets (Macao) Limited; Hong Kong North West Express Limited; and Macao Dragon Company Limited (closed on 15 September 2011).



## Outer Harbour Ferry Terminal

The Outer Harbour Ferry Terminal commenced operations in 1993. Its two vertical piers provide 14 berths for a total of 14 passenger vessels at one time. The main building has a floor area of over 6,000 square metres, with a helicopter pad on its rooftop.

The Government commenced the Outer Harbour Ferry Terminal expansion project in late 2006, with an aim of increasing the usable area inside the terminal, easing pressure arising from the sharp increase in visitors. The Government installed a self-service clearance system in 2009, and from 2009 to 2011 undertook improvement work at public facilities, including upgrading the new centralised air-conditioning system, adding new roofs, installing electronic displays, assigning passenger waiting area and meeting area, as well as constructing lifts and barrier access outside the harbour, to provide a more comfortable environment.

The Government plans to commence enhancement work of the Outer Harbour Ferry Terminal in 2012, through improving the overall layout to streamline passenger flow and luggage transfer, to provide quality and convenient services to residents and visitors.

As the operation management contract of the Outer Harbour Ferry Terminal ended in December of 2011, the management of the harbour was led by the Government starting from 21 December 2011.

## Taipa Ferry Terminal

To tie in with the development of the gaming industry and the islands, ease congestion at the Outer Harbour Ferry Terminal – which is operating at maximum capacity, divert visitors, and develop maritime networks between Macao and nearby cities in the mainland, the Government decided to build a new ferry terminal with a total area of 17,000 square metres, next to the airport in Pac On, Taipa.

The temporary Taipa Ferry Terminal commenced operations in October 2007, and is an interim facility providing two regular berths and one large berth. When the permanent ferry terminal opens, it will provide a berth for 16 400-passenger ferries, three berths for larger ferries and a helicopter pad on its rooftop.

## Inner Harbour Ferry Terminal

The Inner Harbour Ferry Terminal was officially put into service in February 2008, and moved from terminal 14 to terminal 11A with a building area of over 1,200 square metres. The ferry terminal operated three routes to Wanzai District, with three ferries operating from 8.00am to 6.00pm.

There were 121,323 scheduled ferry sailings between Macao and Hong Kong during 2011, a decrease of 1.27 percent on the previous year's figure. There were also 20,176 scheduled ferry sailings between Macao and mainland China, a decrease of 22.56 percent on the 2010 figure.

During 2011, passengers arriving at Macao by sea numbered 12,365,302, an increase of 20.71 percent over the 2010 figure. Of these, 8,283,122 entered Macao via the Outer Harbour Ferry Terminal. In all, 322,928 visitors entered Macao via the Inner Harbour, and 3,759,252 entered via the Taipa Temporary Ferry Terminal.

In 2011, 74,903 containers or 101,989 TEUs (twenty-foot equivalent units) were shipped in

and out of Macao by sea, representing increases of 14.76 percent and 11.69 percent, respectively, on the 2010 figures.

## Cross-Border Helicopter Services

Helicopter is the most convenient way to travel between Macao and Hong Kong. A helicopter passenger transportation service was inaugurated in November 1990. Jointly operated by Helicopters Hong Kong (Heli HongKong) and East Asia Airlines, the service has reduced the travelling time between Hong Kong and Macao to only 16 minutes. It operates from 9.00am to 11.00pm, with scheduled flights in each direction every 30 minutes. In addition, East Asia Airlines began operating daily passenger helicopter flights between Macao and Shenzhen in April 2002. In 2011, there were 16,335 helicopter flights to and from Hong Kong via the Outer Harbour Ferry Terminal, and there were 3,671 flights between mainland China and Macao.

## Ports

### Outer Harbour

Located on the east coast of the Macao peninsula, the Outer Harbour is designated for scheduled ferries between Macao and Hong Kong and Shenzhen. Its watercourse is 120 metres wide and 4.4 metres deep.

To streamline the sea passageway to the east of Friendship Bridge, the Maritime Administration restructured a fairway off eastern Friendship Bridge leading to the Inner Harbour, making the fairway straight and setting up a more advanced system of synchronised flashing beacons.

### Inner Harbour

Located on the west coast of the Macao peninsula, the Inner Harbour has many piers for loading and discharging cargo, plus Pier 14, which is for passengers using ferries licensed by the Maritime Administration. The South Sampan Pier between Piers 8 and 9 is used by crewmembers of ships berthed in the Inner Harbour who hold Macao ID Cards, or who are authorised to land and depart by the relevant Government authority, with prior notice to the Macao Customs Service. The Inner Harbour's approach channel is 45 metres wide, and its fairway is 55 metres wide and 3.5 metres deep.

## Taipa

The Taipa Temporary Ferry Terminal is situated on the north-eastern tip of Taipa island, and is exclusive for scheduled high-speed ferries shuttling between Macao and Hong Kong, and between Macao and the Pearl River Delta area. Its fairway is 120 metres wide and 4.4 metres deep.

## Ka Ho Harbour

Located on the northeast shore of Coloane island, Ka Ho Harbour consists of the Fuel Oil Terminal, Cement Terminal, Ka Ho Container Port, and Power Plant Terminal. Its approach channel is 75 metres wide and 4.4 metres deep.

## **Ka Ho Container Wharf and Fuel Oil Terminal**

Phase One of Ka Ho Container Wharf commenced operations in December 1991. With a total construction area of 42,000 square metres (now 49,524 square metres), it includes a container wharf, container yard and warehouses. At present, it has two berths, of 135 metres and 171.4 metres in length; a 10,428-square-metre cargo working area; a 23,828-square-metre container yard; and 2,850 square metres of cargo warehousing space. The terminal's annual handling capacity is 100,000 TEUs.

In 2011, Ka Ho Harbour handled 5,651 inbound TEUs (twenty-foot equivalent units) and 7,080 outbound TEUs; both figures include re-exports.

The Fuel Oil Terminal commenced operation in June 1995. It can store a wide variety of fuel oil imported into Macao, and can simultaneously load and unload two fuel-carrying vessels. It has 14 storage tanks with a combined capacity of 86,000 cubic metres.

## **Maritime Administration**

The Maritime Administration is a department with authorities and duties relating to maritime affairs, and is responsible for exercising its power to promote and coordinate the development of maritime activities.

To promote and assist economic development of the fishery sector, in 2007 the Government promulgated By-law No. 3/2007 to establish the Fisheries Development and Support Fund.

The Maritime Administration started to receive applications for the Fisheries Development and Support Fund on 30 April 2007. The loans approved amounted to about 30 million patacas.

## **Port Management and Services**

### **Vessel Inspections**

To ensure navigational safety and effectively manage marine transportation, local vessels navigating in Macao's waters are required to undergo annual maintenance and special inspections. In addition, they must have navigation licences issued by the relevant authorities in Macao. The Maritime Administration conducts regular, random inspections of foreign vessels berthing in Macao's ports and conducting activities in Macao's traditional waters, according to the nature of their activities, to ensure they comply with international treaties regarding marine safety and the prevention of pollution.

### **Pilot Services**

The Maritime Administration provides pilot services for vessels entering and leaving Macao via the inner and outer channels, within berthing areas, and in all waters under the Government's jurisdiction.

Ships navigating the Ka Ho Harbour, Outer Harbour and Inner Harbour are required to use pilot services. However, scheduled high-speed passenger ferries, ships controlled by captains holding pilot exemption licences, vessels navigating within the harbour, local auxiliary boats, Macao and neighbouring coastal fishing boats and pleasure craft are eligible for exemption from this requirement.

## **Macao Vessel Traffic Control Centre**

The Macao Vessel Traffic Control Centres (Macao VTS) in the Outer Harbour Ferry Terminal and the temporary Taipa Ferry Terminal are mainly responsible for carrying out mandatory monitoring of vessels within Macao's traditional waters, especially high-speed passenger vessels navigating to or from the Outer Harbour Ferry Terminal and Taipa Ferry Terminal. It also has the role of providing safety-related information to vessels via radio, in order to ensure that they navigate in a safe environment.

The Macao VTS conducts round-the-clock monitoring of VHF channel 16 and VHF DSC channel 70 of the Global Maritime Distress Safety System (GMDSS), and provides prompt maritime rescue and emergency assistance if a distress signal is received.

## **Search and Rescue Operations**

Maritime search and rescue are crucial tasks for the port service. The most common types of incidents of this nature are stranding, collisions, fires, fuel leakages and pollution. The Maritime Administration and the Macao Customs Service bear the main responsibility for salvage work. In addition, the Maritime Administration has reached agreements with relevant authorities in Hong Kong and Zhuhai, under which the Search and Rescue Coordination Centre can request their support to bolster its salvage efforts.

## **Hydrographic Survey**

The Maritime Administration's Hydrography Centre is responsible for conducting hydrographic surveys. Any eligible entity or institute may apply for its services. Survey fees are stipulated in its relevant regulations.

## **Dredging**

The Maritime Administration's Centre for Dredging Works is responsible for monitoring dredging work in Macao waters. The centre operates two non-motor-driven dredging boats, a barge for silt transportation and an auxiliary boat to perform dredging work (except those areas for which the Sociedade de Jogos de Macau (SJM) is responsible, as stipulated in casino gaming contracts).

## **Port Cleaning**

The Maritime Administration is responsible for clearing up waste and pollutants in the sea. A major focus is to prevent marine pollution caused by solid waste. The solid waste it collects includes loose wooden frames and boards, waste and refuse from boats, and hydrophytes such as water lettuce.

## **Exchange and Cooperation with Overseas Organisations**

Macao joined the International Maritime Organization (IMO) as an associate member in 1990. Since then, the Maritime Administration has dispatched officials to represent Macao at IMO conferences and annual meetings. International treaties on maritime safety and the prevention of pollution have been extended to include Macao, and they were enacted by the MSAR in 1999. The Government

has designated the Maritime Administration as the competent authority for internal and external activities relating to international maritime treaties, including flag state implementation.

## **Ships**

### **Maritime Registration**

By law, all vessels engaged in economic activities – including freighters, passenger vessels, fishing boats and auxiliary boats – must be registered with the Maritime Administration and the Commercial and Movable Goods Registry. The registration procedures are designed to verify its conformity with official requirements concerning technology, safety and environmental protection. Maritime registration is a prerequisite for vessels requiring commercial registration. There were 299 registered vessels at the end of 2011, including five that were newly registered during the year.

In addition, maritime and commercial registration is required for vessels over 2.5 metres in length that are used for non-profit-making purposes, such as water sports, fishing or recreational activities. These include ocean-going, coastal, inshore, channel and river pleasure boats. There were 100 registered vessels in this category at the end of 2011, including nine new registrations.

### **Seafarer Registration**

According to the law, Macao residents aged 18 or above may apply for seafarer registration with the Maritime Administration. All Macao residents who wish to conduct professional maritime activities on commercial vessels, auxiliary boats or fishing boats are required to register with the Maritime Administration beforehand. At the end of 2011, 251 people held seafarer's books issued by the Maritime Administration.

### **Maritime Training School**

The Maritime Training School is Macao's only nautical education institution. Its principal objectives are to provide theoretical and practical training in maritime subjects and harbour management, as well as related scientific knowledge.

Most of the training school's students are Maritime Administration and Macao Customs Service staff members, as well as sailors, fishermen and nautical athletes in Macao. The training school also provides after-school and summer vacation activities for youngsters.

### **The Shipyard**

The Shipyard is a department under the Maritime Administration. Apart from shipbuilding and ship repairs, it is responsible for maintaining and repairing Government vehicles, verifying their status and inspecting them, as well as making and installing the vehicle identification plates for various Government departments. At present, most of the vessels built and repaired at the Shipyard belong to the Maritime Administration and Macao Customs Service. In 2011, the Shipyard carried out 233 vessel maintenance projects for various organisations, including the Maritime Administration, Macao Customs Service, and Macau International Airport Company. It also provided quality control in the construction of a new, 38-metre fireboat for the Maritime Administration; it carried out 2,018 projects related to the examination, maintenance and repair of vehicles.

## Civil Aviation

### Civil Aviation Authority

The Civil Aviation Authority was founded on 4 February 1991, in accordance with Decree-Law No. 10/91/M dated 4 February 1991. It is constituted as a public institution under the Secretariat for Transport and Public Works, and it enjoys autonomy over administration, finances and property. It is responsible for directing, controlling and monitoring all civil aviation activities in Macao, and the operations of all aircraft registered in Macao.

### Aviation Service

To implement its “Open Skies” policy, the Government has adopted a series of measures to enhance Macao’s civil aviation infrastructure network. Every effort has been made to attract additional investment from domestic and foreign airlines, to promote the use of Macau International Airport, and to enhance the development of passenger and cargo transportation.

To increase cooperation with the international aviation community, the Government will continue to forge new air services agreements with countries around the world. By 31 December 2011, Macao had initialled air services agreements with 47 nations and regions; 40 of these were officially signed.

Signatories of Air Services Agreements with Macao	
Nation	Signing date
Brazil	15/07/1994
Finland	09/09/1994
Austria	04/11/1994
Belgium	16/11/1994
The Netherlands	16/11/1994
Luxembourg	14/12/1994
New Zealand	09/03/1995
Portugal	31/08/1995
Switzerland	05/09/1995
Singapore	27/10/1995
Malaysia	31/10/1995
Thailand	01/11/1995

Signatories of Air Services Agreements with Macao	
Nation	Signing date
United States	03/07/1996
Vietnam	07/08/1996
Germany	05/09/1996
DPR Korea	08/12/1996
Denmark	11/12/1996
Sweden	11/12/1996
Norway	11/12/1996
South Korea	03/04/1997
The Philippines	18/07/1997
India	11/02/1998
Nepal	19/02/1998
South Africa	04/04/1998
Brunei	24/05/1998
United Arab Emirates	06/12/1998
Russia	21/01/1999
Myanmar	12/03/1999
Australia	24/08/1999
Poland	22/10/1999
Pakistan	15/11/2000
Czech Republic	25/09/2001
Cambodia	12/12/2001
United Kingdom	19/01/2004
Iceland	13/07/2004
Maldives	16/01/2006
France	23/05/2006



(Cont.)

Signatories of Air Services Agreements with Macao	
Nation	Signing date
Sri Lanka	08/06/2006
Mongolia	27/06/2006
Japan	10/02/2010
Laos	Initialled
Oman	Initialled
Indonesia	Initialled
Israel	Initialled
Greece	Initialled
Slovakia	Initialled
Cape Verde	Initialled

As at 31 December 2011, four airlines were registered in Macao and providing flight services: Air Macau, East Asia Airlines, JetAsia and Macau Jet International.

Below are details of the fleets and routes that they operated:

Airline	Fleet	Destinations
Air Macau	5 x Airbus A319, 2 x Airbus A320, 7 x Airbus A321, 2 x Airbus A300B4-622R	Beijing, Chengdu, Hangzhou, Nanjing, Shanghai (Pudong, Hongqiao), Hefei, Ningbo, Xiamen, Nanning, Chongqing, Taiyuan, Taipei, Kaohsiung, Bangkok, Singapore, Seoul, Tokyo, Osaka
East Asia Airlines (Helicopter service)	3 x Agusta AW139	Hong Kong, Shenzhen
JetAsia (Commercial charter flight services)	2 x Challenger CL600-2B16, 2 x Hawker 900XP, 4 x Hawker 750	Global destinations
Macau Jet International (Commercial Charter Services)	1 x Falcon 2000LX	Global destinations

The numbers of pilots licensed by the Civil Aviation Authority, as at 31 December 2011, were:

Airline	Number of licensed pilots
Civil Aviation Authority	2
Air Macau	163
East Asia Airlines	32
JetAsia	4
Macau Jet International (Commercial Charter Services)	5
<b>Total</b>	<b>206</b>

Macau International Airport is located at the eastern end of Taipa island and neighbouring waters. The terminal building was constructed on a rock-cut platform at Ponta da Cabrita, while the apron was built on reclaimed land. East of the apron, the air-traffic control building, control tower and ancillary fire station are on Kia Kiong Islet. The runway is on an artificial island linked to the apron by two taxiway bridges.

The main fire station is on the runway island, next to the oblique taxiway. The airport is within easy reach of the Macao peninsula, the Outer Harbour and Zhuhai via motorway, the Friendship Bridge and the Lotus Flower Bridge. Commuting times from all these points are less than 20 minutes.

Macau International Airport handled 4,045,014 passengers during 2011, a decrease of 0.8 percent on the 2010 figure. Its cargo volume totalled 39,523 tonnes, a decrease of 24.2 percent. A total of 38,946 flights took off and landed, an increase of 4.8 percent.

Private and commercial air charters saw an increase in the number of flights, from 954 flights in 2010 to 1,010 flights in 2011, an increase of 5.9 percent.

## Air Traffic Control

Since it opened in 1995, the airport's air traffic control system has maintained excellent standards of service efficiency and flight safety. Air traffic control facilities include secondary surveillance radar and the Automatic Terminal System. Telecommunications facilities include AMHS and satellite ground stations, while air-ground communications facilities include a UHF radio station.

Macao's air traffic zone is classified as Category-C under International Civil Aviation Organization (ICAO) standards. The keyhole-shaped air traffic zone is centred on Macau International Airport. It extends up to an altitude of 3,000 feet and a radius of five nautical miles. The western boundary is a straight line parallel to and three nautical miles from the runway. To the south, the zone forms a rectangle five nautical miles wide and extending southwards for 10 nautical miles.

Macao's air traffic zone lies between the Hong Kong and Guangzhou flight information zones.

All aircraft, including helicopters entering Macao airspace, are supervised by the airport control tower. Arriving and departing aircraft can land or take off from both the southern and northern approaches. The mainland authorities control air traffic to the north of Macao's air zone, while traffic to the south is controlled by the Civil Aviation Department of Hong Kong. Since traffic in the Pearl River Delta airspace is busy and complex, the air-traffic control authorities of Macao, the mainland and Hong Kong must work closely together to ensure the safety and efficiency of air traffic in Macao and the neighbouring air zone.

## Aircraft Noise

Macao International Airport was constructed offshore and far from residential communities, avoiding the need to install soundproofing. However, to protect Zhuhai from noise pollution caused by northbound flights taking off from the runway, aircraft are not allowed to pass the 230-degree radial line of Zhuhai's Jiuzhou omni-directional beacon station.

## Security at Macau International Airport

Under Decree-Law No. 36/94/M issued on 18 July 1994 and ICAO regulations, the security systems at Macau International Airport are intended to ensure the safety, normal operations and efficiency of international civil aviation activities at the airport. Security measures and procedures are essential to protect passengers, crew, airport staff and the public, as well as ensuring the normal, uninterrupted operations of aircraft, facilities and equipment.

Airport security falls under the responsibility of the Civil Aviation Authority, the Unitary Police Service, the Macao Customs Service, the Public Security Police, the Judiciary Police, the Fire Service, the Maritime Administration, the airport itself, Companhia de Seguranca de Macau Lda (SEMAC), the private airport security company, aviation companies and other airport departments.

The private airport security company is responsible for implementing the security measures and procedures formulated by the airport operator, and ensuring that the security measures and procedures comply with the International Civil Aviation Organization (ICAO) standards and recommendations. Besides, the company provides professional training, certified technicians and advanced security equipment to perform security checks on passengers, baggage and cargo.

## Macau International Airport Company

Macao International Airport Company (CAM) has been appointed by the Government to operate Macau International Airport. It was responsible for the airport's construction, and it is now responsible for its operation. The Government has approved the company's application in 2001 to extend the period of its franchise by a further 25 years to 2039.





The Secretary for Transport and Public Works, Lau Si Io, attends the ground-breaking ceremony of depot groundwork construction of the first phase of the Light Rapid Transit System, on 23 November.

The Secretary for Transport and Public Works, Lau Si Io, witnesses the signing ceremony of “Rolling Stock & Systems for the Phase 1 of Macao Light Rapid Transit” between the Transportation Infrastructure Office and Mitsubishi Heavy Industries, on 3 March.





The Transportation Infrastructure Office (GIT) of the Macao SAR Government signs a memorandum with MTR Corporation Ltd of Hong Kong on technical cooperation on Macao's Light Rapid Transit System, on 13 December.

On 2 March, the Transportation Infrastructure Office holds a presentation session to introduce routes and station designs of the Light Rapid Transit in central Taipa.







The inauguration ceremony of the new public bus model, which will be launched in August 2011, is held on 31 July.