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TRANSPORT



Transport

Roads and Bridges

Macao has 339.7 kilometres of roads and highways, including 189.3 kilometres on the Macao peninsula; 85.1 kilometres on Taipa Island and Cotai; 44.8 kilometres on Coloane; 1.9 kilometres in New Urban Zone Area A and the bridge connected with New Urban Zone Area A; 8.7 kilometres in the Zhuhai-Macao border crossing area on the Artificial Island of the Hong Kong-Zhuhai-Macao Bridge; and 4.6 kilometres in the campus of the University of Macau.

Three bridges and a strip of reclaimed land link the Macao peninsula with Taipa island and Coloane island. 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 454.1 kilometres of roads for motor vehicles. This figure includes 201.6 kilometres on the Macao peninsula; 147.1 kilometres on Taipa island and Cotai; 65 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; 1.8 kilometres on the Lotus Flower Bridge; 3.7 kilometres in New Urban Zone Area A and the bridge connected with New Urban Zone Area; and 15.5 kilometres in the Zhuhai-Macao border crossing area on the Artificial Island of the Hong Kong-Zhuhai-Macao Bridge. There are also 14 kilometres of roads of the University of Macau.

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

Public bus service in Macao is currently operated by two bus companies: Transportes Urbanos de Macau, S.A.R.L. (Transmac) and Sociedade de Transportes Colectivos de Macau, S.A. (TCM).

At the end of 2019, there were 910 buses in service, including 231 minibuses, 135 medium-sized buses and 544 large buses, on 84 routes. In 2019, a total of 228,938,114 passengers were served, representing an increase of 6.67 percent over the 2018 figure, covering a total distance of 50.26 million kilometres, representing an increase of 2.22 percent over the 2018 figure.

The Government renewed the contracts on a short-term basis for 14 months with Transportes Urbanos de Macau, S.A.R.L. (Transmac) and Sociedade de Transportes Colectivos de Macau, S.A. (TCM) on 29 October 2019, based on the conditions of the original notarial contract of Public Service of Road Mass Transport, which will expire on 31 December 2020.

Sociedade de Transportes Colectivos de Macau, S.A.

Sociedade de Transportes Colectivos de Macau, S.A. (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 and became fully responsible for all public buses serving Macao and its islands.

In September 2012, the TCM took the lead in introducing the first new energy-saving and environmentally friendly CNG natural-gas bus in Macao. Currently, there are 69 natural-gas buses in total, accounting for 14 percent of the company's total fleet. In future, it will continue introducing new models and environmentally friendly buses in accordance with the slogan: "Shaping Eco-Cities for an Inclusive Green Economy"

There are 58 bus routes offered by the TCM, including the seven night routes and three seasonal routes, accounting for 65 percent of all bus routes in Macao. These 58 routes are operated by more than 500 vehicles, serving over 300,000 passengers on average per day, covering an average total distance of 70,000 kilometres each day.

Transportes Urbanos de Macau, S.A.R.L. (Transmac)

Transportes Urbanos de Macau, S.A.R.L. (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 pass the ISO 9001:2015 Quality Management System.

Transmac has around 1,100 employees and a fleet of 395 air-conditioned buses that serve 35 bus routes covering Macao, Taipa and Coloane islands. During 2019, about 100 million passengers were carried and 24.42 million kilometres covered.

In 2019, Transmac introduced the Advanced Driver Assistance Systems (ADAS), Speed Limit Indicator (SLI) and Collision Avoidance System of Mobileye to improve the safety of vehicular traffic.

Taxis

At the end of 2019, Macao had 1,597 licensed black taxis and 200 special taxis. There were 22,692 licensed taxi drivers.

Traffic Management

Transport Bureau

The Transport Bureau was established in May 2008. It is responsible for: studying, planning, promoting and implementing the Government's road transport policies; pursuing road improvements;

regulation of vehicles; as well as installing, maintaining and improving transportation and pedestrian infrastructure.

Vehicle Statistics

At the end of 2019, there were 241,625 vehicles on Macao's roads, including 123,838 motorcycles, 110,013 light vehicles and 7,774 heavy vehicles. During the year, 12,440 new vehicles were registered, 14.28 percent less than in 2018. Of these, 6,625 were motorcycles and 5,423 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.

The system includes 48 video cameras and 20 speed monitoring systems on and near the Friendship Bridge, 111 video cameras and 21 speed monitoring systems on and near the Sai Van Bridge and surroundings, and 14 video cameras and four speed monitoring systems on and near the Ponte Governador Nobre de Carvalho. Also, 573 video cameras, 65 speed monitoring radar units, and a comprehensive system of 51 monitors at road junctions to detect vehicles jumping red lights and 19 monitors to detect illegal parking have been installed in various locations. On the Macao artificial island of Hong Kong-Zhuhai-Macao Bridge, 57 video cameras have been installed.

According to the Public Security Police, during 2019, the monitoring systems identified 14,720 cases of speeding on highways, 853 cases of speeding along the bridge, 2,300 cases of jumping red lights, and 21,368 cases of illegal parking.

Parking

As at 31 December 2019, Macao had 56 public car parks, which together provided 24,691 parking spaces for light vehicles, 727 spaces for heavy vehicles, and 17,051 spaces for motorcycles.

Public Car Parks in Macao	
Name of car park	Available parking spaces
Pak Lane Car Park	507 light vehicles
Pak Tou Car Park	211 light vehicles
Pak Lai Car Park	355 light vehicles
Pak Lik Car Park	417 light vehicles

(Cont.)

Public Car Parks in Macao	
Name of car park	Available parking spaces
Pak Lok Car Park	411 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	161 light vehicles
Alameda Dr. Carlos d'Assumpcao Car Park	720 light vehicles
Pak Wu Car Park	644 light vehicles, 196 motorcycles
Pak Kong Car Park	287 light vehicles, 35 heavy vehicles
Sewage Treatment Plant Car Park	276 light vehicles, 452 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, 580 motorcycles
Ho Yin Garden Car Park	415 light vehicles, 542 motorcycles
Malaca Street Car Park	215 light vehicles, 563 motorcycles
S. Lourenco Market Car Park	60 light vehicles, 74 motorcycles
Estrada Flor de Lotus Heavy Vehicle Car Park	240 heavy vehicles
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

(Cont.)

Public Car Parks in Macao	
Name of car park	Available parking spaces
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
Parque Central da Taipa Car Park	1,343 light vehicles (including 10 for disabled), 1,384 motorcycles
The Taipa Temporary Ferry Terminal Car Park	740 light vehicles, 196 motorcycles
Edifício Mong In Car Park	143 light vehicles, 242 motorcycles
Edifício do Lago Car Park	678 light vehicles, 1,132 motorcycles
Edifício Koi Nga Public Car Park	307 light vehicles, 366 motorcycles
Edifício Ip Heng Public Car Park	389 light vehicles, 606 motorcycles
Edifício Cheng Chong Public Car Park	244 light vehicles, 386 motorcycles
Edifício Lok Kuan Public Car Park	362 light vehicles, 550 motorcycles
Rua da Ponte Negra Public Car Park	95 light vehicles, 80 motorcycles
Fai Yat Building Public Car Park	259 light vehicles, 228 motorcycles
Cheng Chun Building Car Park	54 light vehicles, 38 motorcycles
Cheng I Building Car Park	283 light vehicles, 286 motorcycles
Iat Seng Building Car Park	292 light vehicles, 315 motorcycles
Chun Shu Mei Car Park	197 light vehicles, 197 motorcycles
Vala Das Borboletas Car Park	369 light vehicles, 165 motorcycles
Iat Fai Building Car Park	59 light vehicles, 132 motorcycles
Alameda da Harmoniai Car Park	209 light vehicles, 146 motorcycles

(Cont.)

Public Car Parks in Macao	
Name of car park	Available parking spaces
Rua da Bacia Sul Car Park	306 light vehicles, 214 motorcycles
Fai Ieng Building Car Park	121 light vehicles, 107 motorcycles
Hong Kong-Zhuhai-Macao Bridge Checkpoint Building (West) Car Park	3,089 light vehicles, 2,054 motorcycles
Hong Kong-Zhuhai-Macao Bridge Checkpoint Building (East) Car Park (beyond Macao border)	3,000 light vehicles
Patane Municipal Market Complex Car Park	116 light vehicles, 194 motorcycles
New Wholesale Market Car Park	230 light vehicles, 198 motorcycles
Cheng Tou Building Car Park	80 light vehicles, 83 motorcycles
Border Gate Sports Complex Car Park	810 light vehicles, 632 motorcycles
Bairro da Ilha Verde Building Car Park	1,427 light vehicles, 1,628 motorcycles

As at 31 December 2019, there were 8,164 parking meters for light vehicles, of which 209 were one-hour parking meters, 6,071 were two-hour parking meters and 1,884 were four-hour parking meters. There were 1,870 non-metered parking spaces. There were 2,881 parking meters for motorcycles, of which 1,838 were two-hour parking meters and 1,043 were four-hour parking meters. There were 30,068 non-metered parking spaces for motorcycles.

Road Safety

A Road Safety promotional campaign held in 2019 was jointly organised by the Transport Bureau, Public Security Police, the Legal Affairs Bureau and the Education and Youth Affairs Bureau. It publicised the importance of obeying traffic regulations, to strengthen the understanding of laws and sense of road safety among local residents, and thus reduce the number of traffic accidents.

The Transport Bureau and the Traffic Department of the Public Security Police held workshops and talks related to road safety in schools, community centres, non-governmental organisations and private organisations, with the aim of reinforcing residents' understanding of road safety through long-term education efforts.

During 2019, a total of 97 schools and organisations participated in the road safety seminars and workshops co-organised by the Transport Bureau and Traffic Department; 14,951 people participated.

Cross-border Traffic

Cross-border Land Routes

Four land routes link Macao and mainland China: the Border Gate, the Zhuhai-Macao Cross-border Industrial Zone, the Hong Kong-Zhuhai-Macao Bridge checkpoint, and the Lotus Flower Bridge checkpoint (Cotai checkpoint).

During 2019, there were 29,291,186 visitor arrivals by land, representing an increase of 32.2 percent over the previous year's figure. Of these, 20,931,567 entered via the Border Gate; tourists from mainland China and Hong Kong represented 90.8 percent and six percent of the total, respectively. There were 5,381,058 visitors who arrived via Hong Kong-Zhuhai-Macao Bridge checkpoint; tourists from mainland China and Hong Kong accounted for 42.5 percent and 46.8 percent of this total, respectively. The number of visitors who arrived via the Cotai checkpoint was 2,962,378, while 16,183 arrived via the Zhuhai-Macao Cross-border Industrial Zone. During the year, there were 25,985,860 arrivals of Macao residents via the Border Gate, 1,211,653 via Hong Kong-Zhuhai-Macao Bridge checkpoint, 1,105,471 via the Cotai checkpoint and 677,026 via Zhuhai-Macao Cross-border Industrial Zone.

Cross-Border Marine Transportation Services

The Outer Harbour Ferry Terminal and Taipa Ferry Terminal provide cross-border transportation services for passengers travelling between Macao and Hong Kong and mainland China. Scheduled passenger ferries to Hong Kong and mainland China are operated by the Shun Tak China Travel — Companhia de Gestao de Embarcacoes (Macao), Limitada; Far East Hydrofoil Company; Hong Kong-Macau Hydrofoil Company; Shun Tak – China Travel Macau Ferries Limited; Yuet Tung Shipping Company; and Cotai Waterjets (Macao) Limited.

Outer Harbour Ferry Terminal

The Outer Harbour Ferry Terminal, which commenced operations in 1993, is one of Macao's most important checkpoints. The terminal operates around-the-clock providing maritime passenger transportation services between Macao and various places including Sheung Wan, Tsim Sha Tsui, Tuen Mun and Hong Kong International Airport in Hong Kong, and Fuyong and Shekou in Shenzhen. Moreover, it also provides helicopter transportation services between Macao and Hong Kong or Shenzhen.

The terminal has a total floor area of 65,000 square metres, and provides 14 berths and a helicopter pad on its rooftop. The main building is a three-storey building, with the first floor as arrival floor, the second as departure floor and the third as food and beverage, shopping and passenger waiting area.

Taipa Ferry Terminal

As planned, the Taipa Ferry Terminal commenced operation on 1 June 2017. It occupies 200,000 square metres, with 16 berths, three multi-functional berths for ferries and a helicopter pad on its

rooftop. The Terminal provides maritime passenger transportation services between Macao and various places including Sheung Wan, Tsim Sha Tsui, Tuen Mun and Hong Kong International Airport in Hong Kong, Fuyong and Shekou in Shenzhen, and Humen in Dongguan, to provide leisure cruise services, with the ground floor as the arrival floor, the first as the departure floor and a food square in the west of the ground floor.

Inner Harbour Ferry Terminal

The Inner Harbour Ferry Terminal has two berths, and stopped providing maritime passenger transportation services between Macao and Wanzai in Zhuhai on 17 January 2016.

Maritime Passenger and Cargo Transportation

During 2019, there were 88,063 scheduled ferry sailings between Macao and Hong Kong, and 22,601 scheduled ferry sailings between Macao and mainland China.

During 2019, 6,267,619 passengers arrived in Macao by sea, representing a decrease of 39.47 percent compared with the 2018 figure. Of these, 3,563,237 entered Macao via the Outer Harbour Ferry Terminal, and 2,704,382 via the Taipa Ferry Terminal.

In 2019, 90,710 containers or 133,038 TEUs (twenty-foot equivalent units) were shipped in and out of Macao by sea, representing decreases of 3.42 percent and 4.04 percent, respectively, on the 2018 figures.

Yuet Tung Shipping Company Limited and Macau Cruise Development Company Limited commenced operating regular sightseeing maritime routes at the Inner Harbour Ferry Terminal on 25 September 2018 and 1 October 2019, respectively; Shun Tak China Travel Ship Management (Macao) Limited commenced operating charter services of Macao Aquatic Trek at Taipa Ferry Terminal and Coloane Pier on 23 October 2018, and on 6 May 2019 received approval to utilise the Macau Fisherman's Wharf as a spot to pick up and set down passengers. Shun Tak China Travel Ship Management (Macao) Limited began operating regular sightseeing maritime routes at Taipa Ferry Terminal and Coloane Pier on 8 December 2018, and received approval to modify this route to become a ferry service between Taipa Ferry Terminal and Coloane Pier and the Interchange at Macau Fisherman's Wharf.

2019 Sightseeing Maritime Routes

	No. of Sails	No. of Passengers
January 2019	62	844
February 2019	95	687
March 2019	107	1088

(Cont.)

2019 Sightseeing Maritime Routes		
	No. of Sails	No. of Passengers
April 2019	113	1028
May 2019	89	1225
June 2019	123	1385
July 2019	134	1686
August 2019	116	1166
September 2019	133	3278
October 2019	136	2342
November 2019	121	1985
December 2019	129	1728

Cross-Border Helicopter Services

Helicopters are the most convenient way to travel between Macao and Hong Kong and between Macao and Shenzhen. A Hong Kong-Macao helicopter passenger transportation service was inaugurated in 1990. A Shenzhen-Macao helicopter passenger transportation service was launched in 2002. Operated by East Asia Airlines, the service reduced the travelling time between Hong Kong and Macao to only 15 minutes. There are 40 and six daily helicopter flights between Macao and Hong Kong and between Macao and Shenzhen, respectively. The helicopter service operates from 10 am to 11 pm. In 2019, there were 10,301 helicopter flights.

Ports

Outer Harbour

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

Inner Harbour

Located on the west coast of the Macao peninsula, the Inner Harbour has many piers for loading and discharging cargo, plus Pier 11A, the ferry terminal, used by passenger ferries licensed by the

Marine and Water Bureau. The South Sampan Pier between Piers 8 and 9 is used by crewmembers of ships berthed in the Inner Harbour who hold Macao SAR Resident Identity Cards, or Portuguese Citizen Cards, or are authorised to land and depart by the relevant government authority. The South Sampan Pier also allows vessels travelling to and from Wanzai, Zhuhai, to berth; these carry flowers and flower farmers, and arrivals are processed through a customs inspection point. The North Sampan Pier between Inner Harbour Ponte 16 and Pier 21 is used by crewmembers of ships berthed in the Inner Harbour who hold Macao SAR Resident Identity Cards, or Portuguese Citizen Cards, or who are authorised to land and depart by the relevant government authority, with prior notice to the Macao Customs inspection point. The Inner Harbour's approach channel is 60 metres wide, and its fairway is 55 metres wide and 3.5 metres deep.

Taipa

The Taipa Ferry Terminal is situated on the north-eastern tip of Taipa island, and is exclusively 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 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 2019, Ka Ho Harbour handled 18,072 inbound TEUs (twenty-foot equivalent units) and 19,274 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.

Marine and Water Bureau

According to By-law No. 14/2013 the Organisation and Operation of the Marine and Water Bureau renewed by By-law No. 23/2015 and No. 30/2018, the Marine and Water Bureau is a department with authorities and duties responsible for exercising maritime authority, promoting the development of maritime activities, and coordinating water resources management and water supply.

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 Fisheries Development and Support Fund started to receive applications on 30 April 2007. The loans approved by the end of 2019 totalled around 73 million patacas.

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 Marine and Water Bureau and the Commercial and Movable Goods Registry. The registration procedures are designed to verify conformity with official requirements concerning technology, safety and environmental protection. Maritime registration is a prerequisite for vessels seeking commercial registration. There were 267 registered vessels at the end of 2019, including seven 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 57 registered vessels in this category at the end of 2019, including two new registrations.

Seafarer Registration

According to the law, Macao residents aged 18 or above may apply for seafarer registration with the Marine and Water Bureau. All Macao residents who wish to conduct professional maritime activities on commercial vessels, auxiliary boats or fishing boats are required to register with the Marine and Water Bureau beforehand. At the end of 2019, a total of 120 people held seafarer's books issued by the Marine and Water Bureau.

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 staff members from the Marine and Water Bureau, Macao Customs Service, Fire Service and Public Security Police Force, as well as sailors, fishermen and nautical athletes in Macao. The training school also provides after-school and summer vacation activities for youngsters.

Government Dockyard

The Government Dockyard is a department under the Marine and Water Bureau. As well as shipbuilding and ship repairs, it is responsible for maintaining and repairing government vehicles, verifying their status and inspecting them, handling newly purchased vehicles, as well as making

and installing vehicle identification plates. At present, most of the vessels built and repaired at the Government Dockyard belong to the Marine and Water Bureau and Macao Customs Service.

In 2019, the Government Dockyard built six new vessels – two 16-metre steamboats, two 19-metre tugboats and two small rescue ships for the Marine and Water Bureau. It also carried out 221 vessel maintenance projects, 173 of which were completed. The shipyard carried out 2,266 projects concerning examination, maintenance and repair of 2,693 vessels.

Safety of Water Supply

To ensure the safety of water supplies in Macao and more effectively manage water resources, on 18 July 2013 the Government set up a unit for water resources management in the Marine and Water Bureau. This is responsible for coordinating water supplies, including raw water supplies from mainland China to Macao, monitoring the operations of water supply companies, and promoting Macao as a water-conserving city.

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 2019, Macao had initialled air services agreements with 50 nations and regions, 41 of which had been officially signed.

Signatories of Air Services Agreements with Macao	
Nation	Signing date
Brazil	15/07/1994
Finland	09/09/1994

(Cont.)

Signatories of Air Services Agreements with Macao	
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
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

(Cont.)

Signatories of Air Services Agreements with Macao	
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
Sri Lanka	08/06/2006
Mongolia	27/06/2006
Japan	10/02/2010
Laos	25/06/2013
Oman	Initialled
Indonesia	Initialled
Israel	Initialled
Greece	Initialled
Slovakia	Initialled
Cape Verde	Initialled
Chile	Initialled
Turkey	Initialled
Qatar	Initialled

Other agreements:

The MSAR Government has signed the following agreement on aviation with the Portuguese Government:

Agreement	Signing date
Protocol on Cooperation in Civil Aviation Between the Portuguese Republic and the Macao Special Administrative Region of the People's Republic of China	9 September 2002

The MSAR Government has signed the following multilateral agreements with the European Union:

Agreement	Signing date
Agreement between the Government of the Macao Special Administrative Region of the People's Republic of China and the European Union on Certain Aspects of Air Services	23 November 2013

As at 31 December 2019, three airlines were registered in Macao and providing flight services: Air Macau, Sky Shuttle and Macau Jet International.

The fleets and scheduled flight services of the three companies were as follows:

Airline	Fleet	Destinations
Air Macau	2 x Airbus A319 6 x Airbus A320 4 x Airbus A320neo 10 x Airbus A321 1 x Airbus A321neo	Shanghai (Pudong, Hongqiao), Beijing, Hangzhou, Xiamen, Nanjing, Ningbo, Chengdu, Nanning, Hefei, Chongqing, Taiyuan, Tianjin, Zhengzhou, Guiyang, Changzhou, Qingdao, Jieyang Chaoshan, Wenzhou, Taipei, Kaohsiung, Bangkok, Da Nang, Hanoi, Seoul, Tokyo, Osaka, Fukuoka, Da Nang, and Hanoi.
Sky Shuttle (Helicopter service)	3 x Agusta AW139	Hong Kong, Shenzhen
Macau Jet International (Commercial Charter Services)	1 x Dassault Falcon 2000LX 1 x Agusta AW139	Global destinations

The numbers of pilots licensed by the Civil Aviation Authority, as at 31 December 2019, were:

Airline	Number of licensed pilots
Civil Aviation Authority	0
Air Macau	52
Sky Shuttle	4
Macau Jet International (Commercial Charter Services)	0
Total	56

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 time from each of these points is less than 20 minutes.

Macau International Airport handled 9,611,287 passengers during 2019, 16.3 percent more than in 2018. Its cargo volume was 42,216 tonnes, representing an increase of 1.7 percent. A total of 77,581 flights took off or landed, representing an increase of 17.9 percent.

The number of private and commercial air charters decreased from 3,170 in 2018 to 2,694 in 2019, representing a decrease of 15 percent.

During 2019, 3,836,692 visitors arrived via the airport.

Air Traffic Control

Since it opened in 1995, the airport's air traffic control system has followed the International Civil Aviation Organization standards, to ensure service efficiency and flight safety. Air traffic control facilities include secondary surveillance radar, ground radar and the Automatic Terminal System. Telecommunications facilities include AMHS, while air-ground communications facilities include a UHF radio station, and navigation facilities include a Doppler VHF omnidirectional radio range (DVOR) apparatus and Instrument Landing System.

The zone with Macao's air traffic control service 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 China 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, mainland China and Hong Kong must work closely to ensure the safety and efficiency of air traffic control in Macao and the neighbouring air zones.

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 231-degree radial line of Zhuhai's Jiuzhou omni-directional beacon station.

Aviation Security

Under Decree-Law No. 36/94/M issued on 18 July 1994 and ICAO regulations, the security systems of civil aviation are intended to ensure the safety, normal operations and efficiency of international civil aviation activities in Macao. 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.

Responsibility for Macao civil aviation security is distributed among the Civil Aviation Authority, the Unitary Police Service, the Macao Customs Service, the Public Security Police, the Judiciary Police, the Macao International Airport, the SEMAC Security Company employed by the Airport, aviation companies and other airport departments.

The 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 security requirements of aviation in Macao and the International Civil Aviation Organization (ICAO) standards and recommendations. Besides, the company provides professional training, certified security inspectors and advanced security equipment to perform security checks on passengers, baggage and cargo.

Macao International Airport Company

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



LRT





Commenced operation on 10 December, the LRT Taipa line is approximately 9.3 kilometres in length, with 11 stations covering the major residential areas, the old districts and tourist' attractions, while connecting with major sea, land and air ports.

The commencement of LRT provides citizens and tourists a convenient and reliable transport system, which refines the transportation network and facilities in Macao and thus improve people's quality of life.