

SINGAPORE × MONOCLE

A guide to Singapore Transport

01 Urban transport & MRT

Introduction_

A lesson in how to do public transport

The MRT (Mass Rapid Transit) train system is the pride of Singapore's public transport system. Fast, clean, air-conditioned and complete with mobile phone coverage, it clocks up around two million rides each day. No surprise, then, that cities such as New York have visited the Land Transport Authority to tap into its expertise.

The sudden spike in the local population in recent years, however, has resulted in overcrowded trains, especially during peak hours. To alleviate this, the LTA is investing billions of dollars into adding new stations and lines to the network. The Circle Line, which loops around Singapore, comes fully online in 2012, while the Downtown Line – linking the eastern and western reaches of the island with the central business district – is due to be finished in 2018. — DW



Five innovative transport solutions_

Providing convenient public transport

- 01 GreenLite:** Southeast Asia's first hydrogen-electric bus emits zero carbon while achieving twice the energy efficiency of other hydrogen buses.
- 02 Car Club:** Book cars for as little as an hour at a time, and petrol's included.
- 03 E-biking at Nanyang Technological University:** At NTU, students loan electric bicycles charged at solar-powered outlets and fitted with navigation technology.
- 04 Premium buses** have guaranteed seating and limited stops.
- 05 EVs for hire:** When electric cars hit Singapore in 2011, Smart Car Rental plans to have several on offer. — AMM

On the map_

Revitalising the suburbs

Since the Circle Line stop at Serangoon opened in 2009, the central suburb has come alive with shopping mall Nex moving in. The same goes for far-flung Sengkang in the northeast, which has been revitalised thanks to new bus services and MRT and LRT (right) lines connecting there. — KA



New technology_

An application for drivers

Innovative transport company, Quantum Inventions is behind qi.com.sg, a website that steers users away from clogged roads. It's now taking its invention to the Middle East and then to neighbouring countries. Mohit Sindhwani (far left) is the systems architect. — AMM

Q&A_

A P Gopinath Menon, associate professor of infrastructure systems and maritime studies, Nanyang Technological University

What are Singapore's biggest challenges in urban transport?

It's a compact island. We really cannot be like any other major city with a very high car population. The main target is [getting people onto] public transport.

What innovations have you seen on buses?

Premium buses. You pay a little more for guaranteed seats, very limited stops. They call it "the business class of the road".

Is Singapore becoming more bicycle-friendly?

Because of the hot and humid weather, we'll never be like Copenhagen, but we'll be much more bicycle-friendly than we are today. — AMM

New station_

Bras Basah

The Bras Basah MRT station sits in the heart of Singapore historical civic precinct. This presented conflicting design challenges for local architects WOHA. One of Singapore's leading practices, it has put its futuristic and minimalist design mark on projects as varied as the new Singapore School of the Arts and commercial project the Odeon Towers.

WOHA needed an obvious landmark for commuters, but the station wasn't allowed to dominate the landscape. Its elegant solution was to push the station's silhouette down to street level. A vast reflection pool covers the station, serving as both a landscape feature and skylight (no artificial lighting is needed during the day) and shadows that ripple attractively on the sloping stone walls. The reflection pool also absorbs heat through thermal mass and evaporative cooling. — DW



Hardworking transport hubs Stations that multi-task

While all MRT stations can double as defence shelters, a few key stations such as Chinatown, Bugis and Newton double as bomb shelters with hidden decontamination chambers, thicker reinforced walls and doors that seal shut in the event of an attack. Meanwhile, unused transit spaces have been converted into shops. — DW

In numbers_

MRT

Number of lines: 4
Number of MRT stations: 78
Length of MRT tracks: 159km
Number of LRT stations: 33
 LRT (Light Rail Transit) is a system of monorails that branch off from certain main MRT lines to serve public housing estates.
Number of trains serving each line (during peak hours): North-South and East-West Lines, 100; North-East Line, 22; Circle Line, 15; Downtown Line, under construction.
Number of daily passengers: around 2 million.
Punctuality: At least 94 per cent of trains arrive, and at least 96 per cent depart within two minutes of schedule.
Budget over the next 10 years for improvement and expansion: S\$60bn



Q&A_

Saw Phaik Hwa, president and CEO of SMRT, Singapore's metro operator

What makes SMRT special?

Like most metros in major cities, we have an efficient, reliable system with a good safety and security record. Our fares are kept affordable through a framework that caps fare increases in small, regular steps. We see ourselves as more than just an operator. Ensuring a pleasant travel experience drives us to innovate in all areas of service.

What achievements are you most proud of?

They would be in the areas of service, transforming of stations into lifestyle hubs and corporate responsibility. Through creative campaigns and service improvement, we are persuading commuters to choose public transport.

What are the challenges facing SMRT?

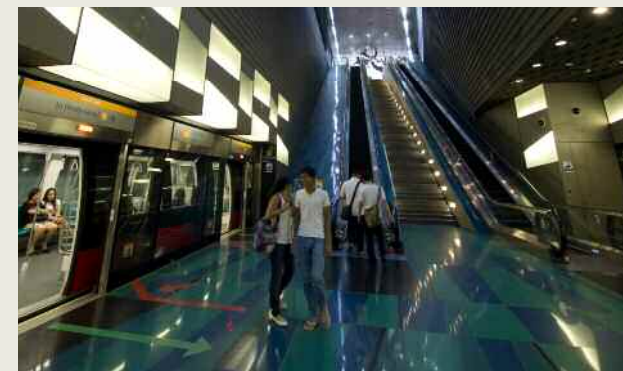
Like most cities with a rapidly rising population, network capacity is a key concern. We also have to balance commuters' calls for shorter waiting time and longer operation hours with the need to maintain the reliability and safety of our 25-year-old network. Some steps we have taken include mid-life upgrading of trains, adding train runs, increased maintenance schedules and buying more trains. — JE

Station design_

Local visionaries

Though their interiors have been spruced up with specially commissioned public artwork by well-known and up-and-coming artists, the architecture of MRT stations has traditionally favoured function over aesthetics. The Land Transport Authority, however, has made the decision to award design honours for selected stations to blue-chip architects.

Until recently, the jewel in the crown was Lord Norman Foster's swooping design for the Expo station. But the open international (and anonymous) competitions for the Stadium and Bras Basah stations were won by local architects WOHA. For now, though, Singapore-based DP Architects has scooped the lion's share of the work for new stations and renovations at Orchard, Outram Park, Beauty World and Promenade. — DW



02 Green transport & roads

Introduction

Balancing expansion with green policy

Singapore has a confident road-building agenda. The 12km Kallang-Paya Lebar Expressway was completed in 2008, the Marina Coastal Expressway is due by 2013 and an 11th expressway is to be built shortly.

But the government has also moved to curb both demand and supply. Electronic Road Pricing (ERP) gantries placed outside congestion-prone zones deduct money from smartcards when vehicles pass by. Meanwhile, the Certificate of Entitlement (COE) scheme restricts the number of vehicles sold. Attempts are also being made to get Singaporeans onto two wheels. Under the national cycling plan, €24.1m has been pumped into creating dedicated cycling lanes in the suburbs, while construction is also underway for bike lanes in the financial district. — KA

Five new transportation technologies

Ensuring stress-free travel around town

- 01 Gothere.sg:** The website and app for getting from A to B calculates the cheapest car, taxi or public transport route.
- 02 B-signals:** To keep buses moving quickly “b-signal” technology means they cruise through more green lights.
- 03 qi.com.sg:** Real-time traffic data lets website users bypass congestion and find parking spaces.
- 04 SingTel TrafficLIVE:** A subscriber service providing up-to-the-minute SMS traffic alerts along routes.
- 05 iRis NextBus:** Relieving commuter anxiety at bus stops by sending riders real-time arrival information via SMS or smartphone. — AMM



Green car

A small but growing presence thanks to local legislation

Singapore's green car fleet may still be small – 5,000 out of nearly 600,000 cars in total – but it is a rapidly growing market. In 2001 the government introduced the Green Vehicle Rebate (GVR) which gives a 40 per cent discount on the fee normally levied on every new car to green vehicles that promote fuel-efficiency and combat pollution.

While Honda, which dominates the hybrid market, has put 1,500 green cars on the streets of Singapore over the past 10 years, William Choo (*top left*), commercial director of Toyota's Lexus division, is confident about taking a bigger slice of the local market; Toyota introduced 300 hybrids in 2010 and recently launched its CT200h hybrid in Singapore. At the other end of the green-vehicle-spectrum, electric cars are still in the “test-bed stage”, says Chin Kee Min (*left*), senior manager of Cycle & Carriage Automotive, which imports the electric Mitsubishi i-MiEV to Singapore. “Petrol hybrids will lead for the next five to 10 years at least,” says Honda's product manager Vincent Ng. “Once the charging infrastructure is up, and with more incentives, we could see more electric vehicles,” Ng concludes. — JE



ERP & COE

Making sure congestion and car numbers are kept under control

Electronic Road Pricing (ERP) and Certificates of Entitlement (COE) are the centrepieces of Singapore's traffic-busting strategy. By charging drivers via an electronic signal each time they enter busy roads, the ERP toll system diverts traffic to less congested routes. But to have a car at all, drivers must hold one of a deliberately limited number of COEs. This makes the market for them quite intense: in April the minimum price was €24,000. — AMM



Cycle lanes

Pedal power in Singapore

Singapore's humid weather has up until now prevented cycling from taking off. But the city-state is gearing up to change that. With cycling-lanes being built in the Marina Bay area, connected to a 120km island-wide bicycling path network that will run through seven residential areas and Singapore's hinterland parks by 2015, the future for Singapore's cyclists looks bright.

Efforts would be stymied without private sector investment. Advertising agency, Ogilvy (*top left*), recently installed in-office bike-racks and shower facilities, and entrepreneurs such as Simon Siah of LifeCycle are selling premium bicycles and sportswear. Siah says customers are “trendsetters” on urban commutes. Competitor Bike Boutique also offers bike-storing services in the Eunos industrial area. — KA

Five cycle routes

The best places to ride in the city-state

- 01 Marina Bay:** Ride along wide boardwalk that provides a beautiful view of the city skyline at dusk.
- 02 Mandai Route:** A regular cyclists' favourite due to its decent length. Also popular with walkers and runners.
- 03 Northern Explorer Park Connector:** Take a peek at Malaysia when you pass Woodlands Waterfront Park.
- 04 Punggol Park:** Enjoy a sight of the suburbs while riding through lush greenery.
- 05 Changi Coast Route** (*right*): Another popular route, providing views of the airport runway and Changi beach. — KA

Green taxis Companies on the move

Singapore's second-largest taxi operator, Trans Cab, has “greened up” its 4,000-strong taxi fleet, running 50 per cent on compressed natural gas (CNG). Prime Taxis is following suit with owner Neo Nam Heng's 750 cars now including 300 CNG models and 43 hybrids. — JE/AMM



Q&A

Mr Teo Ser Luck, senior parliamentary secretary, Ministry of Transport

Mr Teo, who is also a town mayor, chairs the Cycling Facilitation Committee.

Why the push for bicycles?
Cycling is environmentally friendly, cost-effective and healthy. It is a very viable option for short, intra-town travel.

What challenges does the government face?
Finding a way to make sure that all road users co-exist safely on our very densely-utilised roads. We have to optimise space as we do not have room for dedicated cycling lanes on all roads.

What infrastructure has been built?
As part of a S\$43m (€24m) programme to facilitate intra-



town cycling, dedicated off-road cycling paths in seven selected towns are being progressively built. These intra-town cycling paths are also connected to the extensive park connector network. We are also building a cycling network in the downtown Marina Bay area.

What role is the private sector playing?
We are exploring the feasibility of bicycle rental systems in the Marina Bay area. — KA



ComfortDelGro

An international transport colossus

Londoners may not know that Singaporean company ComfortDelGro runs 13 per cent of the British capital's bus network. With a combined fleet of 46,000 vehicles, it is one of the world's largest transport companies – its buses ply lanes in Australia, Ireland and Scotland, and its taxis are on the streets of Aberdeen, Birmingham, Edinburgh, Ho Chi Minh City and Liverpool. At home, Comfort runs 15,600 taxis, 3,000 buses and a metro line. The focus now is on China where Comfort operates 10,000 taxis across 12 cities – the firm is the third largest taxi operator in Beijing. Comfort's transport model runs like clockwork globally, operating quietly behind the scenes with great efficiency. — KA

03 Air & logistics transport

Introduction

Singapore raises the bar for transport solutions

More than 11 million journeys are made every day in Singapore. Within a decade, that mind-boggling number will have increased 30 per cent as Singapore's population grows. Meeting the transportation challenge head on, Singapore is one of the leading developers of logistics systems that connect both local and international hubs.

This year sees Singapore celebrate the 100 years of its aviation industry. This milestone sees the city-state competing with Hong Kong, Shanghai and Tokyo for the title of Asia's capital and its transport projects will keep city planners elsewhere awake. — KA



Singapore Airlines

The pride of the nation's expansion plans

Putting the first A380 into service in 2007, Singapore Airlines is a carrier that has continually stayed ahead of the rest. Flying just three times a week when the airline started operations in 1947 to today servicing 99 destinations in

39 countries, SQ as it's commonly referred to, has done much to put the city-state of Singapore on the world map, and not just because of the Singapore Girls, the airline's sarong-clad female flight attendants who are a symbol of what Singapore Airlines stands for; great service and efficiency. At home, the airline itself has become a symbol of the nation. "We hope that Singaporeans take pride in their national carrier but we don't take it for granted, resting on our

laurels," says Nicholas Ionides, Singapore Airlines' spokesperson. SQ constantly improves its product to beat growing regional and international competition; it's launching in-flight internet access and mobile phone connectivity this year, it added a first route to South America with the launch of flights to São Paulo at the end of March and is upping its game on fleet-expansion with 48 new aircraft, including eight A380s, on order. — LL

Logistics

Economic lifeblood

Singapore is known for its prowess in implementing and operating logistics-systems. Although not strictly a public transport concern, logistics affect the economy of the city-state. This includes ensuring the smooth transit of workers to logistics nodes such as the Port of Singapore (PSA) on the MRT and moving cargo swiftly through Changi Airport. With 140,000 vessels calling at PSA every year and 1.81 million tonnes of cargo handled at Changi in 2010, little Singapore manages to keep pace with bigger regional competitors.

Although Singapore already has the world's biggest transshipment hub – it has now overtaken Shanghai and Hong Kong, thanks to its location in the middle of some of the most important shipping lanes around – the city-state has even bigger ambitions. It aims to shift its downtown port to the Tuas industrial district in a



plan that spans 25 years. The port will become the city-state's new mega-port when it opens.

Over at Changi Airport, cargo is given equal attention. The Coolport@Changi, where perishables are stored and handled, has the capacity to process around 250,000 tonnes a year, and the Singapore FreePort is a state-of-the-art facility that serves as a tax-free storage haven for art collections and luxury goods. These are two of the country's air logistics achievements that keep Singapore in the lead. — (M)



Changi Airport

A model airport with new terminals opening up

Arrive at Changi Airport and you're in the heart of Singapore. Here, one tropical garden replaces the next as you swoosh through immigration and customs – efficiency and green surroundings are a pleasant indication of what you can expect to find in the city-state. Servicing 101 airlines operating 5,600 weekly flights, this has become the world's seventh busiest airport with 43 million annual passengers travelling to 200 cities worldwide.

Changi Airport Group makes sure passenger growth keeps at a steady pace thanks to continual investment; the new T3 opened in 2008, T1 reopens this year after a €280m upgrade, the budget terminal is receiving attention and there are plans for a T4 in the next decade.

"Singaporeans have a lot of pride in Changi Airport because for such a small country – a little red dot that sometimes you can't find on the world map – we are considered one of the best airports," says Foo Sek Min, executive vice-president of Changi Airport management. — LL



Seletar Airport A key development

With major growth projected for the aerospace industry, the new Seletar Aerospace Park is positioning Singapore as an important global player. Housing heavyweights such as Rolls-Royce, SAP, whose design will incorporate elements of the site's former Royal Air Force base, will add €1.7bn in annual value and 10,000 jobs when complete in 2018. — AMM

10 things we love about Changi

Where every detail has been considered

- Wi-fi:** Free wi-fi throughout the airport
- Architecture:** The roof at T3, which lets in natural daylight
- Greenery:** Changi's six gardens, including cactus and orchid areas, both indoors and outdoors at departure
- Food:** Restaurants serving up Singapore's staple, chicken and rice
- Pool:** The outdoor swimming pool
- Service:** Efficient and friendly staff
- Time out:** Quiet resting zones
- Places to work:** Green and airy work areas
- Efficiency:** Swift immigration procedures
- Design:** Easy-to-navigate signage

04 Future of Singapore transport

Getting around_

Striving to best serve the population of five million

From its headquarters next to Little India, the Land Transport Authority (LTA) manages most of Singapore's transport network. It's not an easy task. "We have to put in place critical but not necessarily popular policies," says Hock Yong Chew, LTA's chief executive.

His eye is on public transport. "It's the most efficient and effective way to transport a large number of people in a place like Singapore," he says. "We want it to be the travel mode of choice for more Singaporeans."

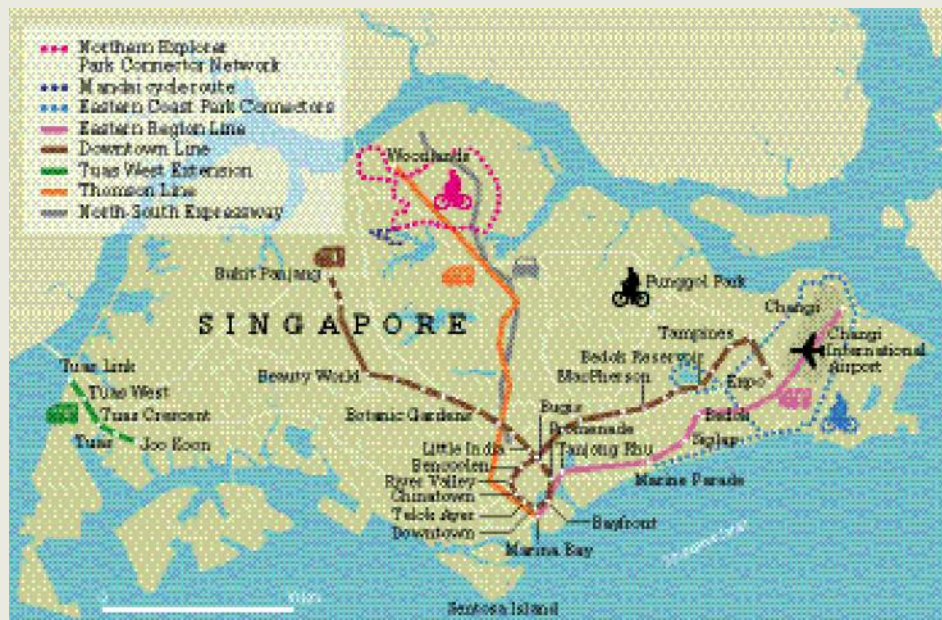
Chew is most excited about the MRT system, which he calls "the backbone of our public transport". He's on the way to doubling the length of Singapore's rail network in the next decade – €32.9bn has been committed to this end.

With car sales set to rise, Chew knows he cannot neglect the state of the roads, however: new expressways along Singapore's coast and crisscrossing the hinterland are afoot. A nod to the LTA's green concerns, cycling paths are being introduced.

Over at Changi International Airport, executive vice-president of airport management Foo Sek Min is unwavering in his belief that Singapore's airport will continue to be in the lead, both regionally and globally. This is thanks to Changi's experience in developing a small airstrip into one of the world's largest airports in less than 30 years.

"History has shown that we have continued to serve our travellers and airline customers well. You can spend a lot of money on building a state-of-the-art mega terminal but it's more than just implanting the hardware," Foo says. "It's about the system and the people," he adds.

And that's really what it comes down to here; the Singaporean commitment to constantly upgrade and make better this tiny city-state with a population of just over five million. — KA



In the pipeline_

Projects transforming the infrastructure

01 Sentosa Gateway Tunnel:

The new Disney-esque €3.7bn development Resorts World Sentosa and future residential and commercial projects on Singapore's southern island, are expected to push traffic another 20 per cent in the next four years. The €111m Sentosa Gateway Tunnel, due for completion in 2015, is set to ease the increased flow.

02 Marina Coastal Expressway:

The busloads of gamblers headed for Singapore's casino Marina Bay Sands will get there even faster with a dual five-lane expressway due for completion in 2013. Thankfully, they won't disturb the harbour-front view – part of the road will run through an underwater tunnel, a first for Singapore.

03 Circle Line:

Sixteen stations have already opened and the remaining 13 will follow throughout 2011. Singapore's fourth MRT-line,

it smoothes traffic flows and opens access to the Marina Bay area.

04 Downtown Line:

It's expected half a million passengers will use this line when completed in 2018. Connecting the outer reaches of the city-state with downtown, it'll increase quality of life for residents in all corners of the island.

05 Thomson and Eastern Region lines:

Pumping another €11bn into two new MRT-lines, the government is splashing out big to double the existing network to 278km and connect eastern and northern residential estates all along the eastern coast to the Central Business District by 2020.

06 Tuas West Extension:

Workers at industrial areas Jurong and Tuas will save time getting to work on the new MRT extension at Tuas West. The four new stations, all with bicycle racks installed on the platforms, are scheduled for 2016.

07 Jurong East Modification Project:

The just completed

project is an upgrade of the existing rail network; with a new platform and viaduct, an additional 22 trains now move through Jurong East station.

08 Cycling paths:

Singapore is set to become a bicycling heaven with the 16km of cycling paths across from Marina Bay Sands and another 50km at seven locations on the island fully open in three years.

09 Changi Airport Terminal 1:

Since it opened in 1981, T1 has gone through two upgrades and one extension. Never resting on its laurels, the Changi Airport Group opens the further revamped T1 at a cost of €280m this year, increasing by 10 per cent floor space for retail and food outlets and meeting growing passenger numbers head on.

10 North-South Expressway:

A new expressway that will run down the island by 2020. — LL