URBAN MOBILITY

10 CITIES
LEADING THE WAY
IN ASIA-PACIFIC
STARTING OFF

03 How Well Are We Moving?
04 How We Move
05 Who’s Moving Better: Established, Trending and Emerging Cities
07 Supercykelstier, Copenhagen
09 Ponce City Market, Atlanta

10 CITIES

12 Seoul
16 Shanghai
19 Singapore
22 Suwon
26 Taipei
30 Tokyo
33 Bandung
37 Ho Chi Minh City
40 Sydney
44 Yangon

TAKEAWAYS

48 Comparing the 10 Cities
49 Mode Share Across the 10 Cities
50 What Makes Your Heart Beat Faster?

ABOUT

51 Further Reading
52 References & Image Credits
56 We Are CLC & ULI

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How Well Are We Moving?

The future is now, are we ready?

*Urban Mobility: 10 Cities Leading the Way in Asia-Pacific* presents 10 city cases exploring innovative methods to solve urban mobility challenges. This joint publication by the Urban Land Institute (ULI) and Centre for Liveable Cities (CLC) commemorates the 2017 ULI Asia-Pacific Summit.

The fourth publication in a series championing a sustainable and healthy future, *Urban Mobility: 10 Cities Leading the Way in Asia-Pacific* hopes to inspire citizens, city leaders and professionals to develop solutions to their own cities’ challenges, being mindful of their unique resources, capabilities and needs.

Asia-Pacific is a region rapidly becoming denser. In terms of population density, development level and cultural diversity, significant variations have emerged among cities across the region, and indeed, even between cities in the same country.

As population density increases, so do issues of congestion, pollution and stress. Even in the face of common challenges, the 10 cities featured here have forged their own paths to improve the health and quality of life of their residents in holistic, integrated ways through the use of alternative, green modes of transport or new technology.

*Urban Mobility: 10 Cities Leading the Way in Asia-Pacific* analyses each city’s most strategic plans and boldest mobility projects. The cities have brought about physical, social and environmental change, and in particular, healthy solutions.
How We Move

Urban mobility is integral to city living. How do you move around cities? How do your movements affect your fellow citizens and the city, in terms of sustainability and liveability?

Active Mobility
Walking, cycling, or using personal mobility devices get the body moving and the heart pumping. These modes produce minimal carbon emissions, making this category the greenest and healthiest mobility option.

Public
Daily commutes typically include a combination of rail and bus travel. Rail systems serve main transport corridors and can carry the most people, while buses and shuttles serve shorter, more intricate routes.

Shared
For conventional taxis and car-sharing services like Uber and Grab, carpooling options and technological innovations can better match drivers to commuters. Such innovations help to minimise carbon output and maximise the use of resources.

Private
Car drivers and motorcyclists enjoy much flexibility and comfort—but at a high spatial footprint per user, along with congestion and pollution if demand for such vehicles is not properly managed. A balance with more sustainable transport modes must hence be promoted.
All cities have developed along different trajectories. Some cities have developed based on compact, pedestrian-friendly models, while others were planned to be car-centric. In this publication, cities are classified according to the positioning and maturity of their mobility ecosystems.

**Established**
Cities in this category—such as Copenhagen and Atlanta—have cultivated a strong culture of active mobility, to the extent that active, sustainable commutes now form a way of life. Key enablers include compact urban forms, mixed-use environments, good public transit, and an ingrained civic and sharing culture.

**Trending**
Such cities—like Seoul, Shanghai, Singapore, Suwon, Taipei and Tokyo—are highly committed to shifting away from policies and infrastructure development that prioritise motorised transport. Their successes motivate them to further develop robust systems of sustainable urban mobility.

**Emerging**
These cities—such as Bandung, Ho Chi Minh City, Sydney and Yangon—recognise the urgency of having sustainable mobility for long-term development. They are in a unique position to learn from other cities and so, with the right planning, can avoid the negative effects of car-dependent mobility.
Looking to Copenhagen and Atlanta
Cycle Superhighways
Supercykelstier, Copenhagen

Already internationally recognised for its strong cycling culture, Copenhagen aimed to increase the reach and accessibility of its cycling network, to encourage even more residents to cycle.

Connecting the Suburbs
A network of 28 “cycle superhighways” radiating from the city centre was planned to serve residents in outer regions. These high-quality routes encourage people to cycle even for longer journeys beyond 5 km.

Enjoying the Ride
These superhighways link existing routes to create seamless paths. Innovative en route design features, such as motion-sensing LED lights, bike pumps and “green wave” technology, were installed to enhance the cycling experience.

Measures of Success
Copenhagen is a healthier, less polluted city. A 52% increase in usage was seen on the Farum route, the first superhighway to open in 2012. When the network is complete, the city anticipates a $60-million drop in healthcare costs and an 856-tonne cut in carbon emissions.
“... if we are sweet to the pedestrians, to the people, whether they are walking or bicycling, we actually have a lively, more liveable, more safe, more sustainable and more healthy city”.

Jan Gehl
Danish Architect

Watch Jan Gehl deliver his CLC Lecture on People-oriented Strategies for City Planning.
Once a plain brick building in Atlanta’s Old Fourth Ward neighbourhood, Ponce City Market blossomed into a vibrant community hub in 2015. The Market is linked to the 35.4-km Atlanta BeltLine, a multi-use trail connecting the city’s neighbourhoods along a former rail corridor. As a mixed-use development, the Market provides bike-friendly facilities and health amenities alongside its residences, office space and retail areas.

Welcoming Cyclists
With wide hallways, shower facilities, storage spaces for bicycles and even bicycle valet services, the Market makes cyclists feel welcome and secure. To support the BeltLine, the Market donates the first $1 of each car parking session to the project.

Repurpose and Rejuvenate
With steady streams of active mobility users visiting the Market, many new developments that encourage car-free lifestyles have sprouted. Homes near the BeltLine were sold within 24 hours, as opposed to taking 60 to 90 days previously.

Catalyst for Investment
Active transport infrastructure can certainly attract more development—over $400 million of public and private investment in the BeltLine has led to more than $2.4 billion in further private development along the corridor.
These examples from across Europe and the United States show how active mobility and innovative use of space can create healthy communities and liveable cities. These cases are presented in detail in *Active Transportation and Real Estate: The Next Frontier*.

Read on for more exciting examples from across the the Asia-Pacific region.
Seoul

Population: 10,300,000
City Area: 605 km²
Density: 17,018 ppl/km²
**Shaping a Car-free Zone**

**Seoul**

**Challenges**
In the past four decades, Seoul’s population quadrupled while cars increased fiftyfold. In Yonsei-ro, a popular 550 m-long commercial street in Seoul’s Sinchon district, the average travel speed in 2013 was only 10 km/h—far slower than the 25 km/h average on main roads. Pedestrians were confined to narrow sidewalks, causing crowding in the streets.

**Solutions**
The Seoul Metropolitan Government implemented two car-free days in Yonsei-ro, and collected data for planners to fully analyse the impact of vehicle restrictions. The results showed that vehicles travelling north to south were successfully redirected, but a detour had to be identified for vehicles going in the opposite direction.

**Results**
Yonsei-ro was transformed into Seoul’s first public transport-only zone. A transit mall was completed in January 2014, and the benefits were almost immediate—traffic accidents fell by 34% just six months after its opening, and visitors using public transport increased by 11%. Compared to 2013, shoppers in Sinchon increased by 29%, bringing 4% more revenue.

**Takeaways**
Measures were taken to prevent worsening congestion around the transit mall, showing that pedestrian-friendly projects need not always adversely affect businesses. Seoul’s evidence-based approach—combining localised pilots with rigorous data collection—led to better-informed solutions and helped generate support among multiple stakeholders.
“I have been envious of the pedestrian streets in world-famous cities for a long time. Now Seoul has some pedestrian roads of its own. A human-centered Seoul, a pedestrian-friendly Seoul— we have just laid the first milestone”.

Park Won-soon
Mayor of Seoul

Read Mayor Park Won-soon’s blog post on The Dawn of a Pedestrian-Friendly City.
Shanghai

Population: 24,153,000
City Area: 6,341 km²
Density: 3,809 ppl/km²
Humanising the Streets
Shanghai

**Challenges**
As Shanghai grew in affluence, more people aspired towards the status symbol of owning private cars. Between 2009 and 2014, motor vehicle mileage doubled. By 2014, the city’s car ownership exceeded 10% of the national car population. Cars dominated Shanghai’s 12,000 km of road space, leaving little room for much else.

**Solutions**
Shanghai created a mission to return streets to its people, and make streets “Safe, Green, Vigorous and Smart” through a set of urban development guidelines. This sparked a shift in focus from engineering and road traffic towards design of spaces and the environment. Artistic and cultural attractions were set up to encourage walking, while smart technologies improved the monitoring and integration of public street facilities.

**Results**
Shanghai’s spaces became more interactive, accessible and aesthetically pleasing. By downplaying vehicular transport, streets were made safer and more convenient to walk and cycle. Community life and leisure activities flourished, while neighbourhoods became cleaner and greener.

**Takeaways**
Shanghai got the fundamentals right by reviewing traffic planning and street design, before fine-tuning it in favour of pedestrians, cyclists and public transit users. Widened walkways became common ground for people-public-private collaborations, bringing life and personality to the streets.
Singapore

Population: 5,607,000
City Area: 719 km²
Density: 7,796 ppl/km²
Leaving Cars Behind
Singapore

Challenges
Singapore already has a robust system of integrated land use and transport planning, but accommodating a growing population on limited land has required a shift towards more space-efficient modes of transport.

Solutions
More incentives are being introduced for people to use public transport and embrace new options such as personal mobility devices (PMDs). Folding bikes and PMDs are now allowed on trains and buses all day, and numerous bike-sharing services have kicked off. From 2016, property developers are required to submit a walking and cycling plan in development applications.

Results
Public transport usage now makes up 66% of all peak-hour journeys. Various transport forms are common these days, including Uber and Grab ride-share services and PMDs. Riding a PMD is even seen as fashionable. Since the passing of the Active Mobility Bill in 2017, PMD users have increased significantly to at least 25,000, with about 25% using their devices daily.

Takeaways
By welcoming new technologies while helping stakeholders and users adapt to change, Singapore is focusing on people’s needs and working with the market to find mutually beneficial solutions. This allows for greater systemic innovation, and is a prerequisite for achieving “mobility as a service”.
Suwon

Population: 1,170,000
City Area: 121 km²
Density: 9,666 ppl/km²
Every Day Can Be a Festival
Suwon

Challenges
Haenggung-dong, a mixed-use neighbourhood in the historic town centre of Suwon, had been in decline and was slated for urban renewal. Cars filled its streets and alleys; the area was home to only 4,300 residents, yet there were 1,500 cars registered.

Solutions
In September 2013, residents explored a futuristic car-free neighbourhood. Haenggung-dong was transformed into an “ecomobility village”. Residents parked their cars outside the neighbourhood, and used city-provided shuttle buses, innovative e-bicycles and personal mobility devices. Suppliers transferred goods from outside the car-free zone to an electric shuttle service for deliveries.

Results
The EcoMobility Festival helped move people from driving to using public transport. Four years on, car speeds are limited to 30km/h, and parking lots on main streets have been removed. Haenggung-dong is now a thriving food hub with more home-based businesses, and still holds monthly car-free Saturdays to relive the festival experience. Real estate values have also appreciated. Suwon hopes to replicate this model in other parts of South Korea.

Takeaways
Despite being a one-off event, the festival represented a bold commitment to changing mobility preferences and demonstrated the value of continual experimentation and improvement. It mobilised residents and stakeholders, made urban mobility a subject of public debate, and aligned municipal departments and provincial authorities.
“After the festival closed, the cars were supposed to come back; and on that next Monday they came back—the big SUVs were again being put in front of the doors. Many people were in tears. They wanted to keep this car-free neighbourhood as it was, forever…”

Konrad Otto-Zimmermann
Creative Director, The Urban Idea GmbH
Former Secretary General, ICLEI – Local Governments for Sustainability

Hover for sound bite. Watch Konrad Zimmermann’s interview during the 2016 World Cities Summit.
Taipei

Population: 2,694,000
City Area: 272 km²
Density: 9,912 ppl/km²

Mode Share

City Map
Sharing the Ride
Taipei

Challenges
On average, more than one million motorcyclists commute from New Taipei City to Taipei daily. Bicycles have often had to compete with motorbikes and motor vehicles for roadspace, posing high risks to cyclists.

Solutions
A world-class cycling environment and a public bike-sharing scheme, called YouBike, was developed in 2011. The idea was to have cycling compete with motorbikes, and to create parking spaces for bicycles that do not mix with motorbikes or scooters. The government also rationalised car usage fees and increased dedicated spaces for walking and cycling. Real-time traffic and Youbike data was made public, which allowed users to predict YouBike’s usage and availability.

Results
Taipei is on track to build an extensive cycling network of more than 500 km. Cycling is now an established part of urban mobility, with 5% of all journeys made on bicycle, and 50% of cyclists are women. By 2018, people will be able to access one of 400 YouBike stations within a 10-minute walk from anywhere in the city. The Taipei government aims to achieve a 12% modal share for bicycles by 2020.

Takeaways
Taipei’s success is due to sustained efforts in understanding the public’s evolving behaviours and preferences. With sufficient infrastructure and meaningful data, commuters are encouraged to use the bike-sharing service, making cycling trendy and an everyday mode of transport. This also generates data, which the city capitalises on to further improve its systems and planning decisions.
Starting Off

10 Cities

Takeaways

About
“In the future, Taipei City will build separate lanes for pedestrians and cyclists on the twin principles of expanding the pavement and separating it from the cycle lane”.

Dr Ko Wen-je
Mayor of Taipei

Read Mayor Ko Wen-je’s views on transportation innovation.
Tokyo

Population: 9,240,000
City Area: 627 km²
Density: 14,737 ppl/km²
Connecting the Flows
Tokyo

Challenges
As Tokyo’s urban landscape evolved, developments became increasingly sophisticated and complicated. There has been an increasing concentration of people in the city centre, for work and recreation. The metro system is one of the world’s busiest, serving some 3.3 billion passengers annually.

Solutions
To prevent crowding and disorder in key locations, the city created connections to allow pedestrian traffic to flow better. Efficient, layered connections were built to link sprawling underground pedestrian networks at metro stations. Walkways were widened, some even doubled in width. These were joined to improved street-level infrastructure, all designed to link seamlessly.

Results
A new core retail area was established, linking Tokyo and Yurakucho stations, and serving a combined 1.2 million passengers daily in 2016. Spaces were opened for events and exhibitions. The Central Business District (CBD) became a highly accessible, attractive public space drawing large crowds, with visitors to the office district more than tripling on weekends.

Takeaways
Planning matters. A key enabler was the established, widespread underground network at these transport nodes—all that was left to do was connect them. By creating compact, mixed-used developments around public transport nodes, workplaces and social activities were brought closer to the people.

An increase in human traffic can be induced and accommodated through infrastructural enhancements, creating a busy yet vibrant and orderly environment.
Bandung

Population: 2,482,000
City Area: 167 km²
Density: 14,835 ppl/km²
Walking the Talk
Bandung

Challenges
Bandung is Indonesia’s third-largest city by population, but only 20% of the Greater Bandung population use public transport. The city’s hilly topography limits mobility options. In areas such as the Jalan Cihampelas shopping district, vendors line the streets, causing traffic congestion.

Solutions
To relocate the many street vendors and provide an accessible and safe shopping space, the Teras Cihampelas elevated deck was built to allow visitors to walk from the nearby zoo to Jalan Cihampelas without having to enter the congested city centre.

Results
Pedestrians can now stroll freely and safely on the skywalk, away from traffic. The 450 m-long elevated deck has space for close to 200 street vendors. There is a bolder plan to build Bandung Skywalk, a series of bridges and skywalks across the city, creating better connectivity over the hilly terrain between east and west Bandung.

Takeaways
Urban mobility extends beyond moving people around by machines or cars—it is also beneficial to offer people a range of travel options. The Skywalk plan focuses on walking as the more attractive option, by allowing people to walk safely in the city without having to cross busy traffic intersections.
“...by giving option[s] for people to choose how to get connected in the city, I think that more or less, [t]hat is the vision we want to have for a more sustainable and liveable Bandung...”

Ridwan Kamil
Mayor of Bandung

Watch Ridwan Kamil’s full interview during the 2014 World Cities Summit.
Ho Chi Minh City

Population: 8,147,000
City area: 2,096 km²
Density: 3,888 ppl/km²
Moving on from Motorbikes
Ho Chi Minh City

**Challenges**
Ho Chi Minh City (HCMC) is the economic heart of Vietnam. With robust economic growth and an increasing population, it has become a “motorcycle-dependent city” with nearly 6 million motorbikes and various affiliated problems. Pedestrian walkways are congested due to poorly regulated motorcycle parking. In 2014, 65% of the 875 traffic accidents involved motorbikes, resulting in 713 deaths.

**Solutions**
HCMC has an ambitious plan to build an extensive public transport system, which will include Mass Rapid Transit and Bus Rapid Transit corridors. With this, public transport is slated to make up 25% of city travel by 2020 and 60% after 2030. To reduce traffic accidents, the new Traffic Safety Year 2017 campaign hopes to build a healthier, safer traffic culture.

**Progress**
It continues to be an uphill task for public transport to gain a foothold in HCMC. Besides having to raise capital to build the new public transport system within a short timeframe, the city faces difficulties such as fragmentation of funding, land acquisition and resettlement challenges, as well as administrative issues.

**Takeaways**
Time is a key factor in real estate development. Complex projects require a longer, phased implementation, with flexibility in timing. Construction costs in HCMC’s growing infrastructure sector will make progress uncertain until contract experience is gained, and local industry capacity and skills are further developed.

In the long run, with more funding and project management, HCMC is in a good position to become a society of shared mobility, completely bypassing the car-dependant stage.
Sydney

Population: 5,006,000
City area: 12,368 km²
Density: 405 ppl/km²
Reclaiming the Streets

Sydney

Challenges
In 2015, Sydney—home to seven of Australia’s 10 slowest roads—earned the title “congestion capital”. That year, congestion ratings—especially on prominent streets like George Street—hit a high of 34%. Vehicles moved 20% slower in the CBD.

Solutions
The state’s transport authority launched an initiative to replace the numerous bus services plying George Street with a resource-efficient light rail service, and to transform a portion of the street into a pedestrianised boulevard. From 2019, a 1.2-km stretch will be fully pedestrianised, with light rail as the main form of transport.

Results
A reduction in traffic demand was achieved to great effect—more than 39,000 pedestrians now walk down George Street every day. Thus far, sections of the street have been gradually closed in preparation for the light rail service. Commuters have generally welcomed the change, although taxi drivers and couriers were inconvenienced by road diversions.

Takeaways
Sydney was determined to fix its congestion problems and transform its roads into assets. Gaining buy-in from the public was important. The city is moving closer to realising the Sustainable Sydney 2030 Plan to become “green, global and connected”.

“The key to a successful global city is one that is environmentally sustainable, is actively serviced with community infrastructure and parks and green spaces with a rich variety of choices and activities, and has a lively social and cultural life”.

- Clover Moore
Lord Mayor of Sydney

Read Lord Mayor Clover Moore’s visions for the City of Sydney.
Yangon

Population: 7,360,000
City area: 1,500 km²
Density: 4,907 ppl/km²

City Map
Moving the Masses
Yangon

Challenges
In Yangon, people spend hours each day travelling on heavily congested streets. A lack of planning and government funding led to poor road infrastructure and an overstretched public transport system. The private car population doubled from 2011 to 2015 due to relaxed import limits. Indiscriminate roadside parking eats up road capacity and worsens the public transport experience.

Solutions
The Project for Comprehensive Urban Transport Plan for Greater Yangon (YUTRA) was formed in 2013, with long-term plans up to 2035. Public-private partnerships oversee implementation of proposed solutions and provide much-needed funding. Aside from a Bus Rapid Transit (BRT) system, circular railway improvements are planned, to cut waiting times from 45 minutes to 10 minutes.

Progress
A BRT Lite scheme was launched in 2016 to gradually replace the notoriously dangerous “BM” buses. Street infrastructure has been improved to enhance safety and flow, and to shape courteous road behaviour. This includes constructing flyovers, planting concrete blocks to delineate lanes and installing smart traffic lights. Citizens have responded positively, and are demanding more.

Takeaways
Improvements take time, especially for backward infrastructure such as Yangon’s railway signal systems, dating back to the 1960s. But with a comprehensive, detailed plan to introduce various forms of rapid transport (bus, light rail and metro) and a new inflow of investments, the city can use its existing transport corridors to reduce dependency on cars, and develop shared mobility.
Takeaways

48 Comparing the 10 Cities
49 Mode Share Across the 10 Cities
50 What Makes Your Heart Beat Faster?
Comparing the 10 Cities

- **Shanghai**
  - POP: 24,133,000
  - AREA: 6,341 km²
  - DEN: 3,809 ppl/km²

- **Ho Chi Minh City**
  - POP: 8,147,000
  - AREA: 2,096 km²
  - DEN: 3,888 ppl/km²

- **Yangon**
  - POP: 7,360,000
  - AREA: 5,165 km²
  - DEN: 1,500 ppl/km²

- **Taipei**
  - POP: 2,694,000
  - AREA: 272 km²
  - DEN: 9,912 ppl/km²

- **Tokyo**
  - POP: 9,340,000
  - AREA: 2,122 km²
  - DEN: 14,737 ppl/km²

- **Sydney**
  - POP: 5,066,000
  - AREA: 12,368 km²
  - DEN: 405 ppl/km²

- **Singapore**
  - POP: 5,607,000
  - AREA: 719 km²
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- **Suwon**
  - POP: 1,170,000
  - AREA: 121 km²
  - DEN: 9,666 ppl/km²

- **Bandung**
  - POP: 2,482,000
  - AREA: 167 km²
  - DEN: 14,835 ppl/km²

**Density (ppl/km²)**

**Population (Millions)**

- 25
- 20
- 15
- 10
- 5
- 0
Mode Share Across the 10 Cities
What Makes Your Heart Beat Faster?

Healthy practices lie at the heart of thriving cities. The way we shape and connect our spaces can have far-reaching impacts on our communities. Our hearts can race either from stress caused by traffic congestion or from invigorating active mobility.

While each of these 10 cities has its own set of problems, they all share a common goal: to establish a sustainable mobility system. The benefits of such a system are diverse: reduced congestion and stress, improved quality of the environment, healthier choices and expanded development opportunities.

As urban mobility choices increase with the wider use of personal mobility devices and technology enhancements such as autonomous vehicles, greater pressure will be placed on shared roadways. There is a need to consider the speed of travel rather than simply differentiating by type of vehicle. This will require a re-engineering of the public right of way to ensure that multiple flexible modes of transport can be accommodated.

Together, the strategies adopted by each city form ecosystems of mutually reinforcing solutions. This emphasises our collective role in shaping real estate developments and cities, so that movement and mobility create positive social, physical, economic and environmental value. We share the power to create healthy cities—the future starts now!
Further Reading

Urban Mobility: 10 Cities Leading the Way in Asia-Pacific builds upon the work of ULI and CLC and champions the vision of sustainable and active mobility in cities.
References

Copenhagen


Atlanta

Seoul


Shanghai


Singapore
Email response from Falcon PEV on 5 May 2017.

References

Suwon


Tokyo


Taipei


Bandung


References

**Ho Chi Minh City**


**Sydney**


**Yangon**


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Set up in 2008 by the Ministry of National Development and the Ministry of the Environment and Water Resources, the Centre for Liveable Cities (CLC) has as its mission “to distil, create and share knowledge on liveable and sustainable cities”. CLC’s work spans four main areas – Research, Capability Development, Knowledge Platforms, and Advisory. Through these activities, CLC hopes to provide urban leaders and practitioners with the knowledge and support needed to make our cities better.

www.clc.gov.sg

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The Urban Land Institute is a non-profit education and research institute supported by its members. Its mission is to provide leadership in the responsible use of land and in creating and sustaining thriving communities worldwide. Established in 1936, the Institute has almost 40,000 members worldwide representing all aspects of land use and development disciplines.

www.uli.org

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