

ITS AP Leaders Forum, Jakarta 2024

# Eco-Mobility: Navigating the Sustainable Path



# Singapore's Key Mobility Challenges



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**Increasing Travel Demand**  
Population increase, intensive development and change in lifestyle

**Land Constraints**  
>12% of total land used for road and land transport infrastructure

**Aging Population**  
30% aged 65 and above by 2030

**Manpower & Digital Competencies**  
Shortage of labour in specific industry and relevant digital knowledge

# Stages Towards Building a Sustainable Eco-Mobility

**“Hardware-centric”  
stage**



**“Data & Software-centric”  
stage**



**“Human & Environmental centric”  
stage**



**Building essential land  
transport infrastructures  
for connectivity and  
accessibility**

**Sense-making and  
achieving transport  
optimisation and  
efficiency**

**Creating sustainable,  
liveable and inclusive  
community**

# Singapore Green Plan as Guide for ITS Masterplan



ITS Singapore



The Singapore Green Plan 2030 is a national sustainability movement which seeks to rally bold and collective action to tackle climate change.

It is a living plan which will evolve as we work with Singaporeans and partners from all sectors to co-create solutions for sustainability. Let's work together to make Singapore a green and liveable home.

## City in Nature

Green, Liveable and Sustainable Home for Singaporeans

- Plant 1 million more trees, and have every household within a 10-minute walk from a park by 2030
- Develop over 130 ha of new parks, and enhance around 170 ha of existing parks with more lush vegetation and natural landscapes by end-2026
- Add 1000ha of green spaces by 2035

## Green Government

Public sector will lead on sustainability

- Be exemplary in taking sustainability action, including to peak public sector carbon emissions around 2025, ahead of national target
- Encourage and enable citizens and businesses to adopt sustainability practices, such as through green procurement

## Sustainable Living

Strengthen Green Efforts in Schools

- Introduce an Eco Stewardship Programme to enhance environmental education in all schools
- Work towards two-thirds reduction of net carbon emissions from schools sector by 2030
- At least 20% of schools to be carbon neutral by 2030

Green Commutes

- 75% of trips during peak periods to be on mass public transport by 2030
- Triple cycling path network to 1,320km by 2030, from 460km in 2020
- Expand rail network to 360km by early 2030s, from around 230km today

Green Citizenry:

Reduce waste and consumption

- Reduce amount of waste to landfill per capita per day by 20% by 2026, and 30% by 2030
- Reduce household water consumption to 130 litres per capita per day

## Energy Reset

Cleaner-energy Vehicles

- New diesel car and taxi registrations to cease from 2025, with all new car and taxi registrations to be of cleaner-energy models from 2030
- Further revise road tax structure to bring down road tax for mass-market electric cars
- Target 60,000 electric vehicle (EV) charging points by 2030, with 8 EV-Ready Towns by 2025

Greener Infrastructure & Buildings

- Green 80% of Singapore's buildings (by Gross Floor Area) by 2030
- 80% of new buildings (by Gross Floor Area) to be Super Low Energy buildings from 2030
- Best-in-class green buildings to see 80% improvement in energy efficiency (over 2005 levels) by 2030

Sustainable Towns & Districts

- Reduce energy consumption in HDB towns by 15% by 2030

Green Energy

- Quadruple solar energy deployment to 1.5 gigawatt-peak by 2025
- Tap on cleaner electricity imports, and increase R&D on renewable energy and emerging low-carbon technologies

## Green Economy

Sustainability as New Engine of Jobs and Growth

- New Enterprise Sustainability Programme to help local enterprises adopt sustainability practices
- Develop Singapore to be a carbon services hub, and a leading centre for green finance in Asia and globally
- Develop Jurong Island to be a sustainable energy and chemicals park
- Leverage opportunities in sustainable industries to create good jobs for Singaporeans

New Investments to be Carbon and Energy Efficient

- Seek new investments to be among the best-in-class in energy/carbon efficiency

## Resilient Future

Safeguarding our Coastlines against Rising Sea Levels

- \$55b dedicated to coastal and drainage flood protection measures
- Formulation of coastal protection plans for City-East Coast, North-West Coast (Lim Chu Kang and Sungei Kadut) and Jurong Island by 2030

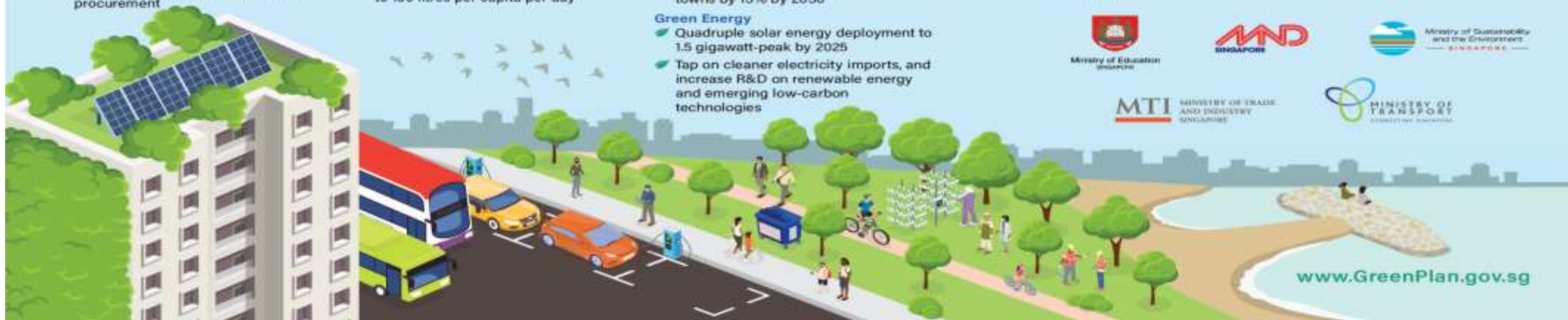
Safeguarding Food Security

- Produce 30% of our nutritional needs locally and sustainably by 2030, through developing land and sea space and skilled workers, funding support, and promoting R&D

Keeping Singapore Cool

- Moderate the rise in urban heat, such as with cool paint and by increasing greenery

Jointly led by:



www.GreenPlan.gov.sg



PARIS2015  
COP21-CMP11



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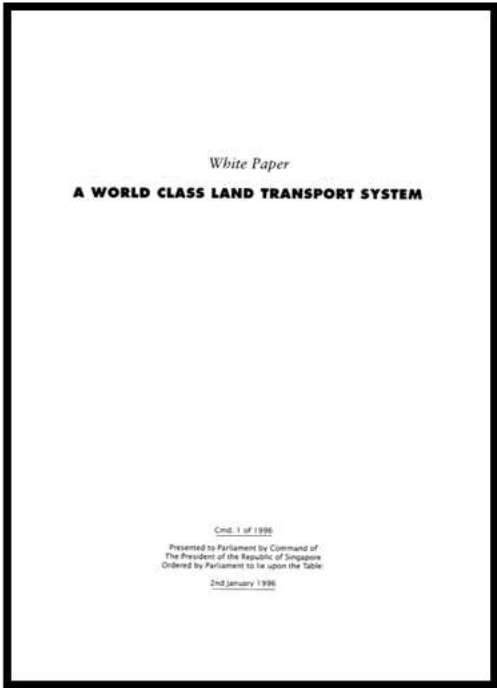
[www.greenplan.gov.sg](http://www.greenplan.gov.sg)



PARIS2015  
UN CLIMATE CHANGE CONFERENCE  
COP21-CMP11



# Tackling the Mobility Challenges in Singapore



**1996**  
World Class Land Transport System



**2008**  
People-centre Land Transport System



**2013**  
Refreshed LTMP 2008



**2019**  
LTMP2040

# Tackling The Mobility Challenges in Singapore with the Transport Masterplan 2040



## 20-Minute Towns and a 45-Minute City



The Land Transport Master Plan (LTMP) 2040 envisions a land transport system that is convenient, well-connected and fast using Walk, Cycle, or Ride transport options.

Learn more about how we're connecting homes, communities and workplaces at [www.lta.gov.sg/ltmp2040](http://www.lta.gov.sg/ltmp2040)

By walking, cycling or riding, you can:



## Healthy Lives, Safer Journeys



The Land Transport Master Plan (LTMP) 2040 envisions a land transport system that creates a safer, healthier and more liveable environment, filled with vibrant community spaces.

Learn more about how we're connecting homes, communities and workplaces at [www.lta.gov.sg/ltmp2040](http://www.lta.gov.sg/ltmp2040)



## Transport for All



The Land Transport Master Plan (LTMP) 2040 envisions a land transport system that is more inclusive and supported by a gracious and caring commuting culture.

Learn more about how we're connecting homes, communities and workplaces at [www.lta.gov.sg/ltmp2040](http://www.lta.gov.sg/ltmp2040)



# Promoting Cleaner Energy Vehicles

- From 2025, **no new diesel car registrations**
- From 2030, **all new car registrations to be of cleaner-energy models**
- Singapore is **continually revising the EV road tax structure** to better align rates paid by electric cars and ICE cars of similar looks and feel



Source: Eco-Business, "Wheels in motion: Singapore join global movement to phase out fossil fuel vehicles", 21 February, 2020.

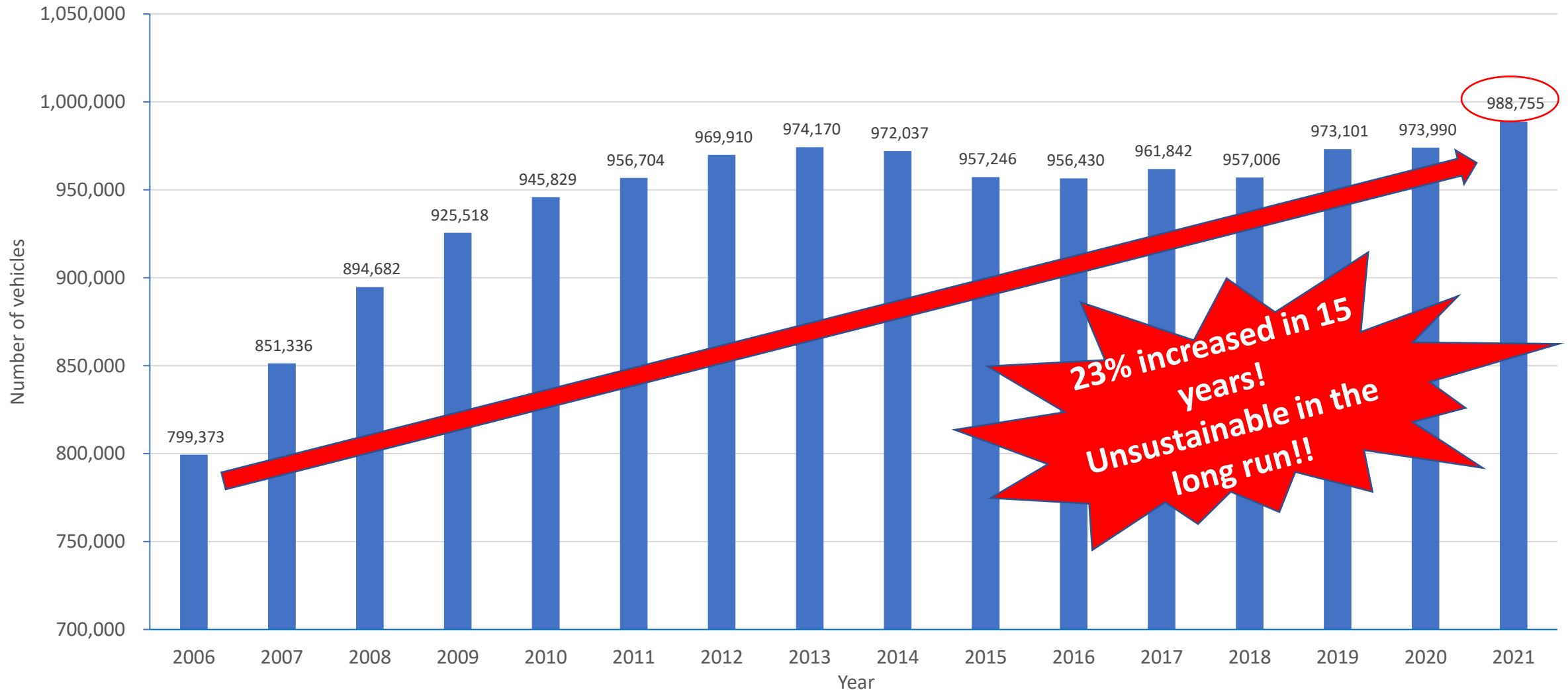


Source: Vulcan Post, "Budget 2021: S'pore To Set Aside \$30M For EV-Related Initiatives – Raises Petrol Duty Rate, 16 February 2021



# Total Vehicle Population

## Total Vehicle Population Trend in Singapore



Source: [https://www.lta.gov.sg/content/ltagov/en/who\\_we\\_are/statistics\\_and\\_publications/statistics.html](https://www.lta.gov.sg/content/ltagov/en/who_we_are/statistics_and_publications/statistics.html)

# Key Transport Modes Today

## Public Transportation as the Backbone



MRT



LRT



Taxi



Bus



Car-sharing  
(EV and non-EV)



Shared-Bicycle



Ride-hailing cars



Direct-city bus / bus-pooling

Picture Source: [www.lta.gov.sg](http://www.lta.gov.sg), LTMP2040

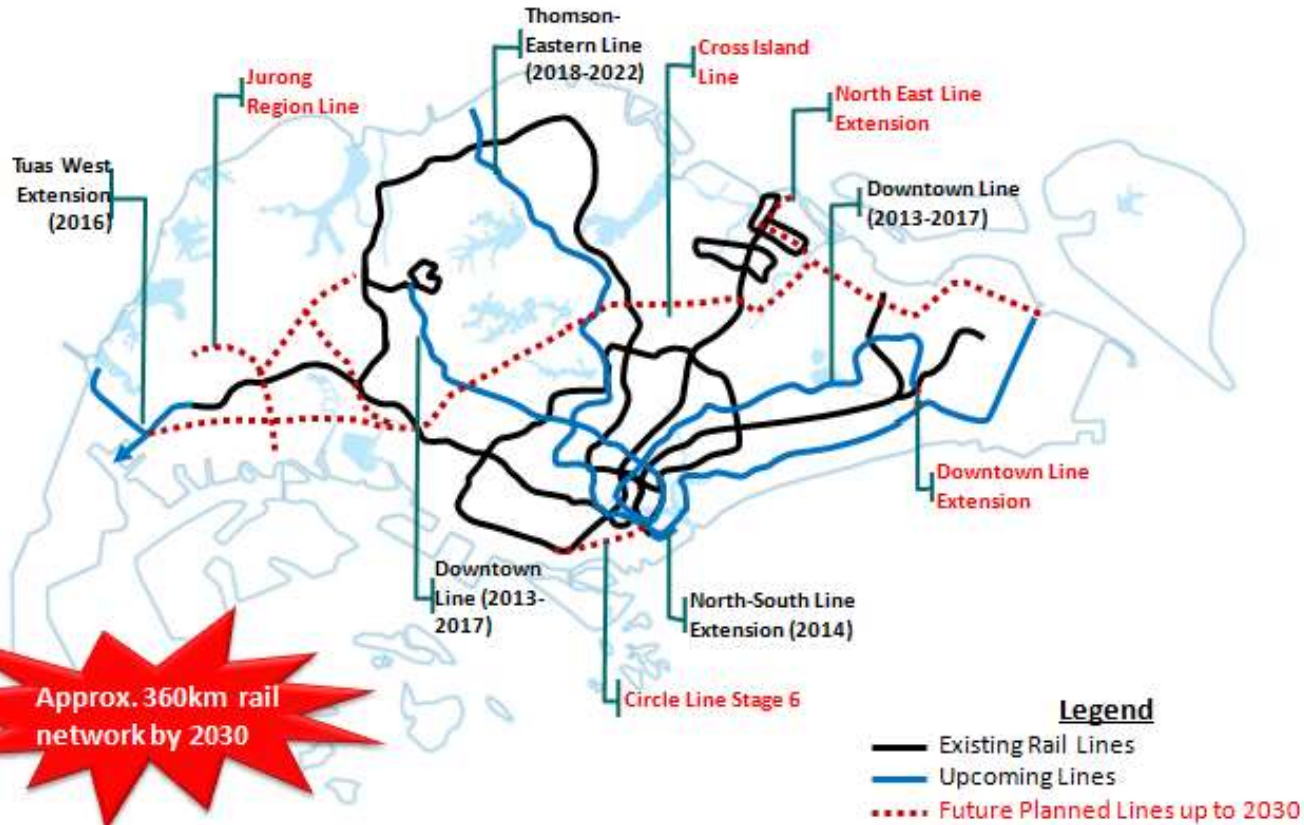
# Enhancing Transport Accessibility and Connectivity



ITS Singapore

## Doubling the Rail Network & Enhancing the Bus Services

## Developing More Integrated Transport Hub



# Integrated ITS Approach to support Eco-Mobility

## 1. Intelligent sensors and equipments



## 2. Integrated Traffic Monitoring and Control



**ITS CENTRE**  
Intelligent Transport Systems Centre



## 3. Optimizing Traffic Operations

# FUTURE MOBILITY – WHAT MIGHT IT LOOK LIKE?

So if a paradigm shift in urban mobility is a necessary step towards a more sustainable urban future, what would this future look like?

2016

## Flash Back

## Where we are today in 2024:

### FROM CURRENT...

**LIMITED MOBILITY OPTIONS**  
 Limited mobility options, especially between private cars and public transit, creating a stark difference between private and public transport in terms of comfort, convenience and efficiency.

**LIMITED SERVICE PROVIDERS**  
 Public transport dominated by a few players, with limited integration between different modes of transport. Private cars remain the most convenient mode of transport.

**PEAK-CAPACITY-DRIVEN APPROACH TO PLANNING**  
 Peak-capacity-driven approach to transport infrastructure planning. Roads and car parks, for example, may be mostly empty during non-peak hours.

**CAR-ORIENTED INFRASTRUCTURE**  
 Ownership-based transport system resulting in private-car-oriented infrastructure systems and low-density developments. This in turn affects liveability and sustainability.

**FRAGMENTED ACCESS TO INFORMATION**  
 Fragmented access to information by both service providers and consumers limiting the potential for non-private car options such as taxis, shared cars, public transport to be fully exploited.

### TO FUTURE

**OPTIONS, OPTIONS, OPTIONS!**  
 Numerous connected mobility options, which consumers can enjoy on-demand and at affordable prices, as well as customer-oriented mass transit services.

**INTEGRATION OF PUBLIC AND PRIVATE SERVICE PROVIDERS**  
 Private sector provides more mobility services, in parallel with those provided by the public sector. Greater convergence of various transport modes and services and integration of multiple channels and aspects of mobility (e.g. fare integration), and relevant supporting infrastructure and information.

**OPTIMISED ASSET UTILISATION WITH DEMAND MANAGEMENT**  
 Greater focus on mobility demand management to optimise the utility of both existing and planned urban systems in a technology-rich environment. Lower cost of travel.

**PEOPLE-CENTRIC DEVELOPMENT**  
 Shared mobility infrastructure and services; and value shifts from asset ownership and driving performance, to software and passenger experience.<sup>19</sup> Inclusive and walkable urban environments which are more people-oriented.

**DATA-DRIVEN CONNECTED COMMUNITIES**  
 Large and comprehensive information systems, founded upon artificial intelligence and big data. Digitally savvy consumers who prefer service-based mobility packages to owning and maintaining a car.

Source:  
 Extracted from  
 “Creating Liveable Cities through Car-Lite Urban Mobility” by Centre for Liveable Cities (CLC) Singapore and Urban Land Institute (2016)

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