Sustainable Land Transport System
— Singapore’s experience

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Singapore
Outline

• Introduction

• Singapore’s experience
  – Integrated Planning & Development
  – Land Transport Strategies
  – Demand Management

• Summary
Introduction

Cities and Transport
Sustainable Development
Cities and Transport

- **Automobile dependent cities**
- **Cities with “balanced” transport**

Source: Barter et al. (2003)
Automobile Dependent Cities

Adjust cities to cars:

- Extensive construction of freeways → fast travel by car
- Transit services neglected → auto dependency: traffic congestion↑
- Pedestrians neglected
- Retail and many other activities relocated from central cities to suburban malls
Cities with “Balanced” Transport

Develop integrated transport systems:

• Improve public transport services parallel with highway/street growth
• Develop coordinated modes
• Encourage pedestrians
• Enhance cities’ liveability → sustainability
Sustainable Development

Source:
UITP – International Association of Public Transport
Integrated Planning and Development

- Long-term Planning
- Whole of Government Approach
- Land Use Plan 2013
Long Term Planning

- Concept Plan 2011 maps out directions into the 2050s
Whole of Government Approach

Ministry of Transport

Land Transport Authority (LTA)
land transport planning and development

Housing & Development Board (HDB)
provide public housing for the population

Urban Redevelopment Authority (URA)
overall urban planning

National Parks Board (NPB)
manage parks and greenery

Jurong Town Corporation (JTC)
industrial developer

Ministry of Trade & Industry

MTI
Land Use Plan 2013

• To ensure Singaporeans continue to enjoy a high quality living environment

Building good affordable homes

Becoming a city in a garden

Greater mobility with enhanced transport connectivity

Sustaining a vibrant economy with good jobs

Ensuring room for growth and a good living environment in the future
Land Transport Strategies

- More connections
- Better services
- Inclusive, liveable environment
3 Key Strategies

A People-Centred Land Transport System

More Connections

Better Services

Inclusive, Liveable Environment
More Connections

178km → 360km by 2030
8 in 10 households within 10-minute walk of a rail station

Legend
- Existing Rail Lines
- Land Transport Masterplan 2008 Rail Lines
- Land Transport Masterplan 2013 Rail Lines
More Connections

- Integrate land use/transport planning with other agencies
- Integrated transport facilities with mixed use building developments
More Connections

• Integrated Public Transport Hubs

- Existing
- Upcoming
Better Services

Increasing Capacity of Existing MRT Lines

- Re-signalling of North-South Corridor to increase 20 per cent capacity during peak hours
- New trains added on North-East Line

Bus Services Enhancement Programme

- New bus routes to improve connectivity, some will run parallel to existing MRT lines to offer more choices

More Buses, Better Rides

800 more buses
20% bigger bus fleet by 2016
Better Services

• More Priority for Buses

  - Full day bus lanes
  - Mandatory give-way at bus bays
  - Signal priority at junctions for buses
Better Services

- **Enhance commuter experience**

- Premium bus services
- Upgraded Bus Stops
- Upgraded Bus Poles
- CEPAS Smartcard
- Bus services map
- Real-time bus arrival info
- Travel Information System
  - SMS
  - internet
  - hotline
- MyTransport.SG
Inclusive, Liveable Environment

Walk2Ride

- Sheltered linkways
- Lifts at pedestrian overhead bridges
- Enhancing overall walking experience

Noise Abatement Measures

- 20 km of noise barriers along elevated tracks
Inclusive, Liveable Environment

Facilitate Cycling

- Develop cycling paths to transport nodes
- Assist in implementation of shared footways
- Provide better bicycle parking facilities at public transport nodes
- Allow foldable bicycles on trains & buses
- Safety signs along cycling routes
Carbon Emissions-based Vehicle Scheme

- Low carbon emission car models enjoy rebates between $5,000 and $20,000
- Surcharges will be levied for high carbon emission models with effect from 1 July 2013
- Revised Fuel Economy Labelling Scheme to provide information to potential car buyers on emissions performance of car models
Inclusive, Liveable Environment

- EMA & LTA co-lead multi-agency EV Taskforce
- EV Test-bed from June 2011 to Dec 2013

Mitsubishi iMiEV
Daimler Smart Ed
Renault Fluence
Nissan Leaf

Robert Bosch to develop and deploy up to 60 normal and 3 quick charging stations, operate until end of 2016.
Inclusive, Liveable Environment

- Green Mark for RTS system
  - Energy saving measures in MRT system

- Trial on Diesel Hybrid Bus technology

- LED traffic lights and pedestrian overhead bridges
### Demand Management

#### Ownership Control
- Vehicle Quota System (i.e. COE)
- Other ownership costs
  - Additional Registration Fee (ARF)
  - Excise duty
  - Road tax

#### Usage Restraint
- Electronic Road Pricing (ERP)
- Petrol duty
Vehicle Quota System (VQS)

- Introduced in 1990
- Mechanism to control vehicle growth
- Certificate of Entitlement (COE)
  - valid for 10 years
- Open bidding on the Internet
- Twice a month

June 2013 1st Bidding Exercise for COE

<table>
<thead>
<tr>
<th>Category</th>
<th>Quota</th>
<th>Quota Premium</th>
<th>Bids Received</th>
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<tbody>
<tr>
<td><strong>NON-TRANSFERABLE CATEGORIES</strong></td>
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<tr>
<td>Category A (Cars &lt;= 1,600cc)</td>
<td>341</td>
<td>$67,301</td>
<td>855</td>
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<tr>
<td>Category B (Cars &gt;= 1,601cc)</td>
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<td>$75,000</td>
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<tr>
<td>Category D (Motorcycles)</td>
<td>511</td>
<td>$1,701</td>
<td>616</td>
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<tr>
<td><strong>TRANSFERABLE CATEGORIES</strong></td>
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<td></td>
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<tr>
<td>Category C (Goods veh &amp; buses)</td>
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<td>$57,989</td>
<td>292</td>
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<tr>
<td>Category E (Open)</td>
<td>239</td>
<td>$76,000</td>
<td>534</td>
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Electronic Road Pricing (ERP)

- Implemented in 1998
- Replaced the manual Area Licensing Scheme (ALS) since 1975
Electronic Road Pricing (ERP)

- ERP is a congestion management tool
- Review speed range at 3-month interval, adjust ERP charge rate (in half-hour slots)

Expressways

<table>
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<tr>
<th>Speed Range</th>
<th>Increase</th>
<th>Decrease</th>
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<tbody>
<tr>
<td>65 kph</td>
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<tr>
<td>45 kph</td>
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<tr>
<td>30 kph</td>
<td>False</td>
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</table>

City & Other Roads

<table>
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<tr>
<th>Speed Range</th>
<th>Increase</th>
<th>Decrease</th>
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<tbody>
<tr>
<td>30 kph</td>
<td>True</td>
<td>False</td>
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<tr>
<td>20 kph</td>
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<td>True</td>
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</table>
Travel Smart

for commuters  
Insinc

SMRT’s Early Travel Discount

Travel Early, Travel Free

for employers  
Workplace-based Travel Planning
• Cities with a “balanced” transport approach result in lower carbon emissions
Summary

- Sustainable Development
  - Social inclusiveness
  - Economic development
  - Environment protection

- Singapore’s people-centred land transport system is delivered through
  - Integrated planning and development
  - Commuter-centric land transport strategies
  - Demand Management

- Sustainable transport is a key element in the development of sustainable cities
Thank You

www.sitce.org

LTA-UITP Singapore International Transport Congress and Exhibition (SITCE) 2013

www.ltaacademy.gov.sg