Western Region Megapolis Transport Master Plan

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- **Transport and Land Use**
  - Direct impact from
    - Land use Interventions on the Transport
    - Transport Interventions on Land use
  - Integrated Approach
  - Transport Plan needs a Structure Plan for its Future forecast
Define an urban edge

- Densify nodes on periphery of the Core Area
- Link with mass transit and improve connectivity
- Upgrade and densify key existing towns
- Develop specialized economic clusters
  - Colombo CBD – financial & service cluster
  - Industrial/manufacturing cluster
  - Airport related activity cluster
  - Science and technology cluster
  - Logistics corridor
  - Plantation related economic cluster
  - Forest related economic cluster
  - Tourism cluster
### Planned Growth – Not Uniform

<table>
<thead>
<tr>
<th>Planning Area</th>
<th>Extent of Planning Area (Ha)</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2012</td>
</tr>
<tr>
<td><strong>1. CBD</strong></td>
<td>16,465</td>
<td>1,188,686</td>
</tr>
<tr>
<td>2. Colombo Fringe</td>
<td>43,713</td>
<td>1,016,979</td>
</tr>
<tr>
<td>3. Aero City</td>
<td>31,170</td>
<td>484,941</td>
</tr>
<tr>
<td>4. Meerigama Industrial City</td>
<td>17,403</td>
<td>140,057</td>
</tr>
<tr>
<td>5. Horana Industrial City</td>
<td>16,771</td>
<td>178,627</td>
</tr>
<tr>
<td>6. Forest City</td>
<td>73,215</td>
<td>335,373</td>
</tr>
<tr>
<td>7. Gampaha Residential Zone</td>
<td>64,139</td>
<td>815,717</td>
</tr>
<tr>
<td>8. Knowledge City</td>
<td>15,639</td>
<td>309,234</td>
</tr>
<tr>
<td>9. Logistics Corridor</td>
<td>20,263</td>
<td>380,683</td>
</tr>
<tr>
<td>10. Muthurajawela Tourism Zone</td>
<td>11,048</td>
<td>280,345</td>
</tr>
<tr>
<td>12. Southern Tourism Corridor</td>
<td>46,390</td>
<td>504,972</td>
</tr>
<tr>
<td><strong>Western Region</strong></td>
<td>372,906</td>
<td>5,850,633</td>
</tr>
</tbody>
</table>
Mobility Issue within the Region (2013)

- **10 Million** Passenger Daily Trips within CMR
- **7.8 Million/day** Motorized Trips (2.2 Million Non motorized, eg. Walking)
- **1.9 million Daily Passengers** Entering the CMC limits each Day.

Average Travel Speed in CMR **17km/h**
Average Travel Speed within CMC **12km/h**

With Population Increase the Need of Travel is going to Increase

Source: ComTrans
Do People Travel by Corridor?

Not Necessarily

Radial Travel Patterns
Passenger OD in Galle Road

- **Solution** should be based on **Network** rather than Corridor.
- Providing a solution to one corridor will not solve the problem.
2013: 246,000 Pax
2035: 761,000 Pax

2013: 438,000 Pax
2035: 966,000 Pax

2013: 150,000 Pax
2035: 202,000 Pax

2013: 348,000 Pax
2035: 656,000 Pax

2013: 174,000 Pax
2035: 398,000 Pax

2013: 130,000 Pax
2035: 272,000 Pax

2013: 298,000 Pax
2035: 624,000 Pax
Design Features of the Master Plan

• Modes to Complement NOT Compete
• Integration of Modes to provide Seamless Travel.
• Selection of Modes
  – practically of implementation
  – Sustainability for the planning horizon
• Rail based Mass Transit to provide the connection to the city and longer trip lengths
  – Priority to Existing Railway
  – Extend Modern RTS to other areas and Inter corridor
• Upgrade and Modernise the total Fleet of Bus Service to Provide connection to Rail base Mass Transport
• Introduction of New Modes to Boost the Supply
• Optimize and Manage Existing Infrastructure
• Focus on Demand Management in Short term
* Source: ComTrans Study Tech Report 6
Transport Proposal

1. Public Transport Improvements
   - Railway Electrification
   - Rapid Transit System
   - Inland Waterways
   - Bus Modernization
   - Multimodal Facilities
   - School bus/Taxi Regulations

2. Road Infrastructure Improvements
   - National and Urban Expressways
   - Improvements of existing and Missing Links

3. Transport Demand Management (TDM)

4. Environmentally Sustainable Transportation
1. **Existing Rail Lines (196km)**
   I. Panadura _ Veyangoda (extension to Polgahawela) (110km)
   II. Ragama Negambo and Airport Connection (26km)
   III. KV Line (60km)

2. **New Rail Lines (52km)**
   IV. Kottawa – Horana (22km)
   V. Kelaniya – Dompe _ Kosgama (Freight Line) (30km)
New Rapid Transit System (RTS) With LRT

Elevated RTS – Line 1 (Green)
Fort – Kollupitiya-Bambalapitiya- Borella-Union Place-Maradana (15km)

Elevated RTS – Line 2 (Orange)
Fort – Maradana- Mattakkuliya/Peliyagoda (11.5km)

Elevated RTS – Line 3 (Red)
Dematagoda-Borella-Kirulapone-Havelock City- Bambalapitiya (10km)

Elevated or at grade RTS – Line 4 (Purple)
Borella – Malabe (10Km)

Elevated or at grade RTS – Line 5 (Pink)
Malabe – Kottawa via Malabe (9.6km)

Elevated or at grade RTS – Line 6 (Olive)
Malabe – Kottawa (6km)

Elevated or at grade RTS – Line 7 (Ash)
Peliyagoda – Kadawatha (13km)
• Comfortable (AC), Safe Commuter Service
  – Wellawatte – Battaramulla (IW1)
  – Fort – Union Place (IW2)
  – Mattakkuliya – Hanwella Line (IW3)
• Promote Eco Tourism in Non Peak times
Bus Modernization (Higher Level of Service)

- Better Door to Door Service
- Easy Access and Comfortability
- Integration with RTS and Rail
- Incorporate Existing Operators and providers

ACTIONS

- Institutional Reforms
- Modernization of all buses
  - All Routes
  - Low Floors, A/C, Smart IT systems including GPS,
- Revision of Bus Routes
  - Identification of new routes using expressways for trips within CMR
- Rescheduling of Buses
- Modernize all bus stops and terminals
- Provide bus lane and bus priority where implementable
Multimodal Transport Hub & Centres

Multimodal Transport Hub at the Heart of Colombo

Integration of Transportation, Commercial, Logistics & leisure facilities

Fort/Pettah Main Hub
11 Multi Modal Center

- Horana, Kottawa, Kaduwela, Kadawatha, Panadura, Negambo, Avissawella

- Gampaha, Meerigama, Ragama, Moratuwa

Proposed Development Area
Public Transport Network

- Modernized Bus
- Electrified Rail
- Modern RTS
- Inland water
- Multimodal Facilities
Improve School and Office transport Services

• Form a regulatory mechanism

• Separate companies to provide higher quality door to door, reliable service with A/C, monitoring facilities.

• Extend ‘Sisusariya’ Program
• National Expressway Expansion
  – Central Expressway
  – Ruwanpura Expressway

• Improving Existing Roads
  – Horana to Mirigama via Paddukka and Kirindiwela
  – Negombo - Divlapitiya - Mirigama
  – Ja-ela to Divlapitiya via Ekala and Minuwangoda
  – RDA On going and identified Projects

• New Urban Expressway
  – Port Access Expressway (New Kelaniya Bridge to Port)
  – New Kelaniya to Pore Via Battarmulla

• Improving Missing Links
  – Baseline Extension
  – Marine Drive Extension to
    • Galle Face
    • Dehiwela
  – Duplication Extension to Hospital Road
Transport Demand Management

- Introduce Flexible and Staggering work hours
- Efficient Traffic Enforcement with CCTV Monitoring/Red Light Camera
- Parking Management Systems
- Signal Light Improvements (Improvements, Upgrades and Synchronization)
- Traffic Flow Management Centre
- Road Pricing (ERP)
  - Once Sufficient Public Transport Improvements are completed. (2025)
Analysis

• Transport Demand Modelling with JICA STRADA model
  – Over 4 months of Run Times
  – Years 2020, 2025 and 2035
  – Do Nothing Cases (as Base)
  – Project Cases for each Year
  – Complete Modelling Process (less ‘Expert’ Opinion)
  – Key Performance Indices for Economic Analysis
## Key Performances in CMR

<table>
<thead>
<tr>
<th>Metric</th>
<th>2013</th>
<th>2020</th>
<th>2025</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>5.8 million</td>
<td>6.9 million</td>
<td>7.7 million</td>
<td>9.1 million</td>
</tr>
<tr>
<td>Motorized Trips per Day</td>
<td>7.8 million</td>
<td>13.4 million</td>
<td>15.6 million</td>
<td>18.2 million</td>
</tr>
<tr>
<td>Public Transport Share (trips)</td>
<td>52%</td>
<td>59%</td>
<td>59%</td>
<td>59%</td>
</tr>
<tr>
<td>Public Transport Share (km)</td>
<td>52%</td>
<td>61%</td>
<td>62%</td>
<td>62%</td>
</tr>
<tr>
<td>Average Travel Speed (km/h)</td>
<td>17 km/h</td>
<td>28 km/h</td>
<td>28 km/h</td>
<td>27 km/h</td>
</tr>
<tr>
<td>Public</td>
<td>-</td>
<td>24 km/h</td>
<td>25 km/h</td>
<td>25 km/h</td>
</tr>
<tr>
<td>Private</td>
<td>-</td>
<td>38 km/h</td>
<td>36 km/h</td>
<td>32 km/h</td>
</tr>
<tr>
<td>Average Trip Distance</td>
<td>12.0 km</td>
<td>5.94 km</td>
<td>5.91 km</td>
<td>5.91 km</td>
</tr>
<tr>
<td>Public</td>
<td>-</td>
<td>6.0 km</td>
<td>6.0 km</td>
<td>6.0 km</td>
</tr>
<tr>
<td>Private</td>
<td>-</td>
<td>5.8 km</td>
<td>5.8 km</td>
<td>5.8 km</td>
</tr>
<tr>
<td>Total cost of Mobility</td>
<td>Rs 580 Million</td>
<td>Rs 679 Million</td>
<td>Rs 844 Million</td>
<td></td>
</tr>
<tr>
<td>Cost of Travel (per km)</td>
<td>Rs 12</td>
<td>Rs 12</td>
<td>Rs 13</td>
<td></td>
</tr>
</tbody>
</table>

- Public Transport Share Up
- Average Speeds Up
- Public Transport Speed Up
## Commencement of Interventions/Costs

### Transport Demand Management

<table>
<thead>
<tr>
<th>Period</th>
<th>TDM</th>
<th>RTS</th>
<th>Rail</th>
<th>Water Transport</th>
<th>Bus/Terminals</th>
<th>Para Transit</th>
<th>MMH/MMC</th>
<th>Roads</th>
<th>ES</th>
<th>Total (USD Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Months</td>
<td>51</td>
<td>1</td>
<td>1</td>
<td>60</td>
<td>0.20</td>
<td>1</td>
<td>1,669</td>
<td>1</td>
<td>1,785</td>
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<tr>
<td>6m-3Y</td>
<td>127</td>
<td>1,250</td>
<td>2,342</td>
<td>663</td>
<td>0.35</td>
<td>200</td>
<td>461</td>
<td>228</td>
<td>5,270</td>
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<tr>
<td>3Y-5Y</td>
<td>-</td>
<td>955</td>
<td>364</td>
<td>65</td>
<td></td>
<td></td>
<td>100</td>
<td>32</td>
<td>1,516</td>
<td></td>
</tr>
<tr>
<td>5Yrs+</td>
<td>19</td>
<td>1,310</td>
<td>420</td>
<td></td>
<td>1.77</td>
<td>300</td>
<td>1,157</td>
<td></td>
<td>2,906</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>196</td>
<td>3,516</td>
<td>3,127</td>
<td>125</td>
<td>663</td>
<td>1.77</td>
<td>3,319</td>
<td>229</td>
<td>11,477</td>
<td></td>
</tr>
</tbody>
</table>

### Public Transport

- **USD 11.5 Billion Investment over 20 years**
- **Pub 67%  Road 29%**
- **RTS, Rail, Road Equal Shares (~30%)**

Public Transport Priority Ensured
<table>
<thead>
<tr>
<th>PID Ref. Number</th>
<th>Project</th>
<th>Estimated Project Cost (US$ in Millions)</th>
<th>Project Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Demand Management</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1.1.21</td>
<td>Traffic enforcement through CCTV monitoring</td>
<td>25</td>
<td>1 Year</td>
</tr>
<tr>
<td>1.1.16</td>
<td>Widening and improvements of intersections with signal timing updates</td>
<td>4</td>
<td>1 Year</td>
</tr>
<tr>
<td>1.1.20</td>
<td>Improvement of Traffic Flows based on identified interventions</td>
<td>20</td>
<td>1 Year</td>
</tr>
<tr>
<td>1.1.13</td>
<td>Implementation of “Parking Metering System”</td>
<td>0.28</td>
<td>6 months</td>
</tr>
<tr>
<td>1.1.12</td>
<td>Development of parking management system, Pricing mechanism, and enforcing time limited parking</td>
<td>1</td>
<td>1 Year</td>
</tr>
<tr>
<td>1.1.15</td>
<td>Provision of overflow parking facilities for long-distance private buses</td>
<td>0.53</td>
<td>1 Year</td>
</tr>
<tr>
<td>1.1.12</td>
<td>Outsource the towing of unauthorized parking</td>
<td>0.01</td>
<td>6 Months</td>
</tr>
<tr>
<td>1.1.12</td>
<td>Identification of three-wheel parking locations</td>
<td>0.01</td>
<td>6 Months</td>
</tr>
<tr>
<td>1.1.29</td>
<td>Study on flexible working hours and implementation</td>
<td>0.05</td>
<td>6 Months</td>
</tr>
<tr>
<td>Public Transport Improvements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1.3</td>
<td>Feasibility Study of Rapid Transit for all identified lines in CBD and Suburbs:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Green Line (RTSL)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yellow Line (RTS2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Red Line (RTS3)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Borella – Battaramulla Line (RTS4)</td>
<td></td>
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<tr>
<td></td>
<td>Battaramulla – Kotawila Line (RTS5)</td>
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<td></td>
<td>Malebo – Kaduwela (RTS6)</td>
<td></td>
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<tr>
<td></td>
<td>Pelissegoda – Kadawatha (RTS7)</td>
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<td></td>
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<tr>
<td>1.1.1</td>
<td>Feasibility Study of Railway Electrification &amp; Modernization - Panadura – Polgahawela Line (RL-M1)</td>
<td>1.1</td>
<td>1 Year</td>
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<tr>
<td>1.1.4</td>
<td>Implementation of Inland Water Transport on:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wellawatto – Battaramulla Trace (IW1)</td>
<td>60</td>
<td>1 Year</td>
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<td>1.1.4</td>
<td>Feasibility Study on Inland Water Transport on:</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Fort – Union Place Trace (IW2)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Mattakkuliya – Hanwell Trace (IW3)</td>
<td></td>
<td></td>
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<tr>
<td>1.1.28</td>
<td>Restructure of Public Bus Service</td>
<td>0.2</td>
<td>1 Year</td>
</tr>
<tr>
<td>1.1.23</td>
<td>Introduce New School Transport Service</td>
<td>1.42</td>
<td>1 Year</td>
</tr>
<tr>
<td>Road Infrastructure Development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1.6</td>
<td>Expressway Construction:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Central Expressway</td>
<td>992.2</td>
<td>5 Years</td>
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<td>1.1.6</td>
<td>Expressway Construction:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ruwanpura Expressway</td>
<td>529.5</td>
<td>5 Years</td>
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<tr>
<td>1.1.6</td>
<td>Detailed Design and Implementation on Expressway Construction:</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Elevated road from New Kelani Bridge to Colombo Port</td>
<td>145</td>
<td>3 years</td>
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<tr>
<td>1.1.10</td>
<td>Feasibility Study of Road Capacity Improvements on:</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Horana-Meerigama</td>
<td>0.5</td>
<td>1 Year</td>
</tr>
<tr>
<td></td>
<td>Ja-ela-Meerigama</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1.11</td>
<td>Feasibility Study of Missing Links on:</td>
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<tr>
<td></td>
<td>Marine Drive Extension</td>
<td>1.5</td>
<td>1 Year</td>
</tr>
<tr>
<td></td>
<td>Baseline Extension</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Duplication Road extension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1.15</td>
<td>Study on Expressway Capacity Improvements</td>
<td>0.1</td>
<td>1 Year</td>
</tr>
<tr>
<td>Environmental Sustainable Transport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1.24</td>
<td>Provision of separate lanes of bicycles/motor cycles – Feasibility Study</td>
<td>1.42</td>
<td>2 Years</td>
</tr>
</tbody>
</table>
Conclusion

• Public Transport Intervention a Priority
  – Railway to carry much of the load
  – RTS to provide fast access to CBD and Suburbs
  – Modernized Buses to supplement with improved connections to rail and RTS stations
  – Supplemented with use of Inland water transport

• Highway improvements need to supplement the Public transport interventions

• Need Transport Demand Management until the Infrastructure is built.
  – Short term measures are vital.
Once we accept our limits, we go beyond them.

Albert Einstein

Thank you