Planning for sustainable Urban Railway

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Sustainable Urban Transport Planning

• What is “sustainable”?  
• Stakeholders in the transit system and their needs  
• Meeting the needs of stakeholders.  
• Urban Transportation System (private / public)  
• Assessment of the Urban Transportation.  
• How to improve the ongoing Urban Transportation Projects?
What is sustainable?

Sustainable Urban Transportation:

Urban Transportation System that meets the needs of all stakeholders for the present generation and the generations to come.
Stakeholders in the Urban Transportation

- Social/People (living in and around the Urban Area)
- Customers (Transportation Services Customers)
- Private Sectors (Construction, Manufacturing, Installation, Services, Operation and Maintenance of the Urban Transportation System)
- Public Sectors/Government (Policy Maker, Planner, Investor, Service Provider, Regulator) (under the influence of Politicians !!!)
Social/People ‘s 4 Basic Needs are

- Residence
- Food (clean and healthy)
- Clothes
- Physical and Mental Health (Sport, Recreation, Cultural Events, Temples, Churches, Hospitals, Pharmacies etc.)

in a good Urban Environment. In addition any Urban Transport system should not cause environmental impacts (noise, dust, air pollution, vibration views) and any harm to the Quality of Life of the population in the area.

All these have to happen in our generation and the generations to come.
Transportation Service Customers Needs are

- Safe Transportation
- Fast System (short Traveling Time)
- Reliable & On Schedule Transportation
- Acceptable Fares to every Income Level (Low income Worker, Pupils, Students etc.)
- Easy & Comfortable to Access Transportation System
- Door to Door Transportation

All these have to be valid in our generation and the generations to come.
Private Sectors (Construction, Supply & Installation of Transport System, Operation & Maintenance) Goal is

Maximizing Profit,

which is normal for private businesses. The Public Sectors / the government must acknowledge this and agree to when considering PPP Investment Scheme without expecting any social welfare services or contribution.
Goals/Needs of Public Sectors/Government (which should be the duties):

Sustainable Efficient Transport System satisfying the needs of all other Stakeholders to strengthen country’s economic potential and competitiveness in the World Market.

Due to limited Resources “accurate and objective” study of technical economical and environmental Feasibility is a must and PPP Scheme could be an appropriate Alternative Investment Scheme.
Summary of Stakeholders Needs/Parameters for Planning and Assessment of Urban Transportation

- Safe Transportation
- Fast Transportation (short Traveling Time)
- Reliable & On Schedule Transportation
- Acceptable Fares to every Income Level (Low income Worker, Pupils, Students etc.)
- Easy & Comfortable to Access Transportation System
- Door to Door Transportation
- Low Environmental Impacts
- Efficient Transport System with Open Technology
- PPP Investment Scheme where necessary and appropriate
• Long Term Master Plans for Urban Transportation and City & Road network have to be planned together.

• Purpose of urban planning:

To develop a city which encourage activities within the urban (living, studying, working, shopping, relaxing, etc.) under the consideration of economical, social, and environmental feasibility. Typically it includes city plan and regulations for land use, facilities, transportation and logistics.
• Long Term Master Plans for Urban Transportation and City & Road network have to be planned together. Polycentric Development/Suburban Center with appropriate Road Network should be considered to accommodate Urban Expansion to avoid Urban Sprawl and Linear Development along Highways/Arterials connecting Cities/Towns, which are not good for Public Transport.
Transportation:

• By private owned vehicles: walk, bike, motorbike, car

• By public transportation: public motorbike, tuktuk, taxi, bus, urban rail, suburban rail, commuter train, etc.
• Combination of different Routes, Modes and Systems with appropriate Interchange and Parking Facilities are essential to satisfy Door to Door Transportation Planning.
Selection of efficient Transportation Systems has to match Transportation Demand e.g. MRT for Area with High Population Density, Suburban/Commuter Train connecting Cities and Satellite Towns etc. (cont’d)
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<table>
<thead>
<tr>
<th>Modes/Types</th>
<th>Persons/h/Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Private Car</td>
<td>600</td>
</tr>
<tr>
<td>2 Public Transit Bus</td>
<td>2,300</td>
</tr>
<tr>
<td>3 Tram/LRT</td>
<td>3,400-4,600</td>
</tr>
<tr>
<td>4 BRT</td>
<td>6,000</td>
</tr>
<tr>
<td>5 LRT</td>
<td>10,000-30,000</td>
</tr>
<tr>
<td>6 Heavy Rail</td>
<td>30,000-80,000</td>
</tr>
<tr>
<td>7 Commuter Rail</td>
<td>40,000+/-</td>
</tr>
</tbody>
</table>

1-3 operating on city roads
4-7 operating on dedicated Tracks
The Capacities are only approximate values due to wide range of Mode/Types and Road Conditions
Passenger transportation by train

- Safe, fast, punctual, low resource consumption and environmental friendly for transportation between two to be or densely populated areas

- It is not door-to-door transportation. Feeder system is needed for Train Assessability.
Transportation System with open Technology should be selected to avoid Monopoly on future Supply.

Appropriate Combination of different Routes, Modes and Systems with appropriate Interchange and Parking Facilities are essential to reduced Life Cycle costs and easy to make acceptable Fare Price for everybody.

Common Fare Structure for all kinds of Public Transport (Commuter Train, MRT, Bus)
1. Mo Chit – Onnut
National Stadium – Taksin Bridge
24 km

2. Taksin Bridge – Bang Wa
7.5 km

3. Bang Sue – Hualumphong
20.8 km

4. Airport Rail Link
28 km

5. Bang Sue – Taling Chan
15 km

Existing Mass Rapid Transit (5 line : 100 kilometres)
Five projects in progress (107.4 km)

1. Bang Yai – Bang Sue (23 km) – O&M
   - 100%
   - 2016

2. Bang Sue – Tha Phra – Bang Khao (27 km)
   - 77%
   - 2019

3. Bearing – Samutprakan (12.8 km)
   - 87%
   - 2018

4. Bang Sue - Rangsit (26 km)
   - 60%
   - 2019

5. Mochit – Saphan Mai-Khu Khot (18.4 km)
   - 7.59%
   - 2019

At 31 May. 2016
Projects in 2016: 6 projects (140 km.)

1. Thailand Cultural Centre – Minburi (20 km)
2. Khae Rai - Minburi (36 km)
3. Lat Phrao – Pattanakan-Samrong (30.4 km)
4. Tao Pun – Rat Burana (19.8 km.)
5. Hualumphong – Bang Sue (6.5 km)
6. Bang Khae – Putthamonthon 4 (8 km)
Projects in 2017: 6 projects (77 km.)

1. Khu Khot - Lam Luk ka (6.5 km)
2. Samut Prakarn-Bang Pu (7 km.)
3. Airport Link: Don Mueang - Phayathai (21.8 km)
4. Rangsit - Thammasat University (10 km)
5. Charansanitwong-Thailand Cultural Center (17.5 km.)
6. Taling Chan-Salaya (14 km.)
The next phase after 2018 – 3 projects (39 km)

1. Hualumphong – Bang Bon (18 km)
2. Bang Bon - Mahachai (20 km)
3. National Stadium – Yotse (1 km)
In the year 2029

Greater Bangkok Region: Mass Rapid Transit System (464 kilometer)
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Paris Metro (Urban Railway) Plan
Bangkok Metro Plan
Parameters for Planning and Assessment of Bangkok Urban Transportation

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Thank You