Sustainable Transportation: Upgrading Urban Mobility for Yangon City

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The Republic of the Union of Myanmar:

Location:
9° 32' and 28° 31' North
92° 10' and 101° 11' South

Area:
2,612,288 sq. miles
1275 miles from north to south
582 miles from east to west

Population:
58.38 million by the year 2009,
with a growth rate of 1.52%,

Climate:
Tropical monsoon climate,
Three seasons, summer, rainy season and cold season
On January 2, 1853, British planners started modern Yangon city planning.

Colonial Yangon was renowned as "Princess of South East Asia" due to its beauty and cleanliness.

Current Yangon population is estimated to be 5.7 million, annual growth rate is estimated to be 2.3 % , the city consists of 33 townships, area of about 680 km² (292 square-miles).

The present city authority is Yangon City Development Committee (YCDC)

Yangon consists of 33 townships: 6 downtown CBDs, 21 Sub-urban areas and 6 Satellite Towns.
Current Status of YANGON CITY’s Traffic Situation
Import permits restriction for motor vehicles are relaxed in 2011 November after the reforms.

Nearly 100,000 new import cars per annum are now newly registered.

1 about 113280 numbers of old vehicles are de-registered since 2011
The network of main road in Yangon City comprises approximately 220 km and over half of this network is made up of four or more lanes.
Current Status

- Heavy Traffic Congestion
- Modes of Transportation
- Channels of Flow
- Present Conditions
Traffic Congestion
Traffic congestions in CBD areas
Registered vehicles in Yangon account for 65% of the national total, and over two-thirds of all private cars are in Yangon. Since 1988, total vehicle numbers in Yangon increased by 12.2% annum.
Capacity of Current Flow

- **A**: Free Flow  
  VC Ratio 0 to 0.5 or more
- **B**: Stable Flow  
  VC Ratio 0.5 to 0.6 or more
- **C**: Restricted Flow  
  VC Ratio 0.6 to 0.7 or more
- **D**: High density Flow  
  VC Ratio 0.7 to 0.8 or more
- **E**: Unstable Flow  
  VC Ratio 0.8 to 0.9 or more
- **F**: Force Traffic Flow  
  VC Ratio 0.9 to 1 or more
### V C Ratio of Five Collected Point at Pyay Road

<table>
<thead>
<tr>
<th>Location</th>
<th>Capacity/Lane</th>
<th>Lane</th>
<th>Capacity</th>
<th>Volume</th>
<th>V/C Ratio</th>
<th>Level of Service</th>
<th>If road Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyay 15</td>
<td>480.93408</td>
<td>2</td>
<td>961.8682</td>
<td>540</td>
<td>0.561408</td>
<td>LOS B (0.5 to 0.6)</td>
<td>✅</td>
</tr>
<tr>
<td>Pyay 10</td>
<td>509.22432</td>
<td>3</td>
<td>1527.673</td>
<td>1052</td>
<td>0.688629</td>
<td>LOS C (0.6 to 0.7)</td>
<td>✅</td>
</tr>
<tr>
<td>Pyay 7</td>
<td>480.93408</td>
<td>3</td>
<td>1442.802</td>
<td>1087</td>
<td>0.753395</td>
<td>LOS D (0.7 to 0.8)</td>
<td>⬇️</td>
</tr>
<tr>
<td>Pyay 12</td>
<td>437.555712</td>
<td>3</td>
<td>1312.667</td>
<td>1055</td>
<td>0.803707</td>
<td>LOS E (0.8 to 0.9)</td>
<td>⬇️</td>
</tr>
<tr>
<td>Pyay 8</td>
<td>447.614464</td>
<td>3</td>
<td>1342.843</td>
<td>1700</td>
<td>1.26597</td>
<td>LOS F (0.9 to 1.0 or more)</td>
<td>⬇️</td>
</tr>
</tbody>
</table>
Capacity = Design Capacity \( \times F_1 \times F_2 \times F_3 \times F_4 \times F_5 \)

\[= (\text{Arterial Lane width 11'}) \times 800 \times 0.95 \times 0.88 \times 0.9 \times 0.94 \times 0.8 = 480.93408\]
<table>
<thead>
<tr>
<th>Pyay(8)</th>
<th>LOS</th>
<th>F (0.9 to 1 or more)</th>
</tr>
</thead>
</table>

Pyay(8) Mahar Myaing

[Image of a traffic jam]
Underlying Causes

- Population Growth
  - Colonial Period: 300,000 population in 77 sq mile
  - Present: approximately 6 million population in 292 sq mile

- Urbanization
  - Rapid Economic Growth after Political Reforms
  - Expansions on major cities only (eg., Yangon, Mandalay)
Underlying Causes

- Commercial Business Districts inside the City
  - High concentration of employment in CBD areas only
- Level of service (LOS) was not updated in areas such as Industrials zones, new commercial areas etc…
- Coordination Systems within the government is weak
  - Lack of communication and coordination
  - For example – Car permits system was changed by Ministry of Trade and Commerce without informing YCDC
- Lack of enforcement in Traffic and municipal laws, rules and regulations
Underlying Causes

Poor Road Condition
Underlying Causes

Parking Space Limitations and Unmanaged Road Side Parking

Traffic delay and congestion caused by road side parking at Anawrahta Road

- 4400 on-street parking spaces available in CBD area.
- Possibly 1000 or more parking owned by residents of CBD area.
Underlying Causes

• Parking space limitation
Underlying Causes: Implications

• Weak in Advanced Transport modes
  • Needs Mass Rapid Transport System (for example: MRT, BRT, Sky Trains etc)
  • Needs to maintain/upgrade existing Mass Public Transport System (eg., Public Buses, City Trains)
  • Upgrade current traffic control and management systems
• Needs to consider upgrading alternative transport modes such as river and rail transport modes
Proposed Solutions
Long Term Plans

- Designing the conceptual plan of Yangon City coordinating with JICA (Sub-Center and Green Isle System)
- Proposing new CBD Areas and
- Proposing new Ring Roads
Long Term Plans

- Green Belt Yangon
Short Term Plans

Construction of new Bridges and Fly-Overs
Short Term Plans

Construction of new Bridges and Fly-Overs

Ngamoeyeik (Parami) Cross Bridge Under Construction
Short Term Plans

Extension and Widening of existing roads

Urban Development plans can positively affect the environment.
Short Term Plans

Upgrading of Junction Traffic Lights
Conclusion

• YCDC is working towards well planned, well developed Urban Environment for Yangon City (including its commercial centers).
• The current solutions for the issues we are facing are still limited.
• Urban Mobility area is one area where YCDC is actively seeking cooperation and assistance in upgrading/modernizing Yangon.
• Since the country’s reforms attract new Foreign and Local investments, we would like to learn lessons from our friends in Japan and UN-Habitat to address the pressing issues associated with the urban planning and management in this reform period.
Thank you!

Discussions and Feedbacks are welcomed