Mobility Systems in Ludhiana City
Present and Way forward

By

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Ludhiana – A Snapshot
• Official estimated population – 2 Million
  Unofficial estimate – 3.5 Million
• Heart of Punjab, biggest trade hub of Punjab - Biggest Cycle & parts
  manufacturing in India and 2nd largest in the world
• Manufacturing hub (Agriculture equipment, hosiery, cycle, hand pump,
  machine tools etc.)
• NMT constituting almost 46.5% of total trips (31.5 % Walk and 15% Cycle trips)
• Total 6,10,000 Cycles in the city
• Surplus Power - 24X7 power supply, 100% metering
• 16 lakh registered vehicles with 55,000 vehicles (80,000 PCUs) enter city every
day
• Inner city area witness total traffic volume of 150,000 Vehicles (140,000 PCUs)
• High modal share of auto rickshaws (13% with walk trips and 25% without walk
  trips, 30,000 auto-rickshaws operate daily)
• Bus transport is negligible, (only 85 buses operating on 5 routes of 70 Km length
  of the total road length of 1376 Km)
• High emission levels due to Industries and petrol & diesel driven vehicles
  especially autos contributing about 70% of the city pollution
• Lack of footpaths and cycle tracks. Only 70 Km of walkways out 300.45 Km of
  major road network
• Highest Per Capita Vehicle in India with 2.1 million cars being handled daily on
  the roads with an alarming no. of vehicles regd. In calendar year 2014 = 1,40,000
Existing Scenario in - Ludhiana
Existing scenario

<table>
<thead>
<tr>
<th>ROAD</th>
<th>Length (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT Road (NH 1)</td>
<td>20.5</td>
</tr>
<tr>
<td>Ferozepur-Chandigarh Rd (NH-95)</td>
<td>22</td>
</tr>
<tr>
<td>Gill Road</td>
<td>7.35</td>
</tr>
<tr>
<td>Pakhowal Road</td>
<td>4.5</td>
</tr>
<tr>
<td>Rahon Road</td>
<td>3.79</td>
</tr>
<tr>
<td>Jassian Road</td>
<td>4</td>
</tr>
<tr>
<td>Hambran Road</td>
<td>5.1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>67.24</strong></td>
</tr>
</tbody>
</table>
WHY LUDHIANA SMART CITY?

Ludhiana, Kanpur among world's top 10 cities with worst air pollution

LUDHIANA IS ONE OF THE MOST POLLUTED CITIES IN THE WORLD!

85% of survey respondents think air in Ludhiana is severely polluted

LUDHIANA HAS 16,00,000 VEHICLE REGISTRATIONS
Major Issues

- Substantial growth of Traffic and city expansion
- Limited scope for more road infrastructure facilities due to
  - irregular road alignment, inadequate road widths and intersections at frequent and poor junction geometrics
  - lack of traffic management measures.
- High share of Through Traffic on major arterial roads
- Competing use of road space
- Traffic Mix
- Lack of Public Transport Facilities and reliable public transport system
- Dependence on Private and Para Transit Modes
- Lack of Pedestrian and NMT facilities
- Lack of Parking and other related infrastructure facilities
Oh! The situation is pretty bad, So what do you do?
Citizens VISION for LUDHIANA

Clean and Green City
Better traffic control
No encroachment
Better security for women and children
Better sewerage system
Less pollution
Rainwater harvesting from roads and all cemented structures
Solar-powered street/road lights
Plants for composting, re-cycling
More green areas for children to play.
Cycling lanes on all the roads.
More multi story buildings.
Reduce Garbage
Check Noise pollution
Encourage exercise / Lifestyle changes for Healthy Living.
More public Places.
Walking zones in the old city.
Preserve our heritage monuments.

A Smart City has:

Basic infrastructure
Uses ‘smart’ solutions to improve infrastructure and service
Relies on Area Based Development (pilot area known as ABD)
1. **Core Infrastructure works** –
   - 24x7 Water supply
   - Rehabilitation of Sewerage System
   - Storm Water Drainage system
   - Electrical Undergrounding

2. **Smart Solution** - PAN City level
   - Integrated Command Control Centre
   - LED Street Lighting
   - Citizen Collaboration Platform
   - Smart Pole
   - Rooftop Solar

3. **Transportation & Mobility**
   - Multi-level Car Parking
   - Rail Over Bridge
   - E-Rickshaw
   - Ring roads & Missing links
   - ROB’s
   - Cycle tracks

4. **Place-making & Beautification**
   - Retrofitting & Beautification of Market Places
   - Road Signage
   - Smart Roads

5. **Sanitation & Solid Waste Management**
   - Public / Community Toilets
   - C&D and Carcass Management

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**Budget Break-up from Smart City Program funds (in INR CR)**

- Core Infrastructure: 409
- Smart Solutions: 275
- Transport & Mobility: 108
- Placemaking & Beautification: 106
- Sanitation & SWM: 43
1. Thrust on strengthening of Core Infrastructure
2. Improved Urban Transportation
3. Smart solutions for Real Time Monitoring
4. Centralized Monitoring of different sectors
5. Citizen collaboration
6. Retrofitting & Beautification of Market Places
Sharing 3 cases for improving Mobility

- Case – 1 :-
  Improvements in Roads Infrastructure

- Case – 2 :-
  Smart Roads
  &
  Smart Markets

- Case – 3 :-
  Cycles & e-Rickshaw’s
Improvements in Roads Infrastructure
Road Network Improvement

- **Ring Roads**
  Inner, middle and outer ring roads have been proposed

- **Missing Links**
  Five missing links having a total length of 61.7 km are proposed to be developed to cater to important activity areas from the major road network

- **Widening of Roads**
  21 roads are proposed to be widened to 4, 6 or 8 lane configurations
  8-laning of Ferozepur road from Jagraon Bridge to Sidhwan Canal

- **Transport Infrastructure** (Rob’s on bridges) on Budha Nallah (Drain)
Ring Road Network

Inner Ring Road
Length = 35 km

Middle Ring Road
Length = 71 km

Outer Ring Road
Length = 127 km
## Missing Links

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Proposed New links</th>
<th>Length (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Burj Lambra to Kum Kalan along Budda Nala</td>
<td>34.9</td>
</tr>
<tr>
<td>2</td>
<td>Inner Ring Road (From Canal Road near Ayali Khurd to Jalandhar Road near Jassian)</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>200 Foot Road from Ferozepur road to Lohara Bridge via Urban State Phase-3</td>
<td>10.5</td>
</tr>
<tr>
<td>4</td>
<td>Chandigarh road to Sanehwal Airport along Minor</td>
<td>3.3</td>
</tr>
<tr>
<td>5</td>
<td>Sanehwal Airport to Canal road near Bangar</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>61.7</strong></td>
</tr>
</tbody>
</table>
Shifting of bus terminals

To meet the future demands four intercity bus terminals are proposed at Ramgarh, Airport, Badowal and Kadian to cater to inter-state buses coming from different directions to Ludhiana Planning Area. (CMP)

- Near Ramgarh on NH-95 towards Chandigarh
- Near Badowal on Ferozepur Road
- Near Kadian on NH-1 towards Jalandhar
- Near Airport on Ambala Road

Existing
Proposed
## Total Outlay

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>COST (IN RS. CRORES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ring Roads</td>
<td>1976</td>
</tr>
<tr>
<td>2</td>
<td>Missing Link Roads</td>
<td>244</td>
</tr>
<tr>
<td>3</td>
<td>Road Widening</td>
<td>685.5</td>
</tr>
<tr>
<td>4</td>
<td>Shifting of bus terminals</td>
<td>250</td>
</tr>
<tr>
<td>5</td>
<td>Purchase of 130 low floor buses</td>
<td>78</td>
</tr>
<tr>
<td>6</td>
<td>Construction of ROB/RUBs</td>
<td>350</td>
</tr>
<tr>
<td>7</td>
<td>Construction of Flyovers/ Underpasses</td>
<td>350</td>
</tr>
<tr>
<td>8</td>
<td>Parking structures at DMC, Feroze Gandhi Market</td>
<td>269</td>
</tr>
<tr>
<td>9</td>
<td>Foot-over-bridges/ subways</td>
<td>80</td>
</tr>
<tr>
<td>10</td>
<td>Provision of Median &amp; Footpath</td>
<td>7</td>
</tr>
<tr>
<td>11</td>
<td>Commuter Rail</td>
<td>8700</td>
</tr>
<tr>
<td>12</td>
<td>BRT system (incl. buses)</td>
<td>1153</td>
</tr>
<tr>
<td>13</td>
<td>Purchase of 50 E-rickshaws</td>
<td>6</td>
</tr>
</tbody>
</table>

**Total Cost (Rs. Crore)** 14,248.5
Smart Roads & Smart Markets
A case of Two Roads and a Market

‘Smart Roads’
MALHAR ROAD & GHUMAR MANDI MARKET ROAD

‘Smart Market’
SARABHA NAGAR MARKET
A brand new ‘Model Market’

- One if it’s kind shopping experience
- Increased commercial activity
- Landscaped pedestrian priority zone,
- Pedestrians and cyclists will have the first right to the road.
- Shared street with shaded walkways, undergrounded utilities, ICT enabled smart features

The carriageway is reclaimed to create an integrated, safe, vibrant and people-oriented public space providing a more conducive environment for shopping, social activities and businesses.
Ghumar Mandi Retrofit
Existing view
Smart Road ‘Place making’
Proposed View

One way vehicular access and on street parking
Giving the street back to the people
Smart Road – Malhar Road

Estimated Cost – INR 25.15 Cr
MALHAR ROAD
Proposed View
BEFORE & AFTER
Sarabha Nagar Market
Parking proposals

- Automatic MLCP
- Conventional MLCP
- Surface Parking
Cycles & e-Rickshaw’s
• **Dedicated Cycle track for industrial zone – 75 kms length**

• **Subsidy to diesel Autorickshaw’s to convert to e-Rickshaw’s**

A City that allows “Ease of doing Business”, also provides “Ease of Living” to its citizens
Overall plan for ABD area
Selected Ferozepur Road Area - ABD