



Mobility Systems in Ludhiana City

Present and Way forward

By

Vishesh Sarangal

Additional Commissioner - Cum -

Additional Ceo Ludhiana Smart City Limited



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

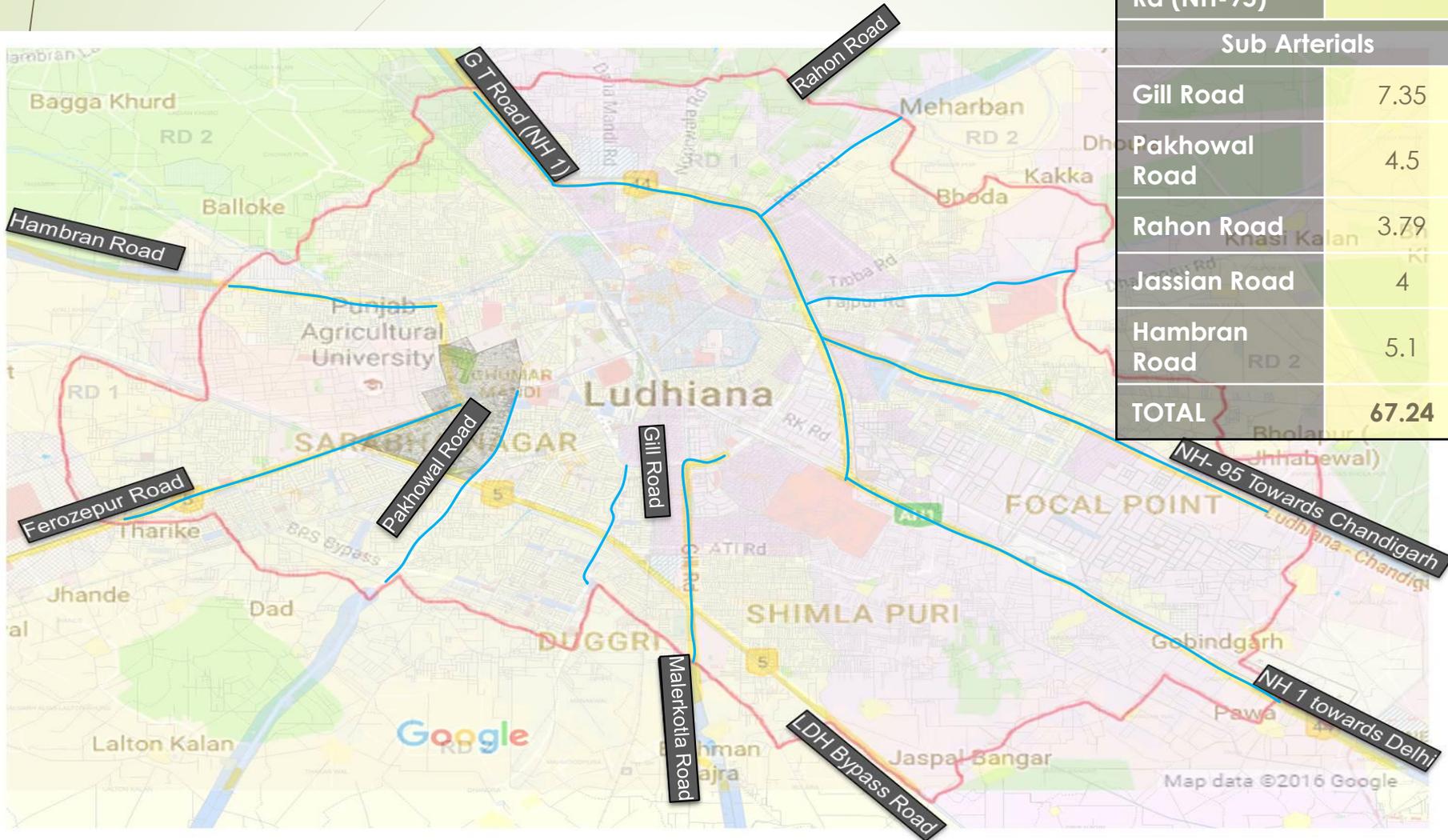


Existing Scenario in - Ludhiana





Existing scenario



ROAD	Length (km)
Arterials	
GT Road (NH 1)	20.5
Ferozepur-Chandigarh Rd (NH-95)	22
Sub Arterials	
Gill Road	7.35
Pakhowal Road	4.5
Rahon Road	3.79
Jassian Road	4
Hambran Road	5.1
TOTAL	67.24

WHY LUDHIANA SMART CITY ?

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

India TV news desk [Updated 14 Nov 2013, 06:54:26]

Share Tweet Share A+ A-



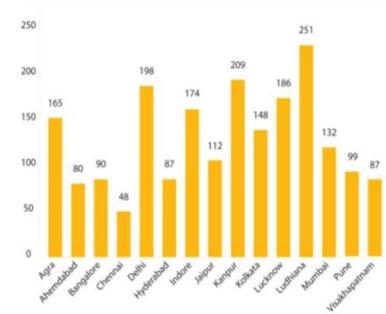
LUDHIANA IS ONE OF THE **MOST POLLUTED** CITIES IN THE WORLD!

THE NUMBERS SAY IT ALL!

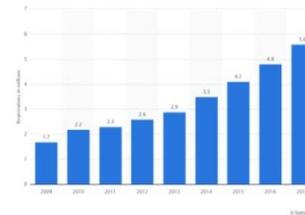
PM 2.5 (MICROGRAMS PER CUBIC METER) IN THE MOST POLLUTED CITIES WORLDWIDE 2014



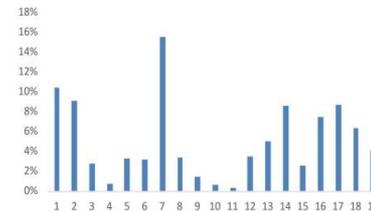
ANNUAL MEAN PM10 IN INDIA CITIES



PASSENGER VEHICLE REGISTRATION IN INDIA



LUDHIANA HAS 16,00,000 VEHICLE REGISTRATIONS



85% OF SURVEY RESPONDENTS THINK AIR IN LUDHIANA IS SEVERELY POLLUTED

- 24 x 7 Power supply
- Adequate & quality Water supply
- Business Friendly Environment
- Citizen participation in Governance and promoting e-governance
- Dedicated Bicycle tracks in the city
- Education
- Environment control – pollution (air / sound / water)
- Healthcare
- Industrial area- waste disposal
- Non-Conventional sources of energy

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)



**LUDHIANA Jiven Main Vekhan
"My Vision for Ludhiana"**

Projectivization – 2017

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

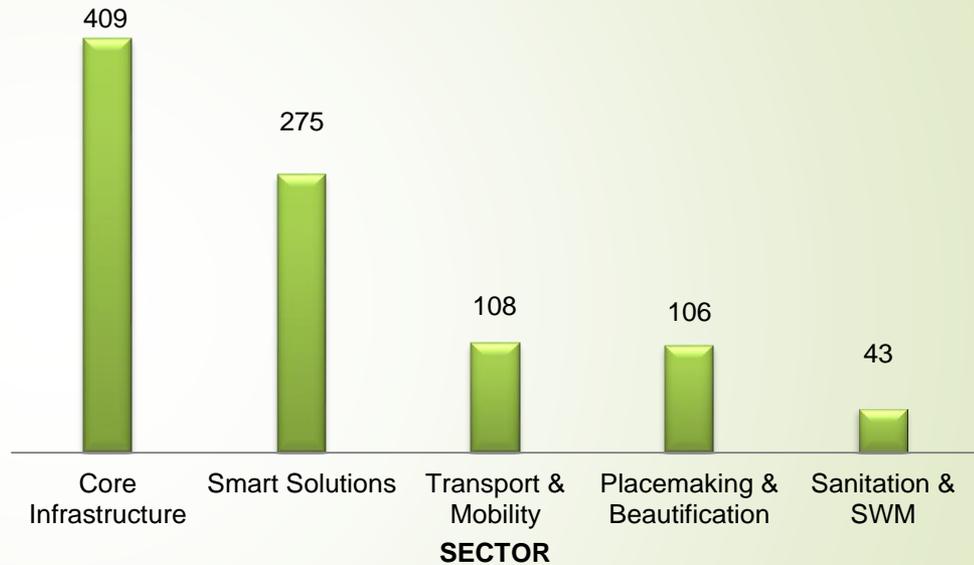
4. Place-making & Beautification

- Retrofitting & Beautification of Market Places
- Road Signage
- Smart Roads

5. Sanitation & Solid Waste Management

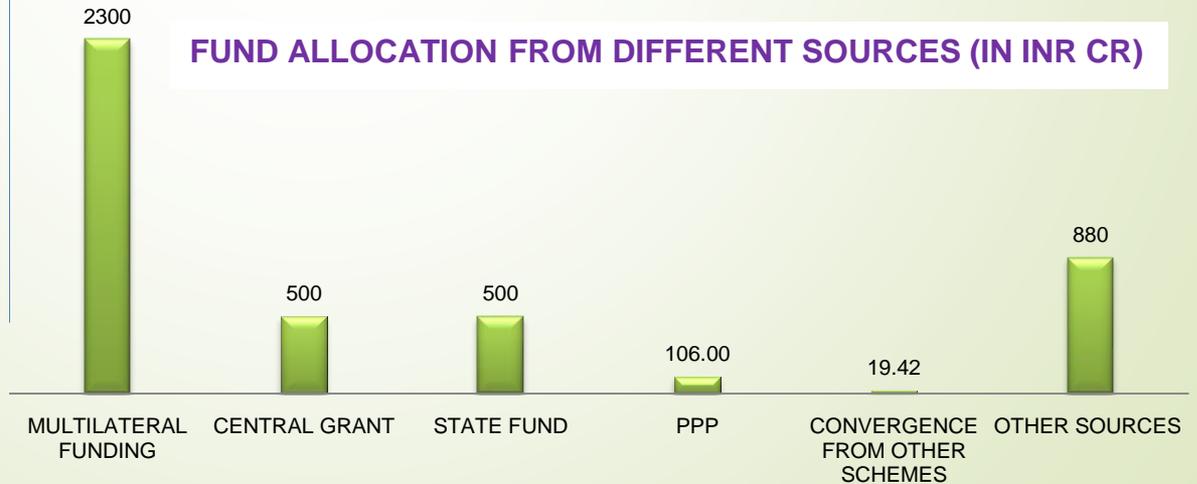
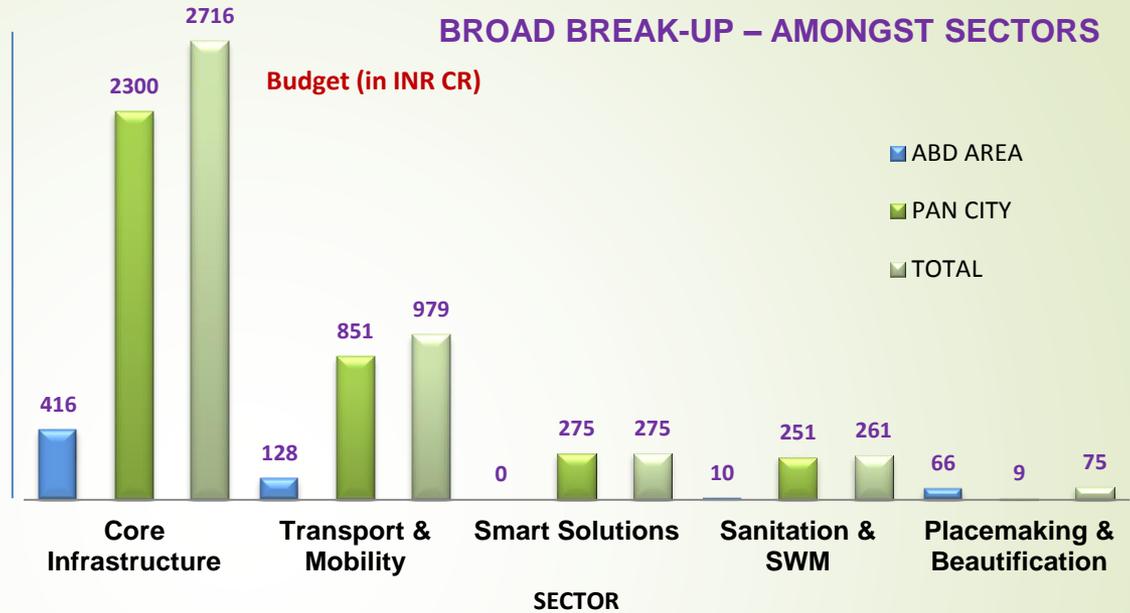
- Public / Community Toilets
- C&D and Carcass Management

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



PROJECTIVIZATION AND BUDGETING UNDER SMART CITY MISSION

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

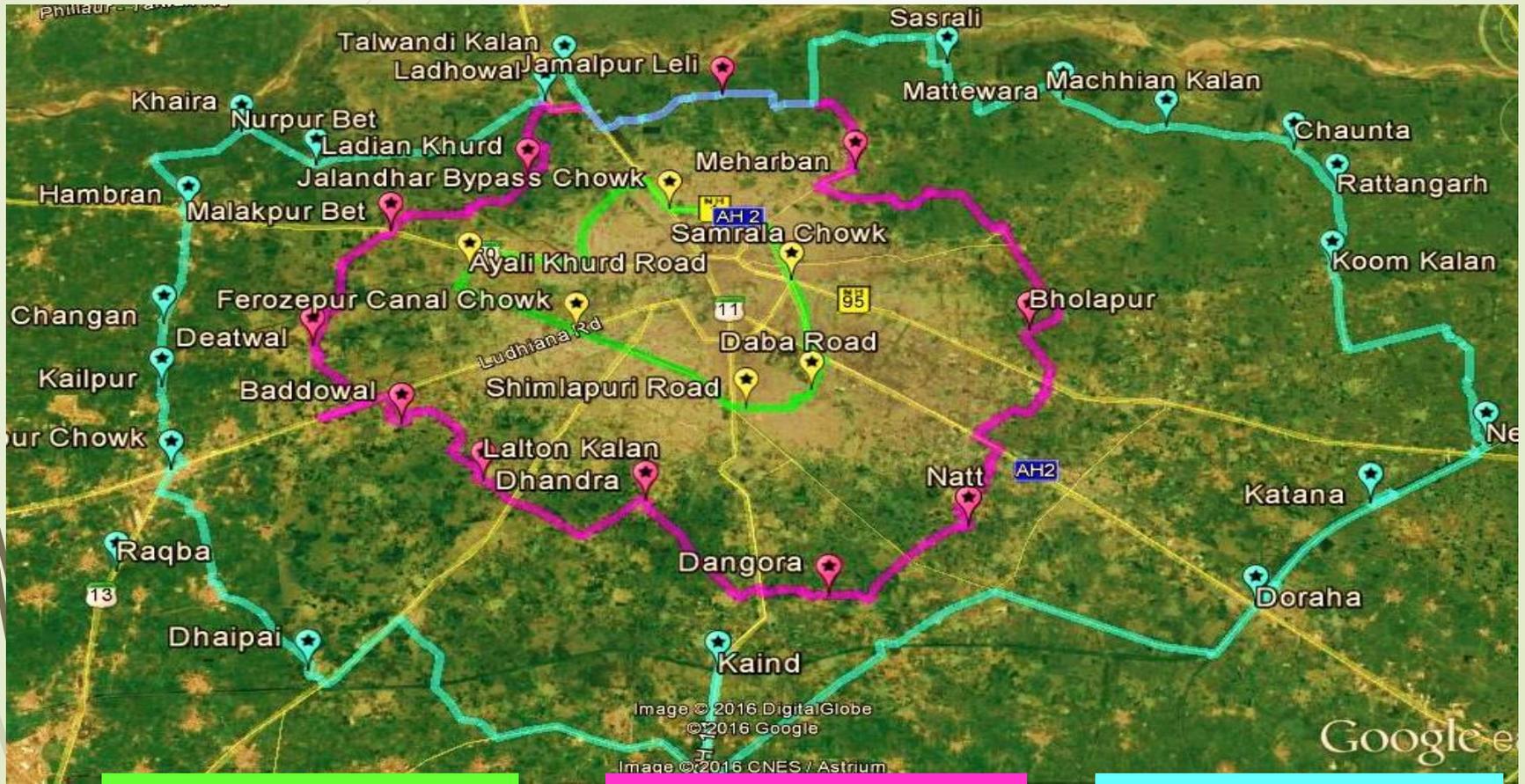
► Widening of Roads

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

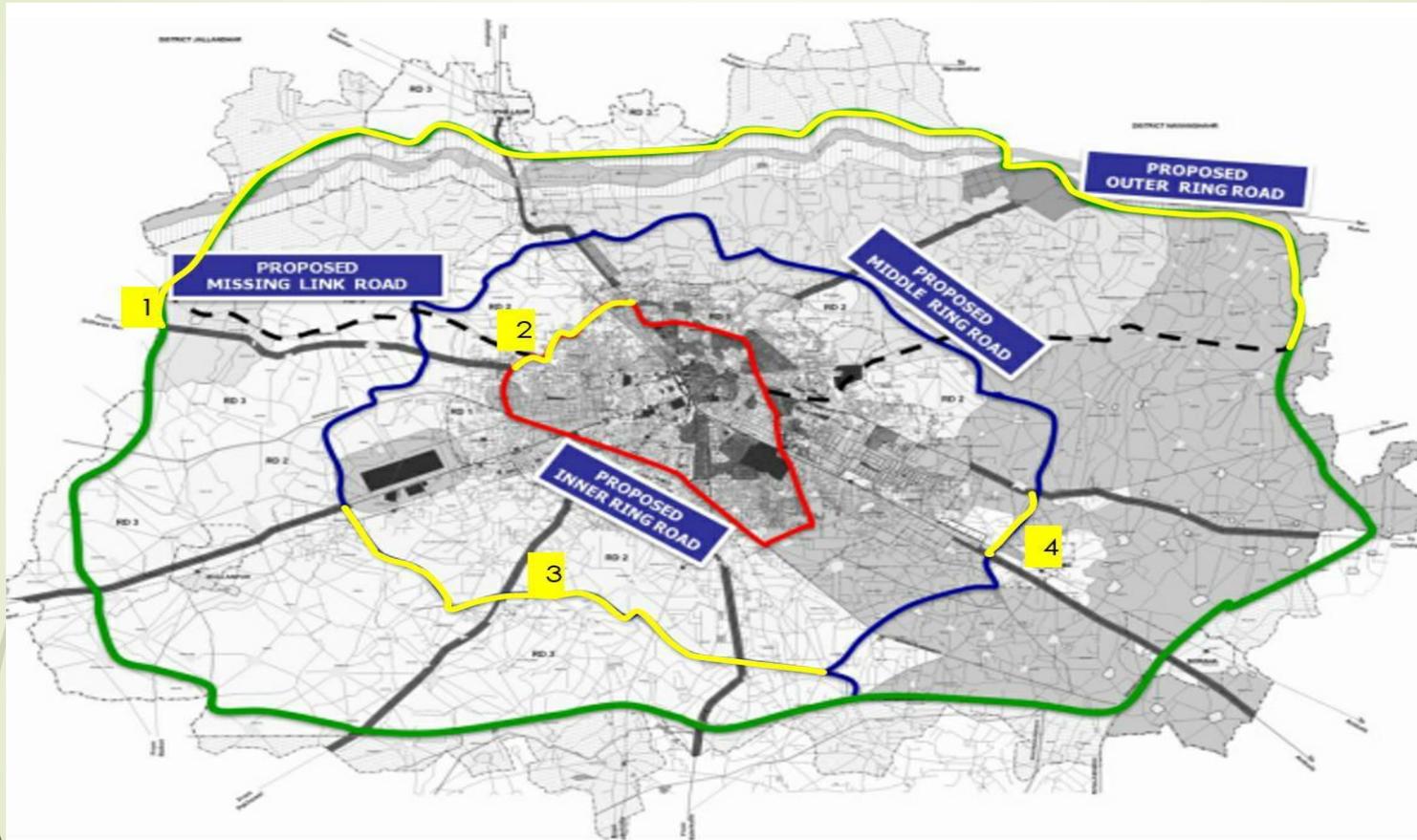


Inner Ring Road
Length = 35 km

Middle Ring Road
Length = 71 km

Outer Ring Road
Length = 127 km

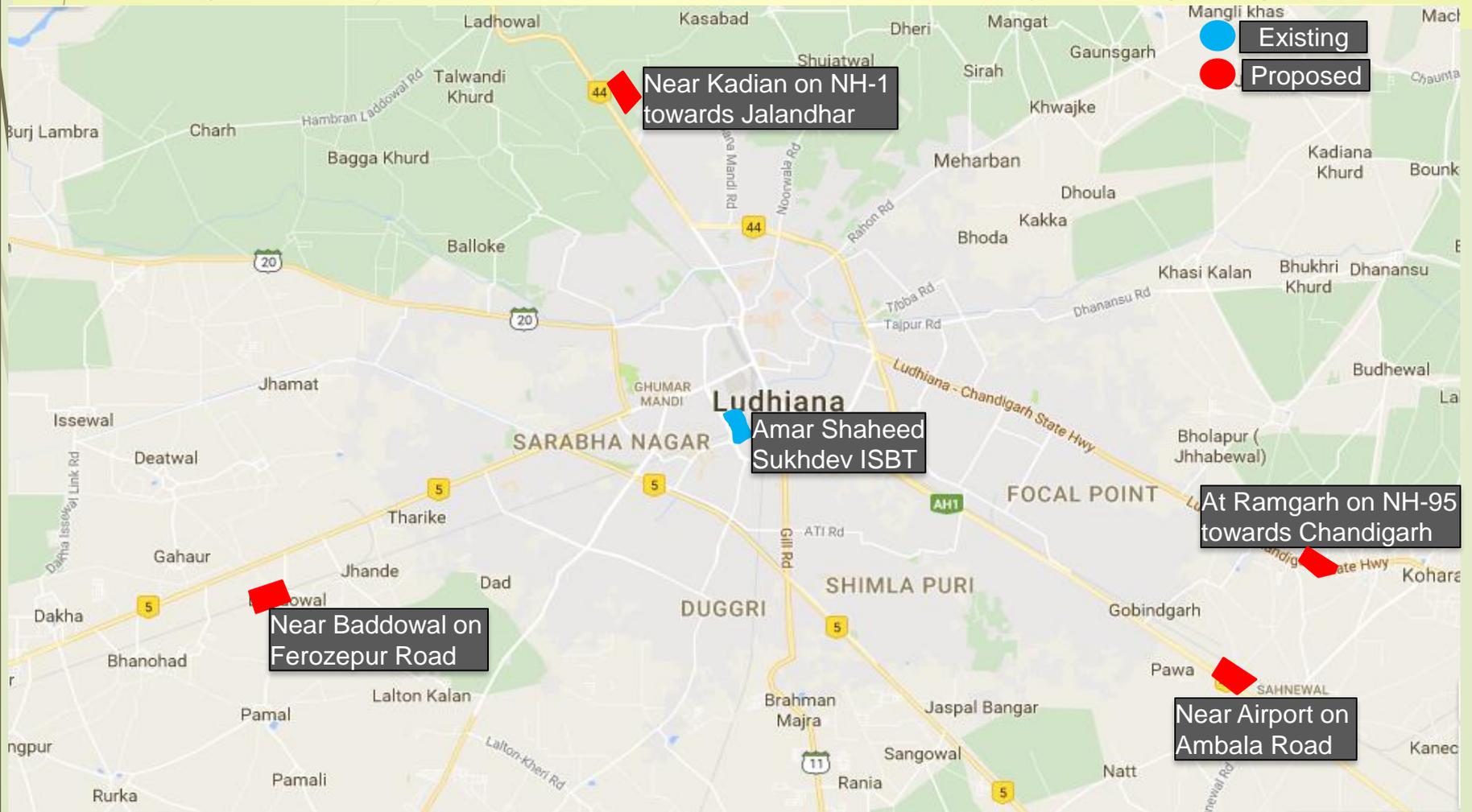
Missing Links



S. No.	Proposed New links	Length (km)
1	Burj Lambra to Kum Kalan along Budda Nala	34.9
2	Inner Ring Road (From Canal Road near Ayali Khurd to Jalandhar Road near Jassian)	8
3	200 Foot Road from Ferozpur road to Lohara Bridge via Urban State Phase-3	10.5
4	Chandigarh road to Sanehwal Airport along Minor	3.3
5	Sanehwal Airport to Canal road near Bangar	5
Total		61.7

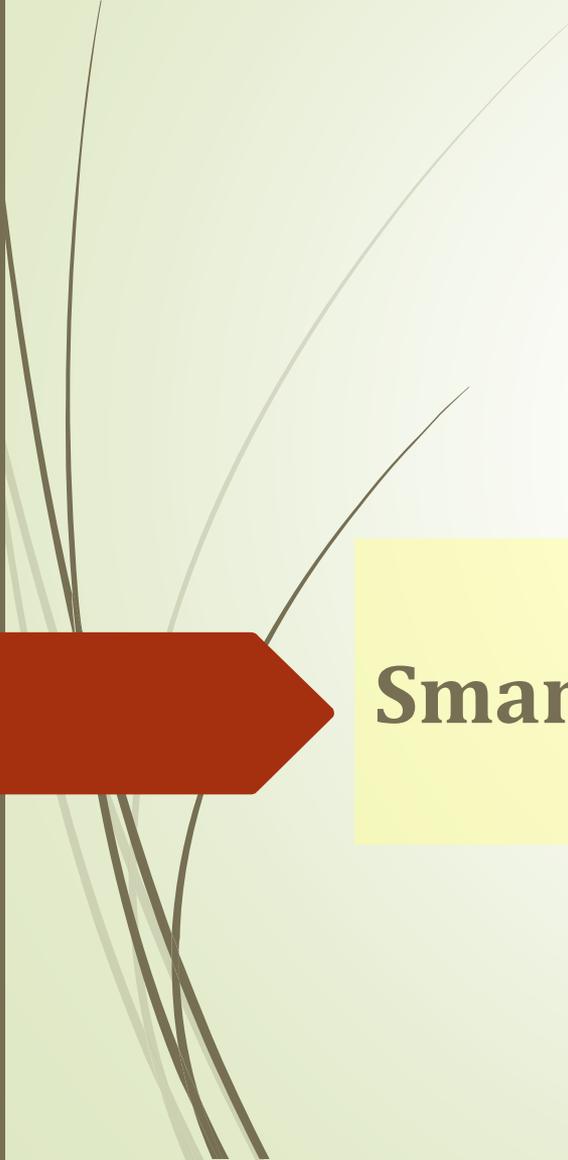
Shifting of bus terminals

➤ 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)



Total outlay

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



vision RETROFIT GHUMAR MANDI

A brand new **'Model Market'**

- One of its 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.

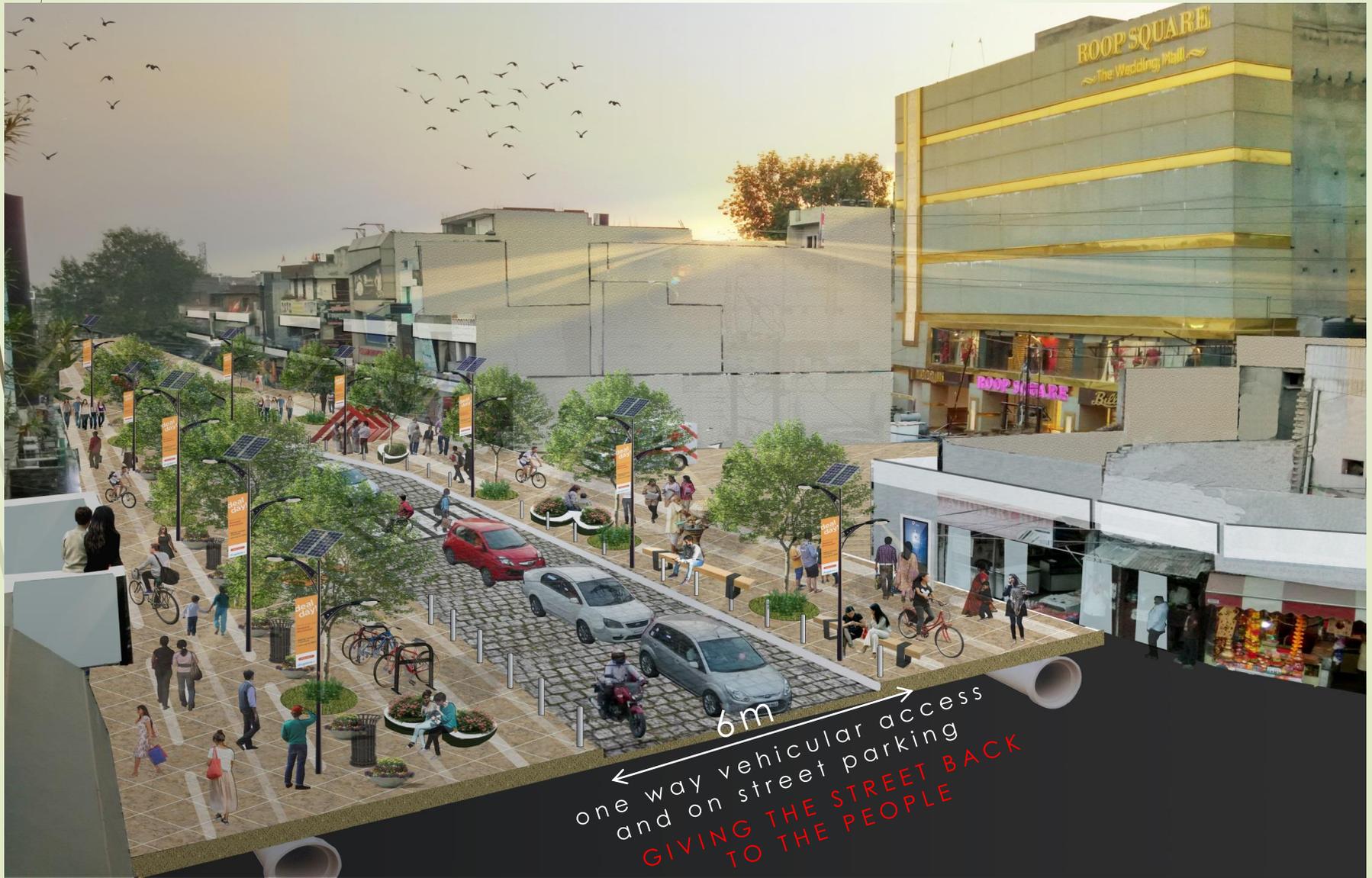


Ghumar Mandi Retrofit

Existing view

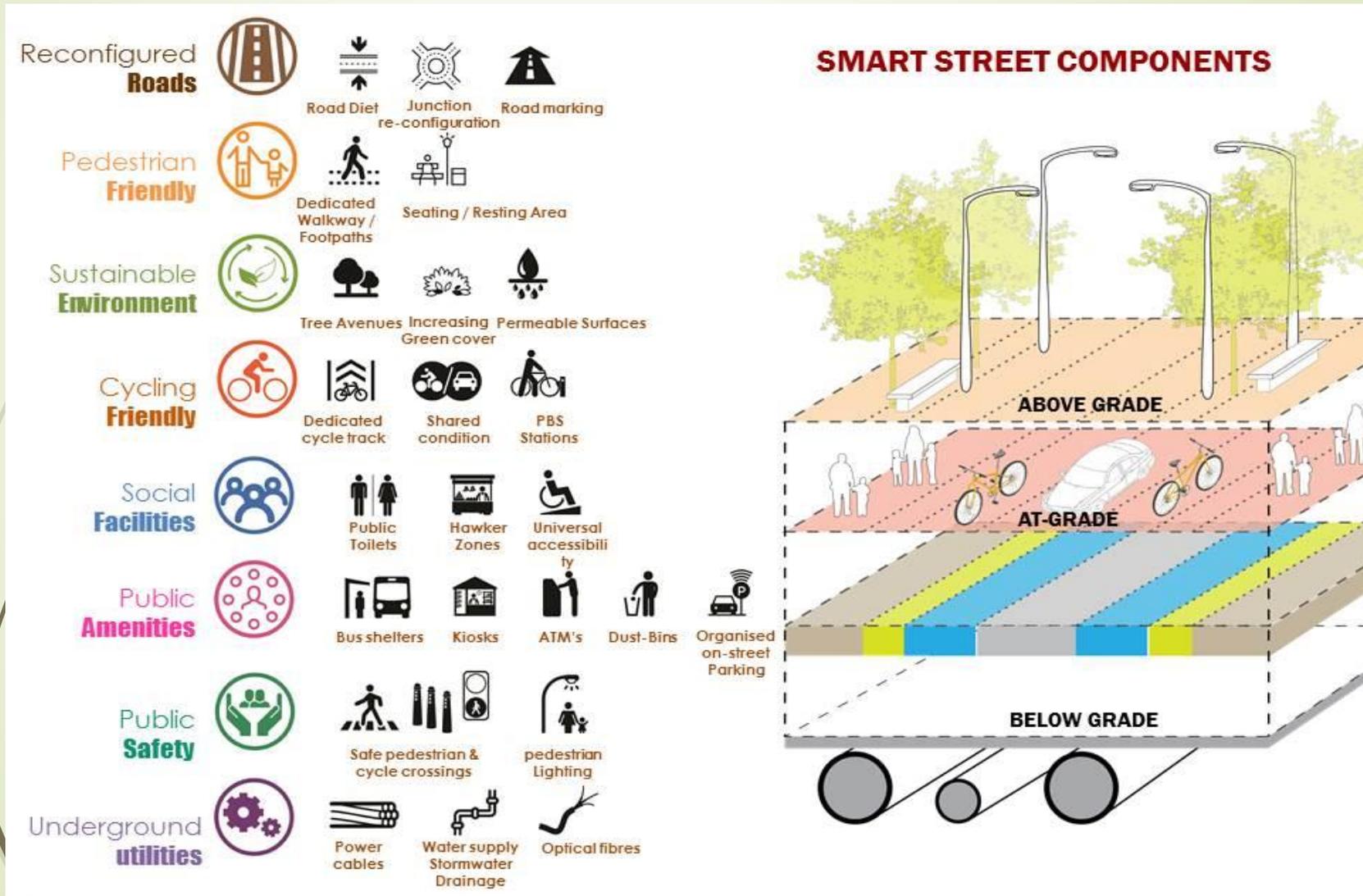


Smart Road 'Place making' Proposed View



Smart Road – Malhar Road

Estimated Cost – INR 25.15 Cr



MALHAR ROAD

Proposed View



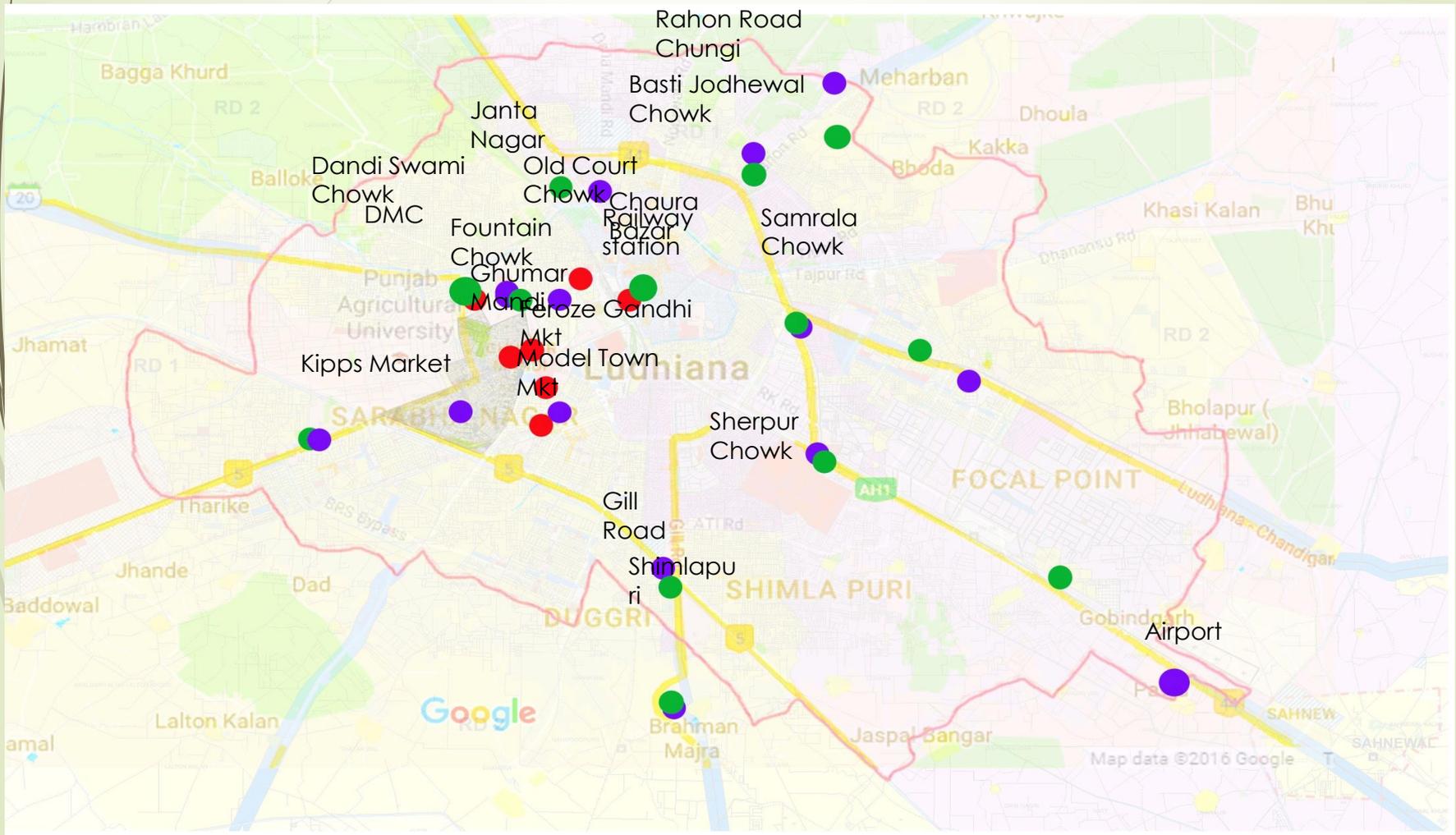
BEFORE & AFTER

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***



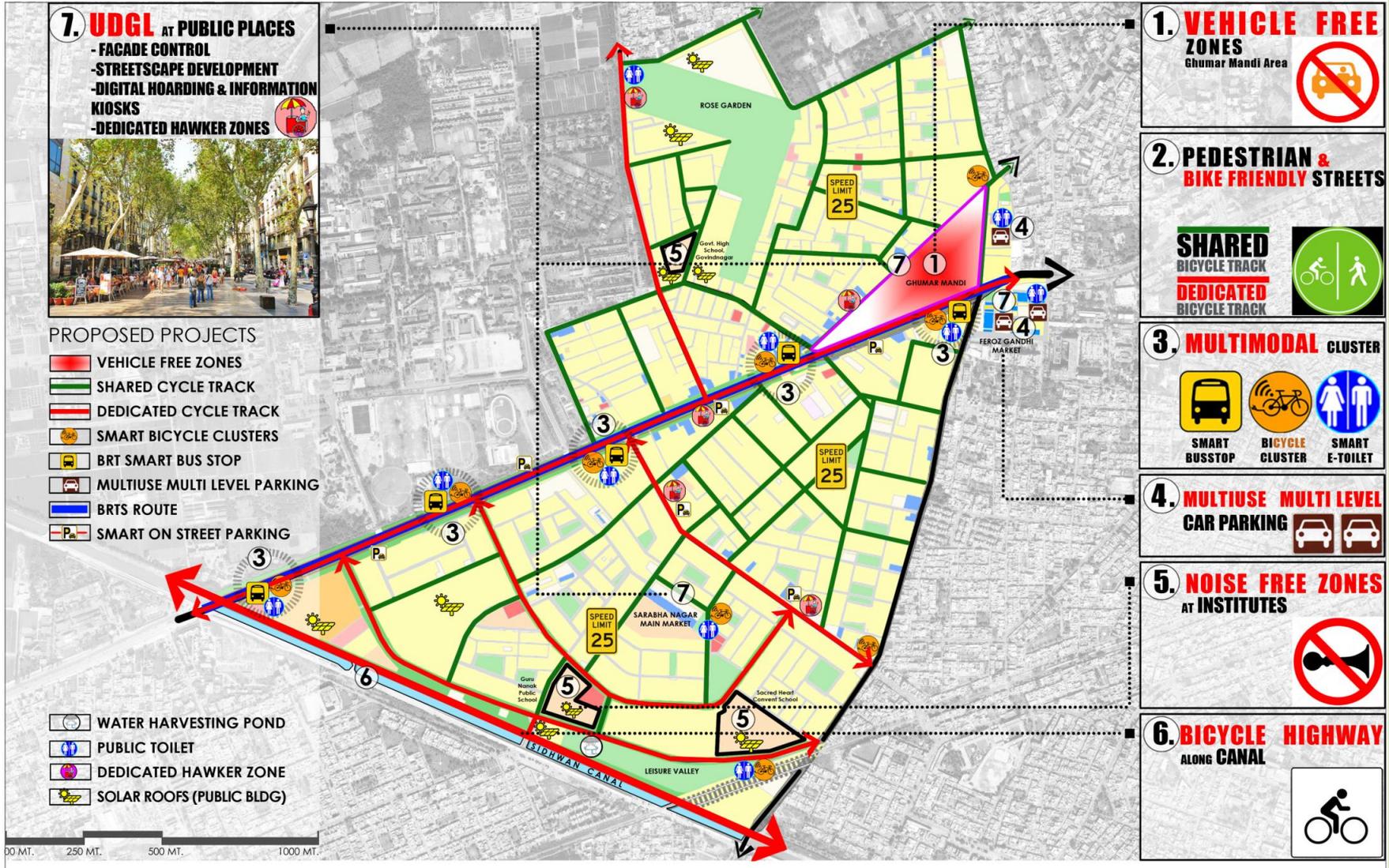
Ludhiana **2025**

A City that allows "Ease of doing Business", also provides "Ease of Living" to its citizens



Overall plan for ABD area

Selected Ferozpur Road Area- ABD





Thanks