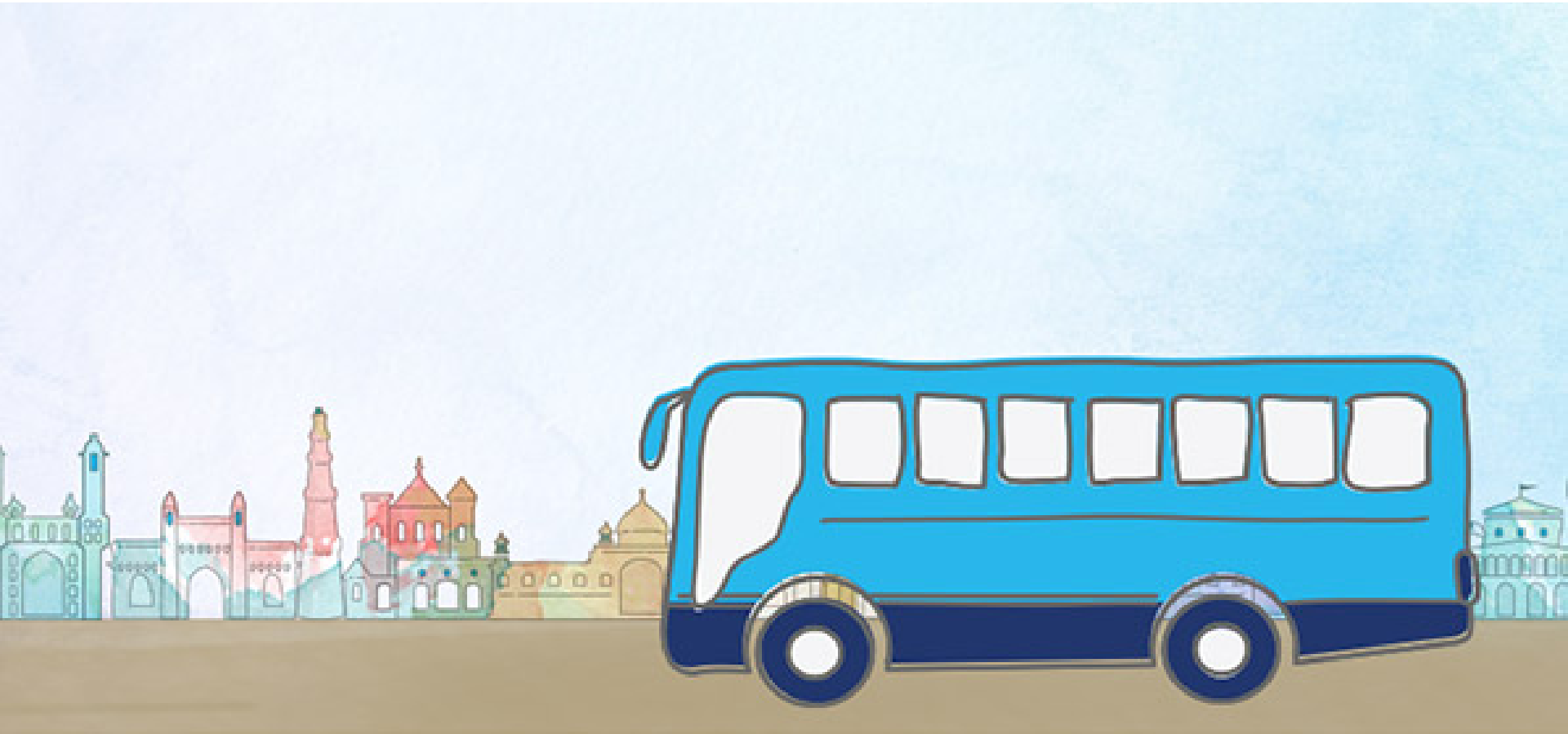
Inclusive and Sustainable Mobility



Historical Scenario - Challenges

1. Too many Private Vehicle on Road
2. Low Public Transport Share in City
3. Lower Land Value in Peri-urban areas allowing people to settle in outer areas of the city
4. Heavy Investment required on Development of Roads and Highway
5. Poor Infrastructure facility for NMT and Pedestrian
6. Poor Public transport system in the city
7. Insufficient Information about the Public transport system

Stake Holders

1. Low Income Group Citizens
2. Motorized Vehicle Owners
3. Existing Public Transport Operators
4. Environmentalists
5. Business Owners
6. Real Estate Developers.
7. Private Sector Investors
8. Financial Institutions
9. State/ Central Government
10. City Administration

Urban Scenario in Madhya Pradesh

Total Urban Population
21 Million

378 Cities and Towns

4 Cities with Million+ Population

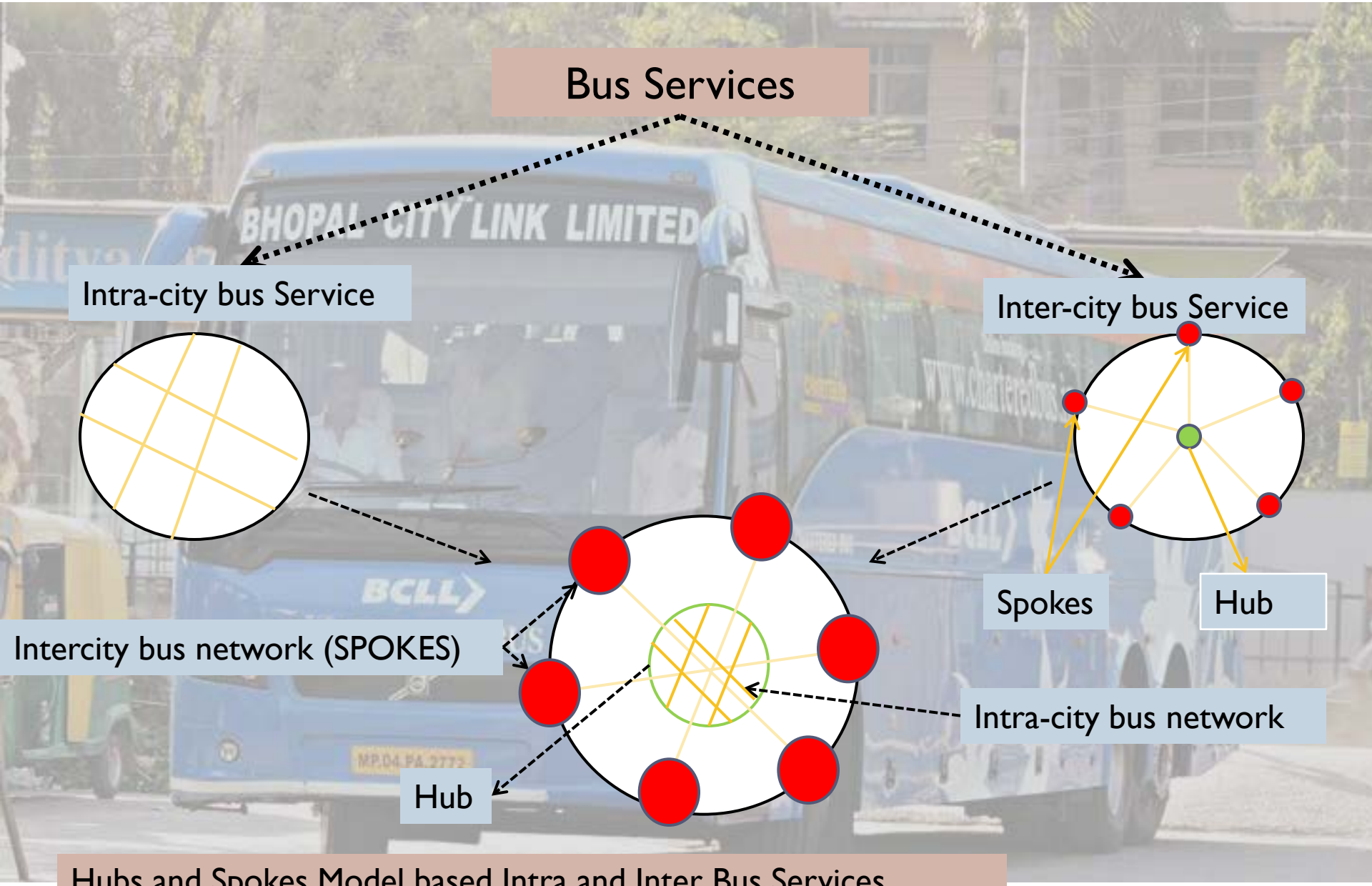
Urban population likely to grow
1.5 times
by Year 2030

Sector	Planned Large Scale Urban Infrastructure Projects	Amount
Transport	Bhopal and Indore metro rail project Operation of public transport modes	14,500 2,000

Development of Organized Urban Public Transport in Madhya Pradesh

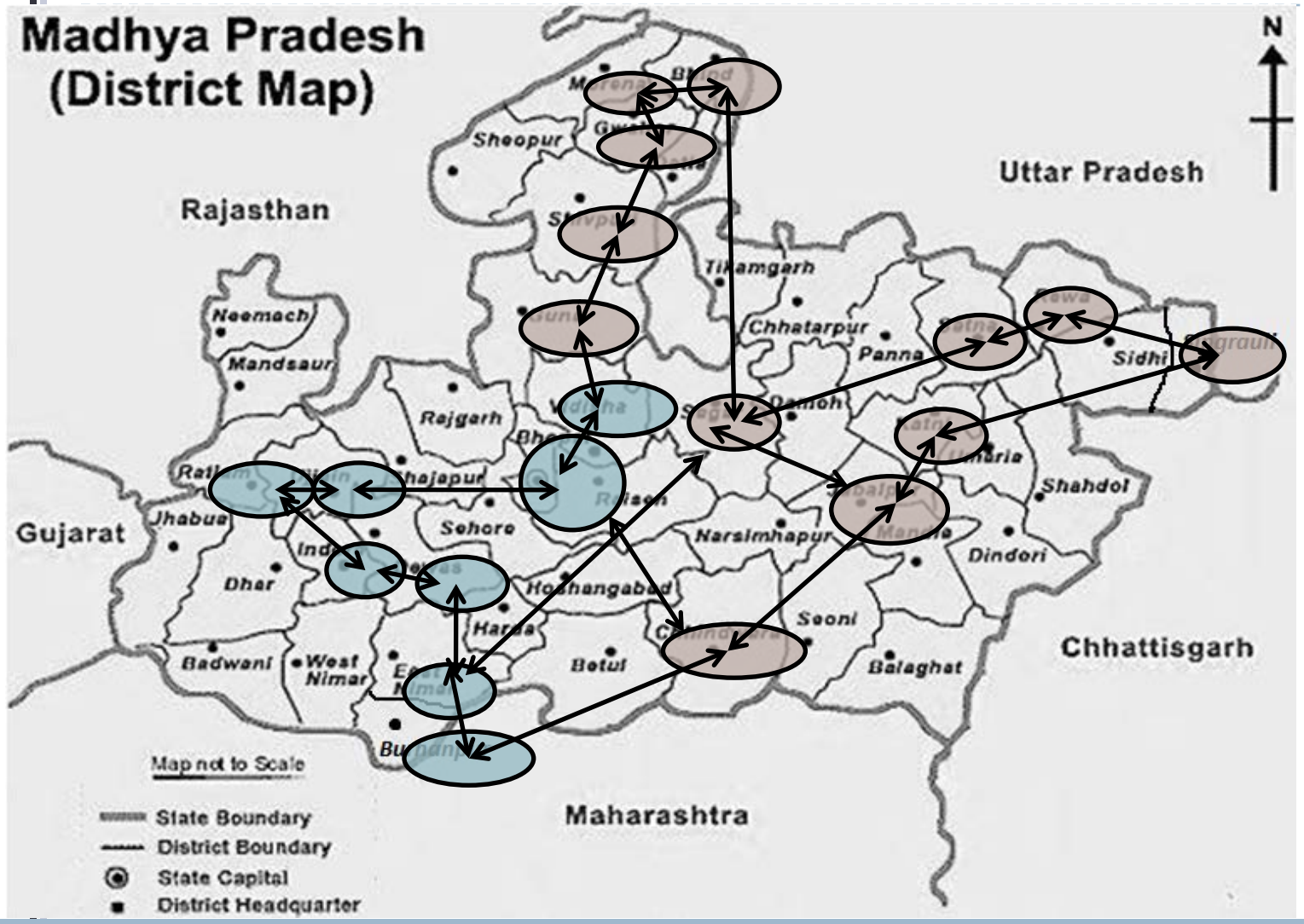
1. Indore Model of Urban Public Transport setup on 26th January 2006.
2. Replication of Model cities of Bhopal, Jabalpur and Ujjain.
3. Public Private Partnership as the central theme.
4. Bus Rapid Transit Systems in Bhopal and Indore.
5. Integration of Projects under JnNURM.
6. Spread of the System in all cities and towns of M.P.
7. Policy and Infrastructure support to implement a complete multimodal transport system in the entire state.
8. DUTF established, provision for minimum 25% of advertisement revenue in the city to go for public transport under OMD rules 2016.

Hub- Spoke Model



Hubs and Spokes Model based Intra and Inter Bus Services
20 SPVs for Hubs

Urban Transport

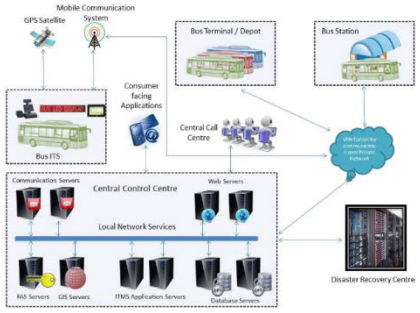


This Hub and Spoke will connected 20 major cities and also the near by towns.

Each city will act as an individual Hub connected to near by towns/ cites as a Spoke

The project aim to improve intra city public transport facility in 20 hub cities and provide connectivity to more then 310 ULBs (Spoke city) in the state improving connectivity by 80%

Bus System Component



Public Transport (Bus Based)

- Institutional Reforms
- Plying the Buses
- Construction of Bus stops
- ITMS facility
- Bus Terminals
- Advertisement

TOD in M.P.

Policy Objectives


Ensure Transit Supportive Uses


Densification and Mixed Income Development around Transit Stations and Corridors


Ensure Connectivity and Manage Vehicular Traffic and Parking


Create Pedestrian and NMV-Oriented Design


Make each Transit Station/ Corridor Area a "Place"


Plan in context with Local Communities

- Urban Development and Environment Department of Government of Madhya Pradesh through its Directorate of Urban Administration and Development have
  - Prepared Draft State TOD Policy and Model TOD Regulations,
  - Proposed amendments in Town Planning Act, Rules and Statutory development Plans of 5 Cities namely Indore, Bhopal, Jabalpur, Gwalior and Ujjain

Strategies to Realize Policy Objective

Transit-Supportive Uses
- Transit-Supportive Land Uses
- Mix Land Uses
- Limit Non-Transit Supportive Land Uses

Densification and Mixed Income Development around Transit Stations and Corridor
- Densification
- Mixed Income Development

Ensure Connectivity and Manage Vehicular Traffic and Parking
- Connectivity
- Multi Modal Integration
- Parking
- Encourage Employer based Transportation Demand Management Strategies

Pedestrian and NMV-Oriented Design
- Pedestrian & NMV Connectivity
- Pedestrian and NMV-Oriented Design
- Safety and Security

Make Each Transit Station/Corridor Area a "Place"
- Activities & Uses
- Emphasize Important Buildings
- Design & Aesthetics

Plan in Context with Local Communities
- Community Participation
- Needs of the Community

- The TOD Schemes on Government Land shall be prepared so as to mobilise Finances for Extension of Transit Services and Capital Expenses.
- The financial model for such schemes shall ensure delivery mechanism for public infrastructure, public transport facilities as well as affordable housing in such schemes.
- The TOD Areas shall attract Private Investments in Infrastructure Development and Service Delivery through mechanisms of FAR benefits or any other possible benefit that the Regulatory authorities can give.
- The TOD Schemes shall give additional Revenue to the Urban Local Bodies which may be credited to the Dedicated Urban Transport Fund or Mass Transit Company/Corporation/Agency .

L SMART CITY MOBILITY SOLUTIONS

a INTELLIGENT TRANSPORT SYSTEM (PIS/PAS/REAL TIME MONITORING)

Buses equipped with GPS based AVLS connected with Central Control and Command Centre. A 16 ft x 6 ft Video Wall comprising of 8 Nos. of High Resolution LED Panels tracks and monitors the movement in real time. Additionally, the Bus Stops are connected with Command Centre reflecting Expected Time of Arrival (ETA) on Passenger Information System (PIS)

All the buses are equipped with 4 Nos. of PIS in buses and passenger announcement system. Destination and next bus stop information, Public messages and announcement.

b AUTOMATIC FARE COLLECTION

Automatic Fare Collection System installed at the bus stops to automate the integrated ticketing system

BUS PRIORITY SYSTEM

Installed at the intersection to improve service, enhance safety and reduce delays

c INTELLIGENT STREET POLES

- Wi-Fi zoning through Wifi Hot Spots
- Safety of citizens
- Energy efficient Solar based LED Street lighting
- Environmental Sensors for quality, temperature, humidity
- Electronic Vehicle charging points

d E-RICKSHAW (LAST MILE CONNECTIVITY)

E-rickshaws with docking station facilities provides last mile connectivity in environmentally sustainable and cost effective manner

e PUBLIC BICYCLE SHARING

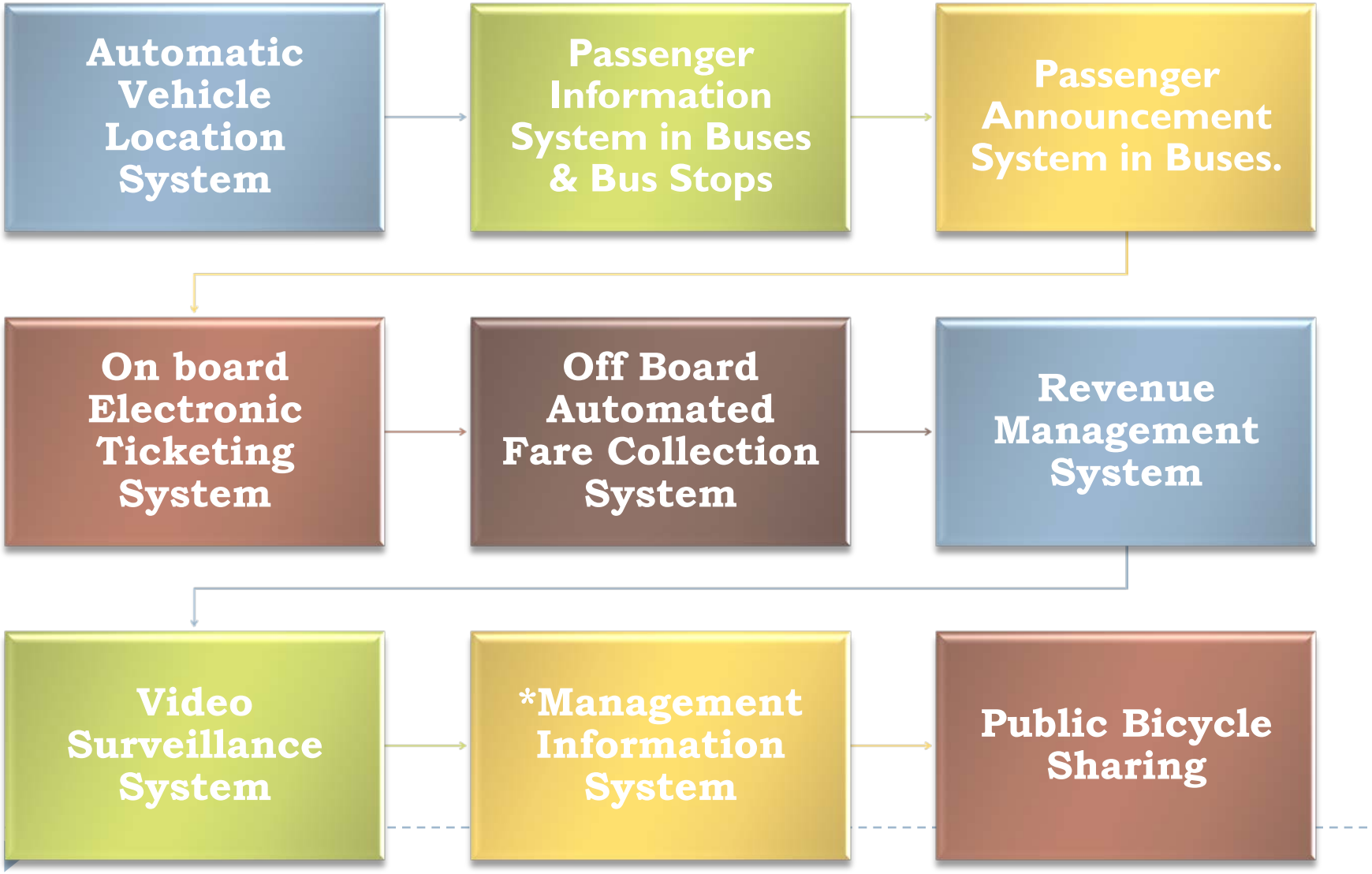
500 Light weight modern Cycles at 50 fully Automated Bicycles in first phase
The Cycle sharing system will also be integrated with the fare collection through the ITS system.

f DEDICATED CYCLE LANE

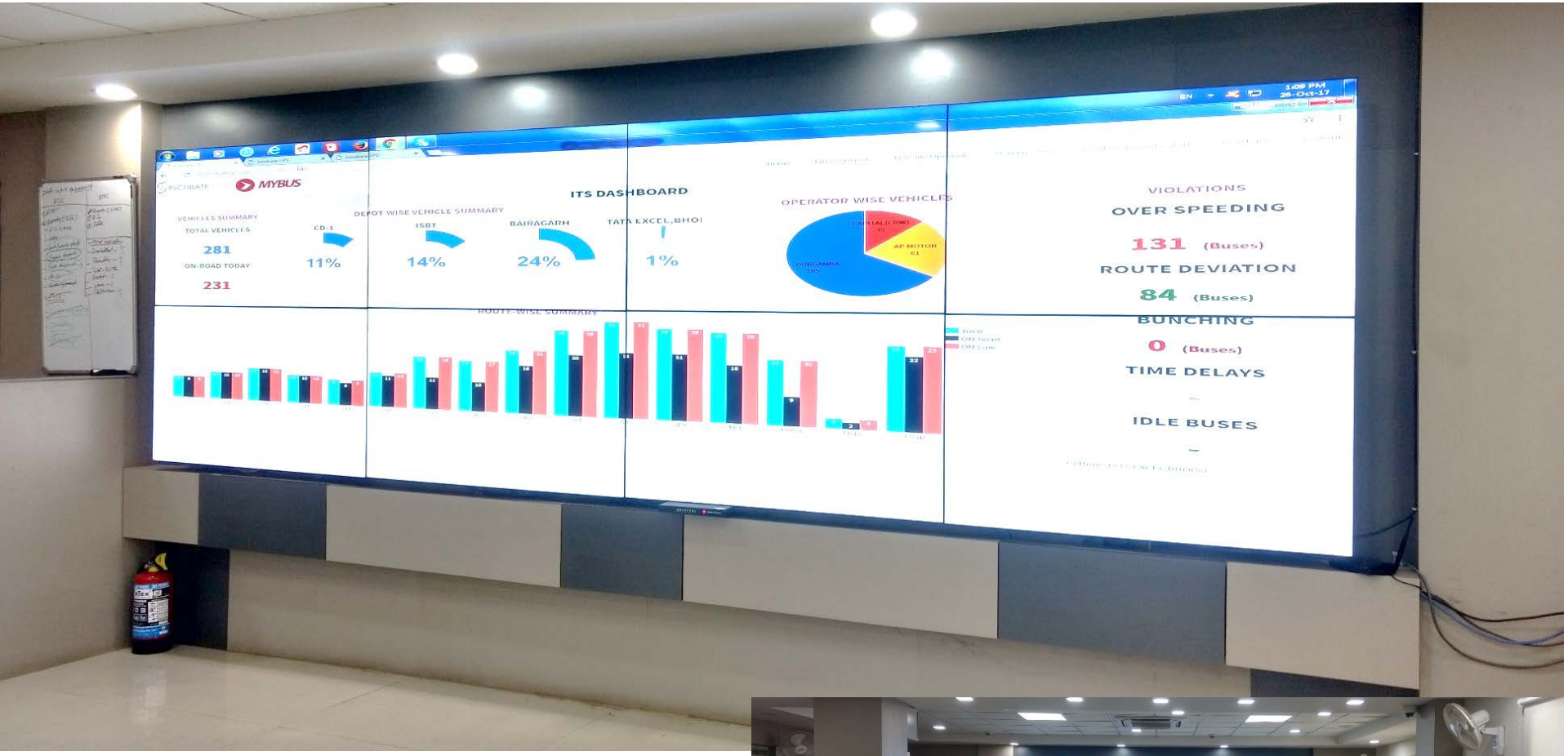
Providing a safe and welcoming cycling environment with proper markings and biking surface

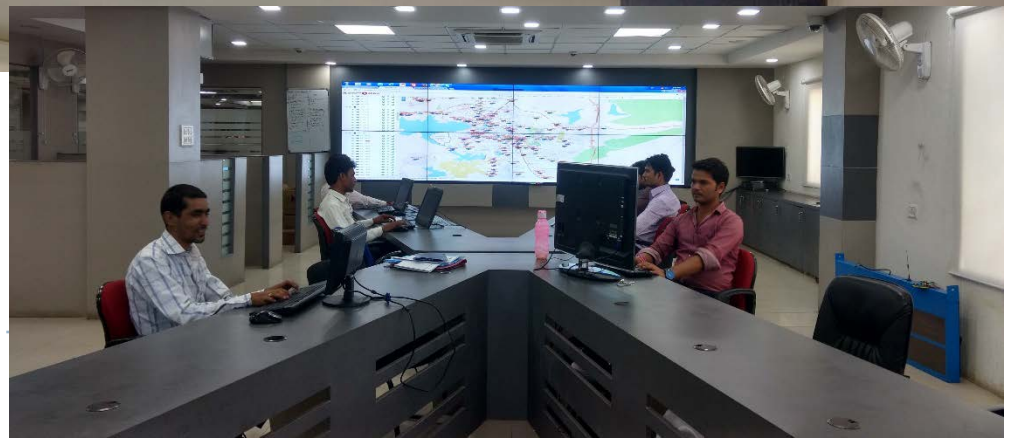
SMART CITY BHOPAL

Smart Mobility



BCLL - Command Center





16 x 6 Sq Ft, High Quality LED Video Wall at Command Center

PIS and PAS

PIS in Buses

4

- Route Name
- Destination
- Next Stop

PAS in Buses

2

- Next Stop to be reached
- Destination of the Bus

PIS at Bus Stops

1

- 231 Bus Stops
- Route Name
- Route wise Destination Stop

AFC at BRT Bus Stop

Off Board ticketing & Smart card recharge though ATVM's on Bus stop.	**On Board Ticketing with ETVM's.**	**Subsidized Smart card for easy travelling with MY BUS.**	**Universal Smart card valid on all routes.**	**Revenue management system.**

Automatic Fare Collection– Off Board Ticketing

ATVM

Flap Gates

Tripod at Exit

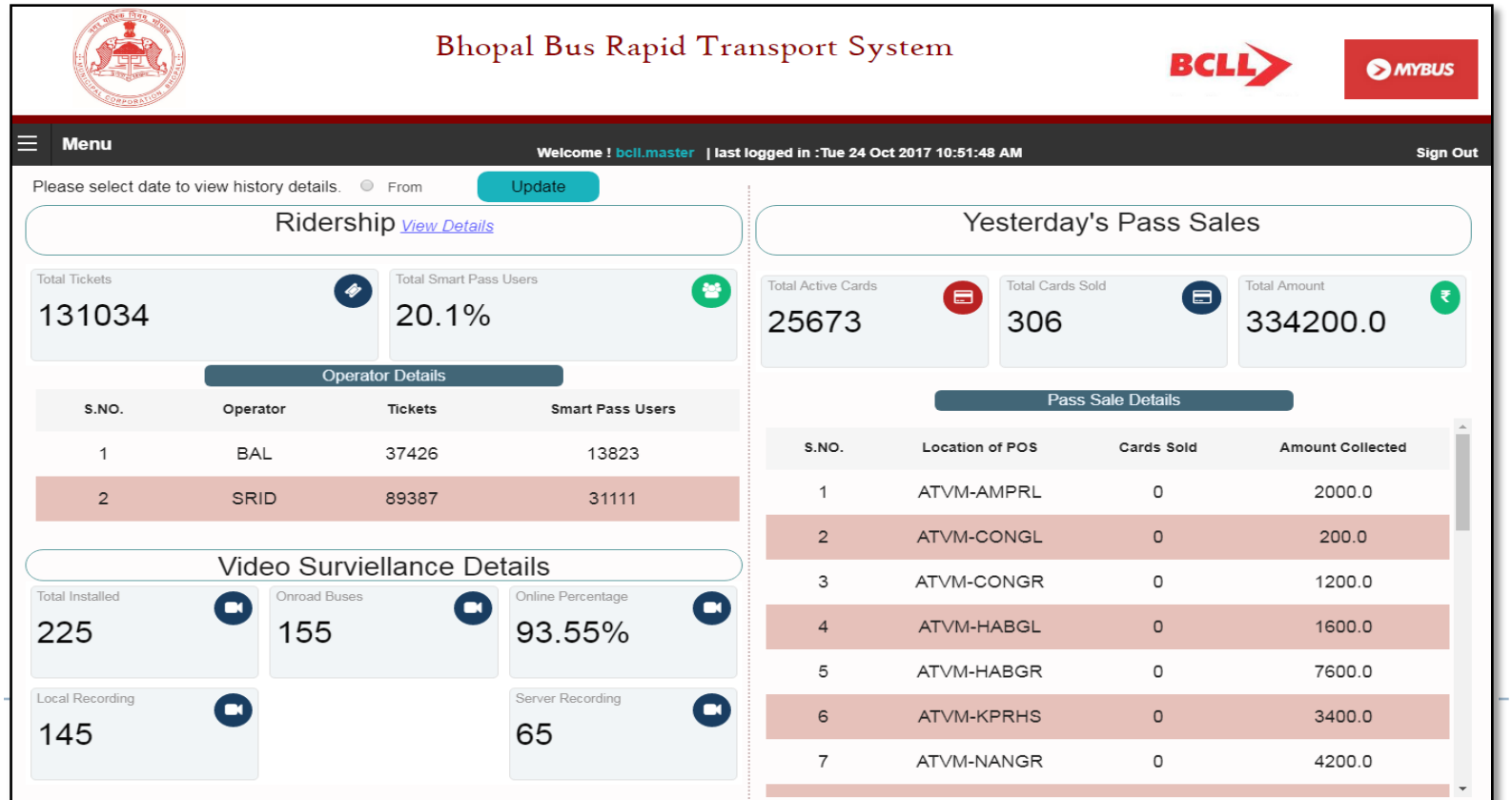
VM

Barricade Sensor Gate

Sensors activated based on Bus arrival at the bus stop

Revenue Management System

- Fair Mechanism.
- Different operators operating.
- Access given to bus operators
- KM based distribution of Smart Pass Fare and ATVM Ticketing.
- Ease in Revenue Monitoring
- Access to Daily MIS Report of ETVM, ATVM and CCTV



SMART PARKING

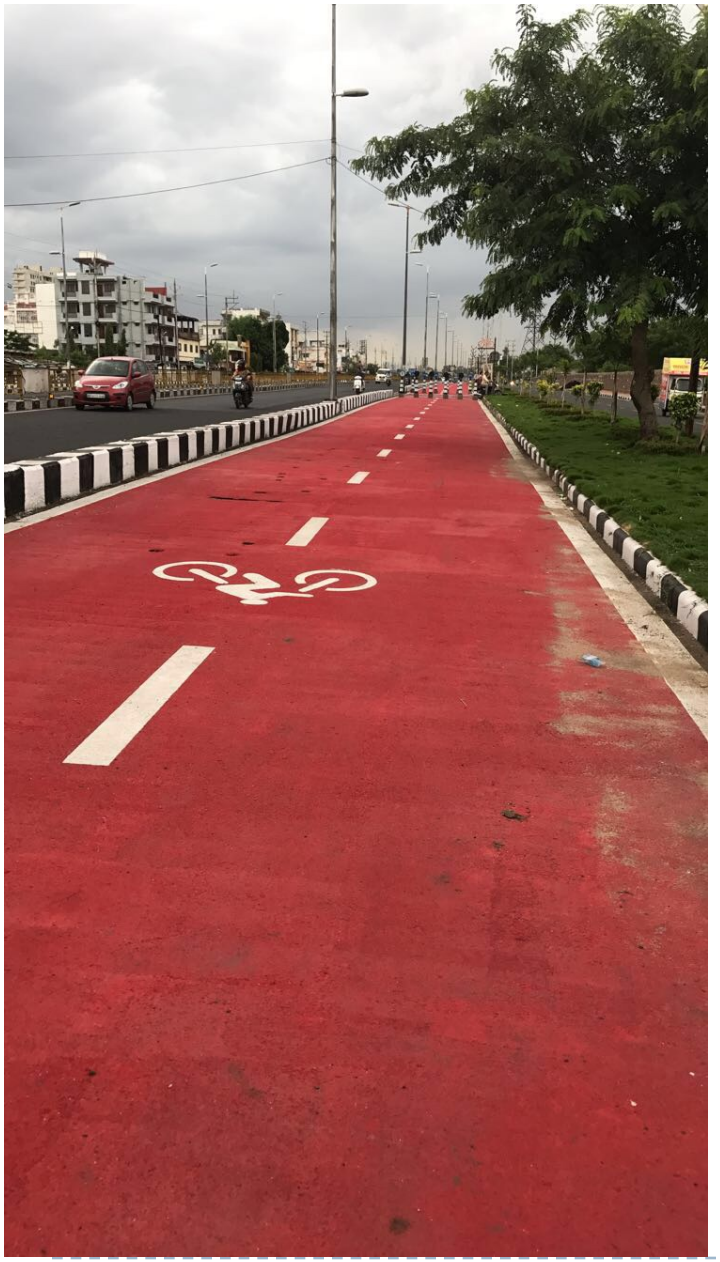
- Enhanced quality of life
- Improvement in their parking experience & satisfaction
- More efficient use of parking and increased revenue
- Reduces illegal parking
- Reduces revenue leakages

PPP Project

- 50 Stations
- 500 Smart Bicycles
- Onboard Computer
- GPS

Features of Smart Bike

- Promotion of Non-motorized transport.
- Can be taken from Docking station through Smart Card.
- Constant monitoring through GPS
- Payment through app,
- Low fares to promote cycling in the city.



Bicycle Track Features

- **5m** wide track
- **12 km** long
- Integrated with **BRTS**
- Project Cost **– Rs 5 Cr**
- Implementation Started, completion by Dec 2016

*Launch – **25th December, 2016***
*Project Cost – **Rs 2.95 Cr***
***Next Bike** has been awarded the projects.*

Rental via NFC or App

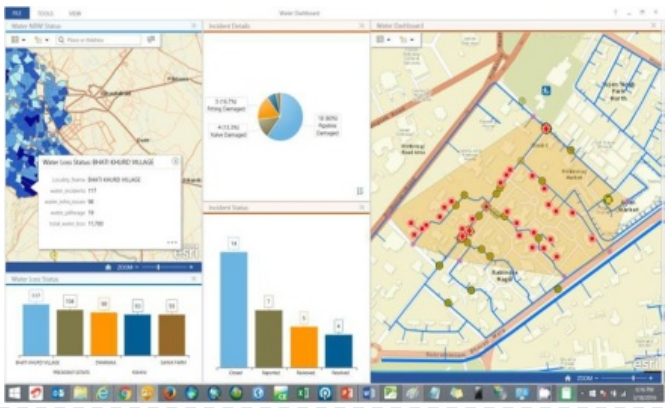
Rental with Smart Cards

PIN code entry

Smart Map

56 layered GIS cutting across departments

- Citizen portal
- Map visualization
- Query & Location based Info
- Education & health services
- Public feedback
- Property & Other taxes



Live for Bhopal and Indore

Smart App

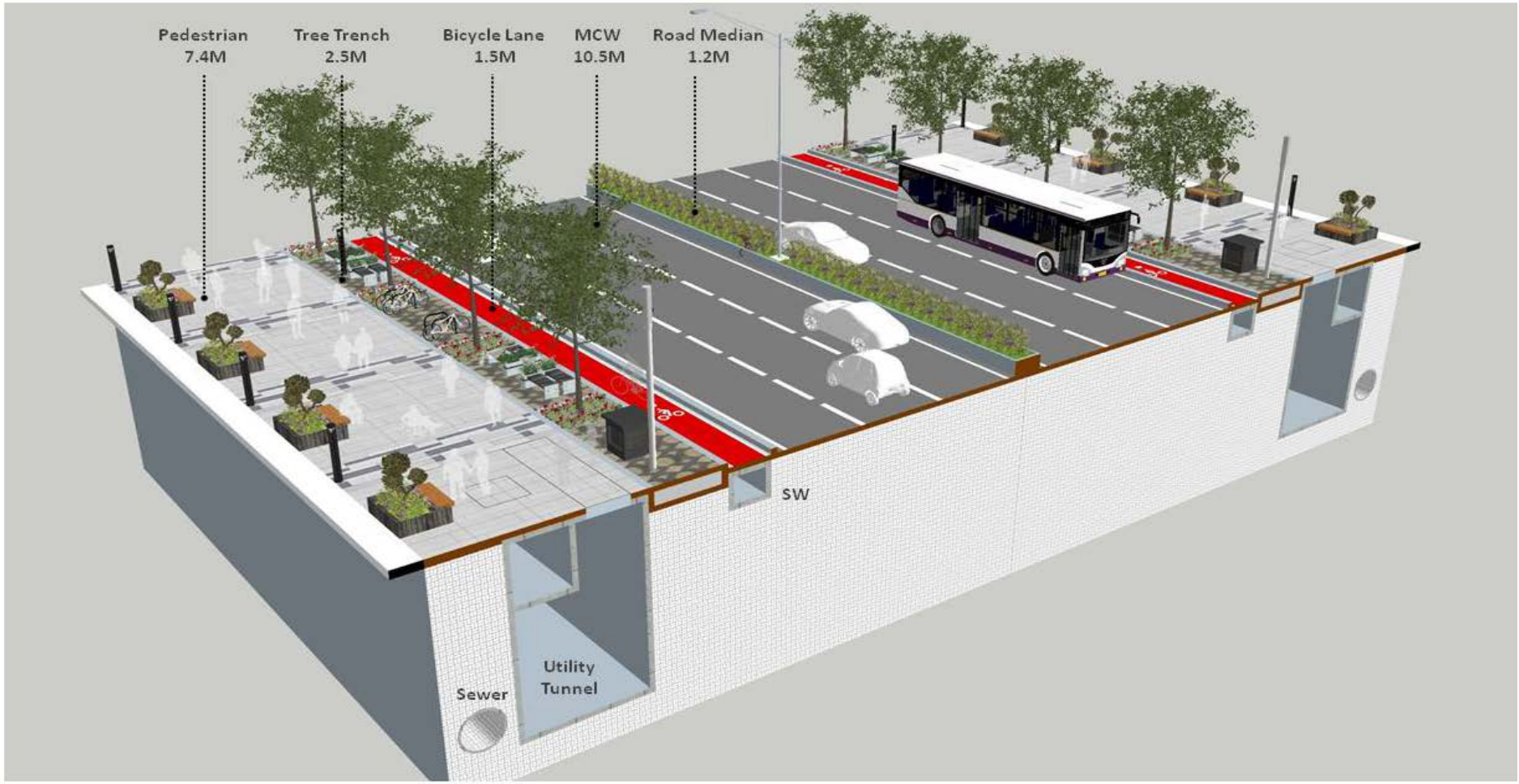
An integrated platform enabling and promoting

Collaborative , Participatory and Unified Governance

- Citizen Collaboration
- Citizen Services
- Grievances
- City Dashboard

SMART ROAD

ROAD SECTION: Development of Boulevard Street , Bhopal



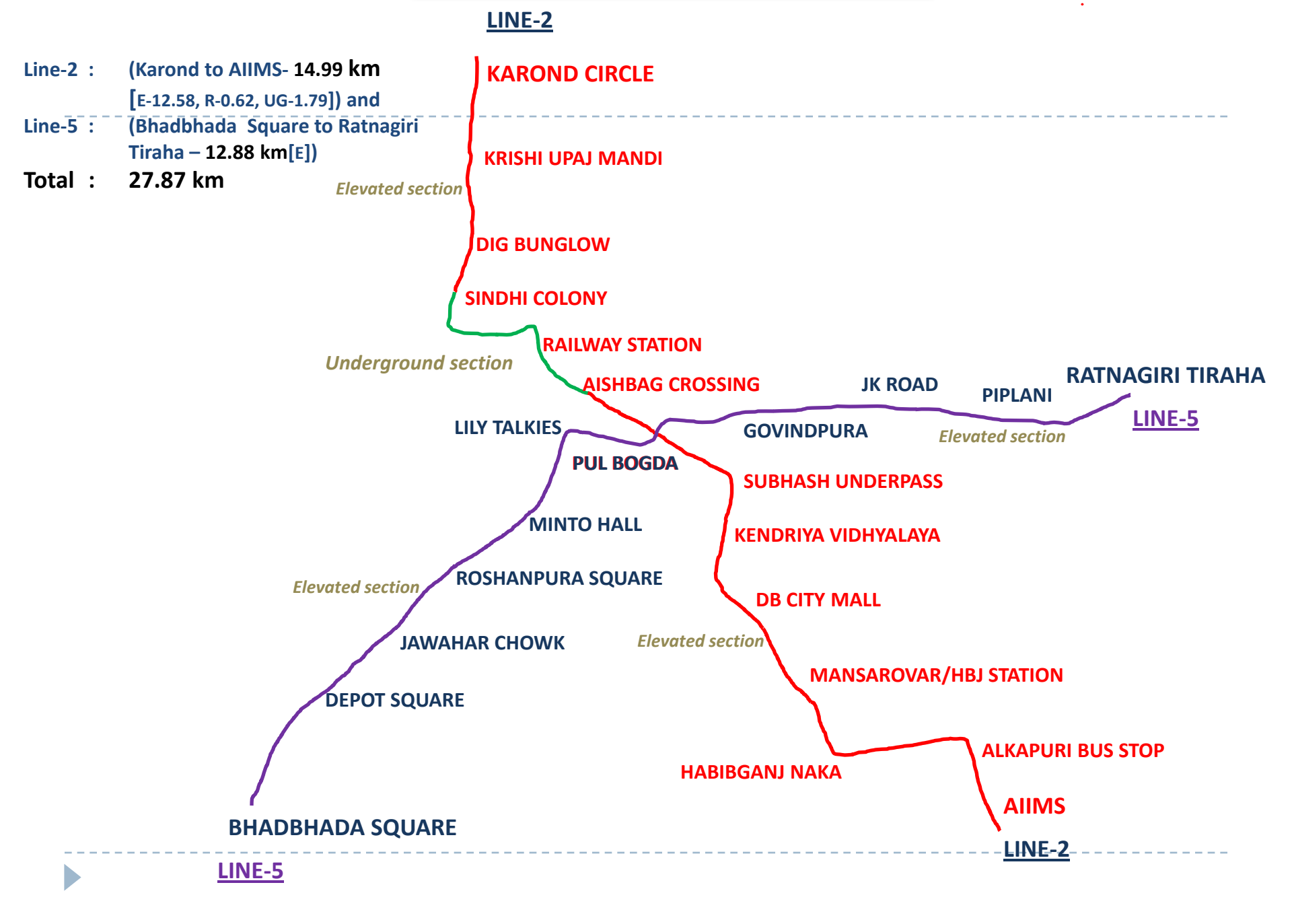
Bhopal Metro Project- Phase-I

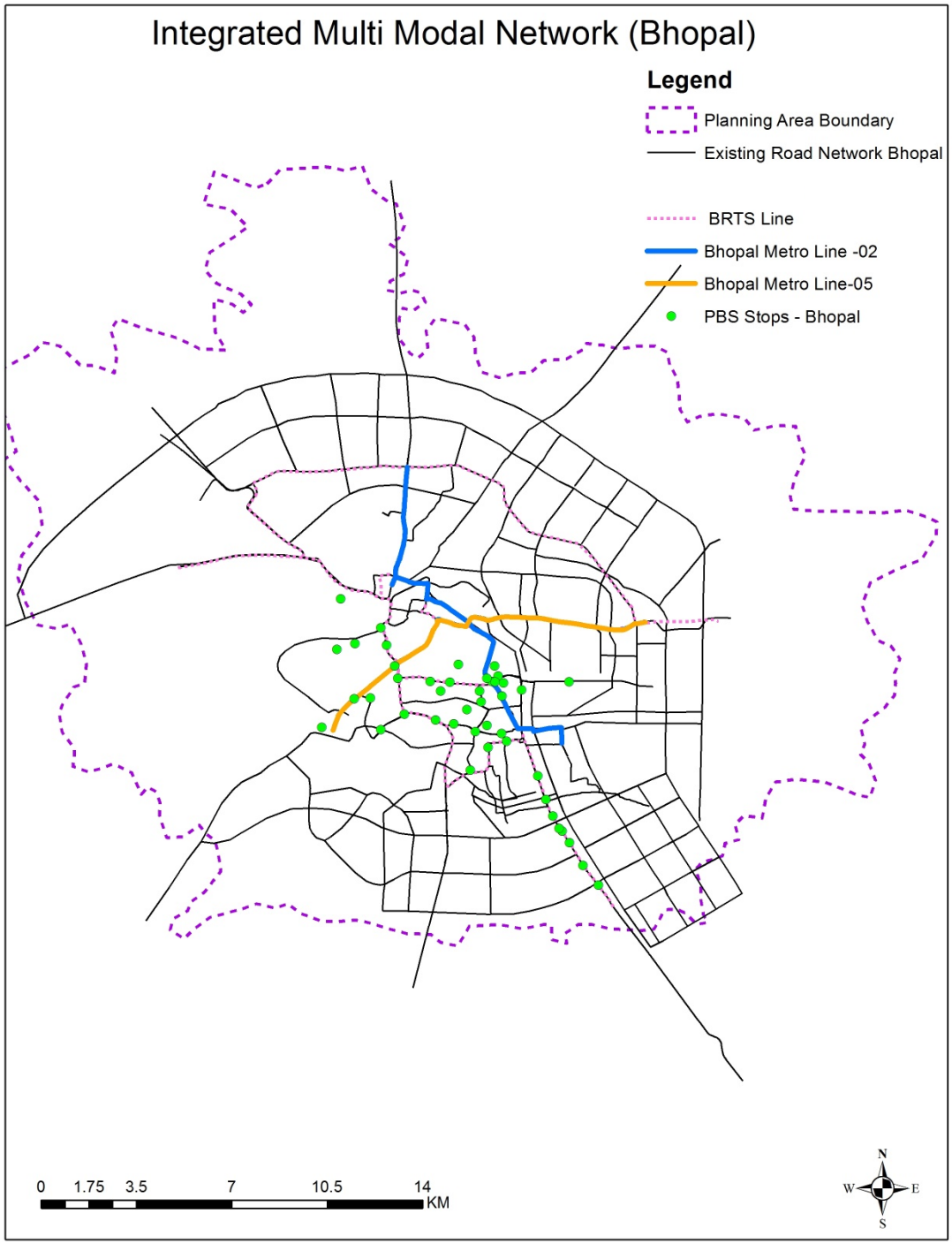
Bhopal (Phase-I) :-

- Number of Corridor : **2**
  - Corridor Detail : 2 (Karond to AIIMS- 14.99 km[E-12.58, R-0.62, UG-1.79]) and 5 (Bhadbhada Square to Ratnagiri Tiraha – 12.88 km[E])
- Total Length : **27.87 km** [Elevated-25.46 , Ramp-0.62, U/G-1.79]
- Total Cost of the Project : **6962.92 crore**
- Construction : Starting Year : 2017-18
  Completion Year : 2021-22

Metro Station Design

Phase-I- Network Map for Bhopal




Integrated Multi Modal Network (Bhopal)
Legend
Planning Area Boundary
Existing Road Network Bhopal
BRTS Line
Bhopal Metro Line -02
Bhopal Metro Line-05
PBS Stops - Bhopal
0 1.75 3.5 7 10.5 14
KM
N
W
E
S

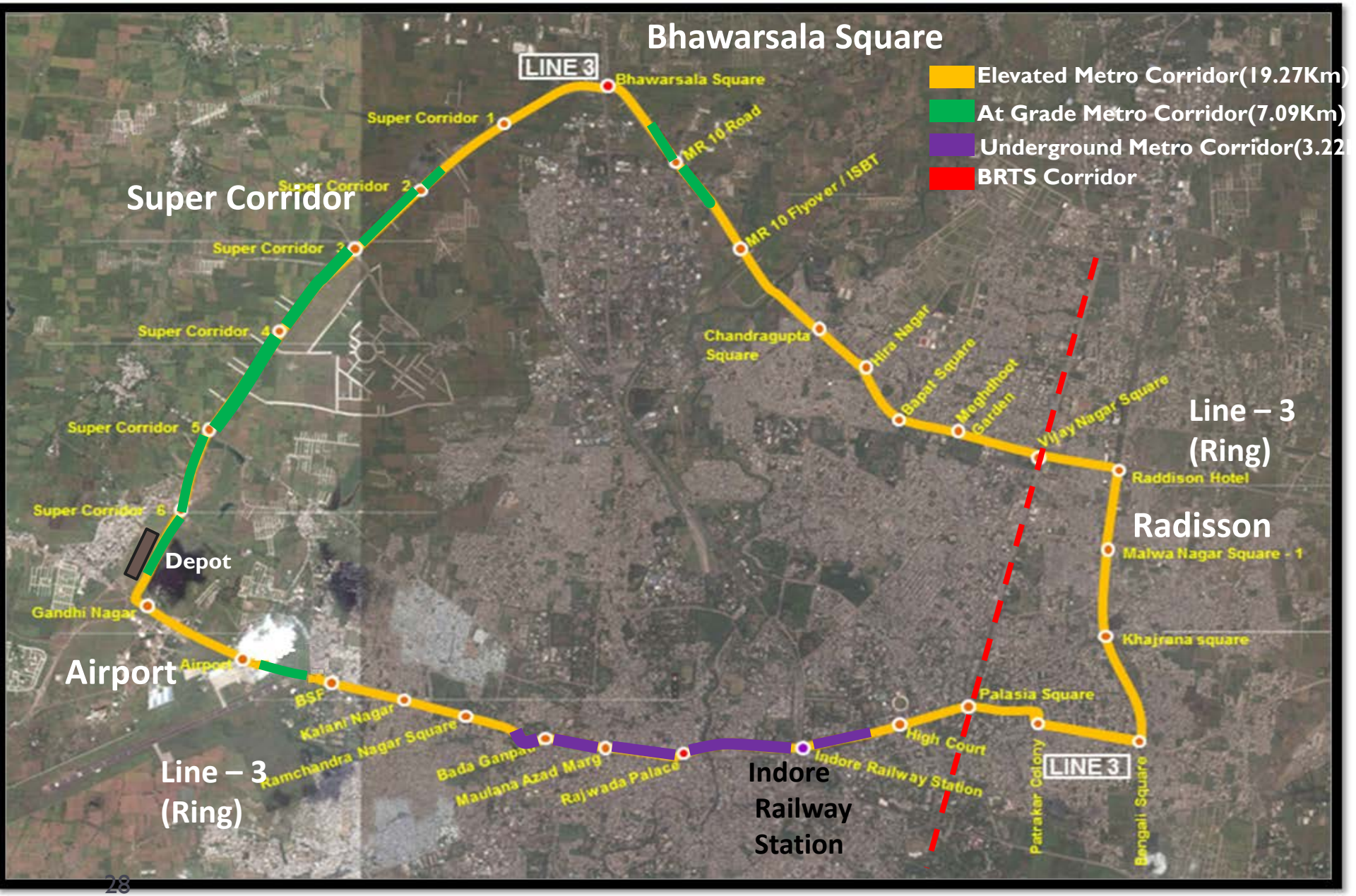
Indore Metro Rail Project- Phase-I

Phase-1:-

- Number of Corridor : **1**
  - Corridor Detail : 3 (Ring : Palasia- Airport-Bhawarshala -Vijay nagar-Palasia)
- Total Length : **31.55 km** [Elevated-19.27, Ramp-1.97, U/G-3.22, At Grade-7.09]
- Total Stations : **30** [Elevated-20, U/G-4, At Grade-6]
- Construction : Starting Year : 2017-18
  Completion Year : 2021-22

Super Corridor - Indore

Phase-I- Network Map for Indore Metro Rail



Integrated multimodal Network (Indore)

Legend

- Indore Metropolitan Boundary
- Roads
- Bus Routes
- BRT Routes

Metro Routes

- Line 3

N

2.5 0 2.5 5 7.5 10 km

THANK YOU

SUTRA

S= State
U= Unified Urban
T = Transport
R= Redevelopment
A = Augmentation

SEVA

S = Service
E = Equality
V= Value
A = Accessibility

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