



S M A R T
C I T Y
B H O P A L

Bhopal Smart City development
Corporation limited

Bhopal Smart City Proposal

Area Based Development



342 Acres – T.T. Nagar

Pan City Interventions



Project -1 : Smart Unified Governance

Project -2 : Intelligent Street Lighting

BHOPAL – Lighthouse city with a difference



1. Only lighthouse city that envisions **REDEVELOPMENT** driven urban overhaul by unlocking the value of sub optimally utilized land parcels.
2. Check urban sprawl
3. IOT to drive Citizen Centric innovations as pan city interventions



BHOPAL – SMART CITY VISION



Transforming Bhopal, a City of Lakes, Tradition & Heritage
into a leading destination for
Smart, Connected and Eco Friendly Communities
focused on
Education, Research, Entrepreneurship and Tourism

PAN CITY INITIATIVES

875 cr.

AREA BASED INTERVENTIONS

2565 cr.

Project Cost as per SCP – 3437 cr.

Smart poles & Street Lighting

... as a multi- application platform under PPP



PPP PROJECT

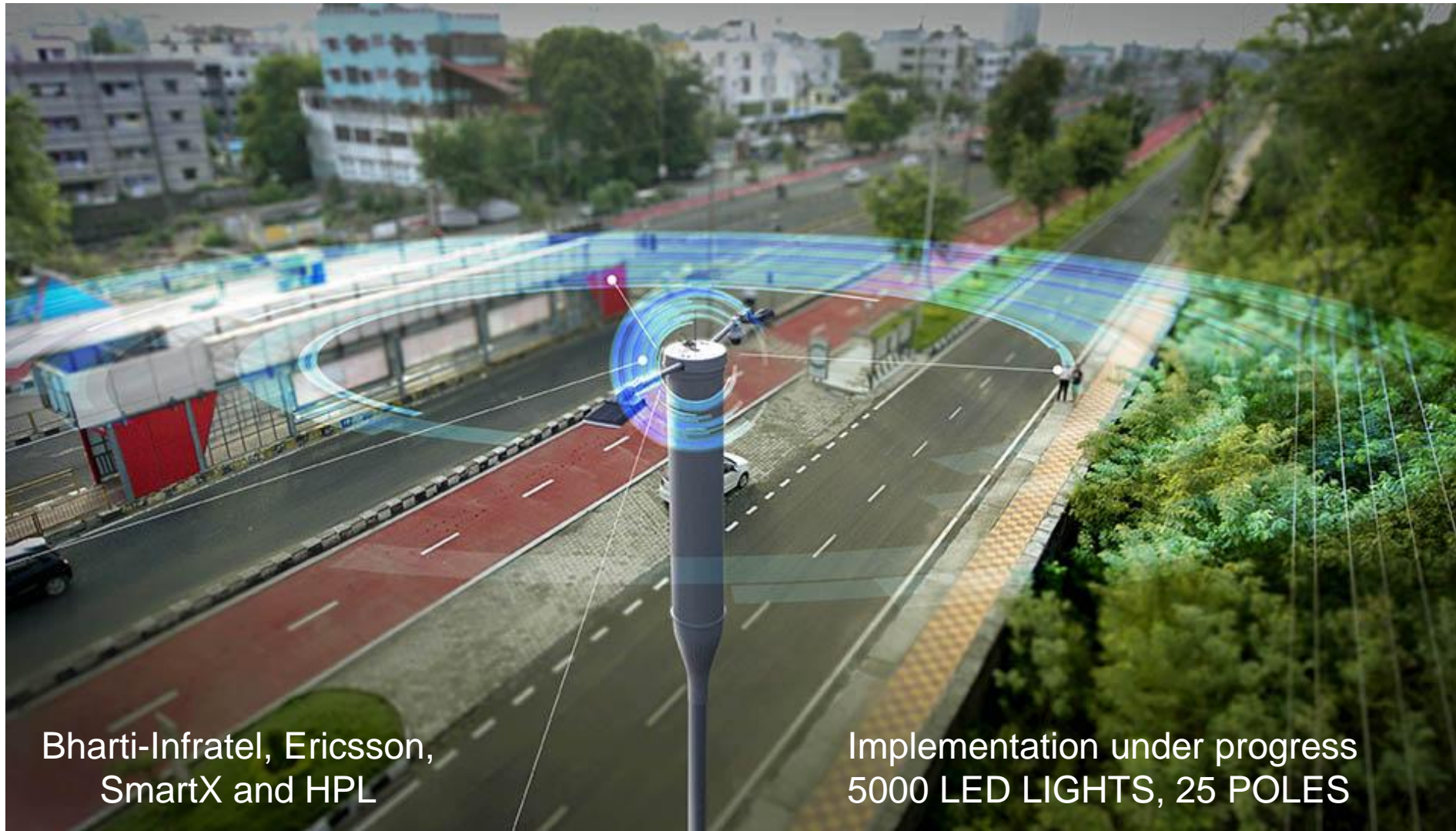
REVENUE GENERATING

MULTI-APPLICATION

- Investment - 690 crs
- No cost to city
- Revenue - Rs 47 cr.

Smart Poles	400
Intelligent LED lights	20000
Surveillance camera	400
Wi-Fi Hotspot	100
Digital Signage	400
EV Charging	100
Optical fibre Cable	200 km
Environmental sensors	100
O &M	15 years

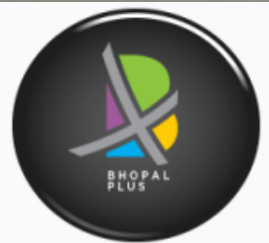
SMART POLE



Bharti-Infratel, Ericsson,
SmartX and HPL

Implementation under progress
5000 LED LIGHTS, 25 POLES

BHOPAL PLUS - THE SMART CITY APP



An integrated platform enabling and promoting
Collaborative , Participatory and Unified Governance

BHOPAL SMART MAP



90 layered GIS cutting across departments.

GIS Citizen portal to:

Search and locate facilities

Know your property details

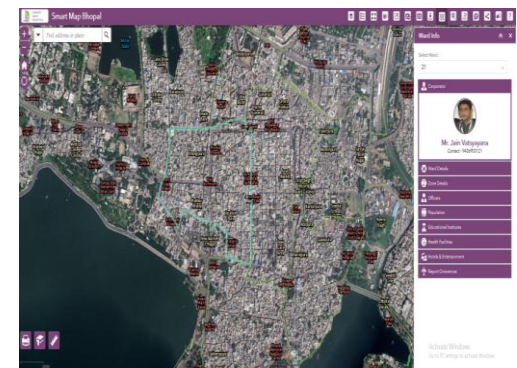
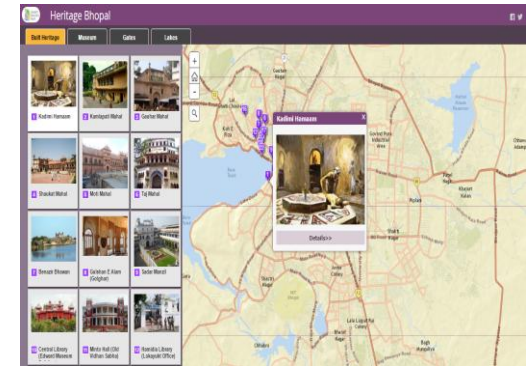
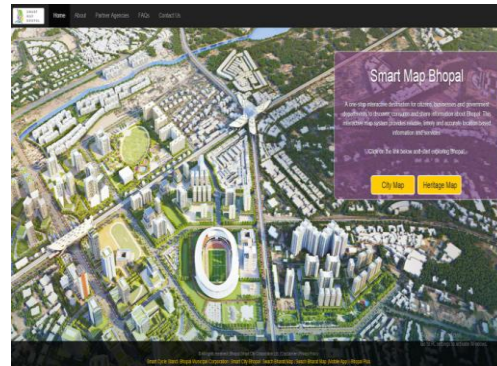
Know your plot details

Location based feedback/ suggestions

Public participation on adding city events

Getting your ward level information]

Know your city heritage – story map

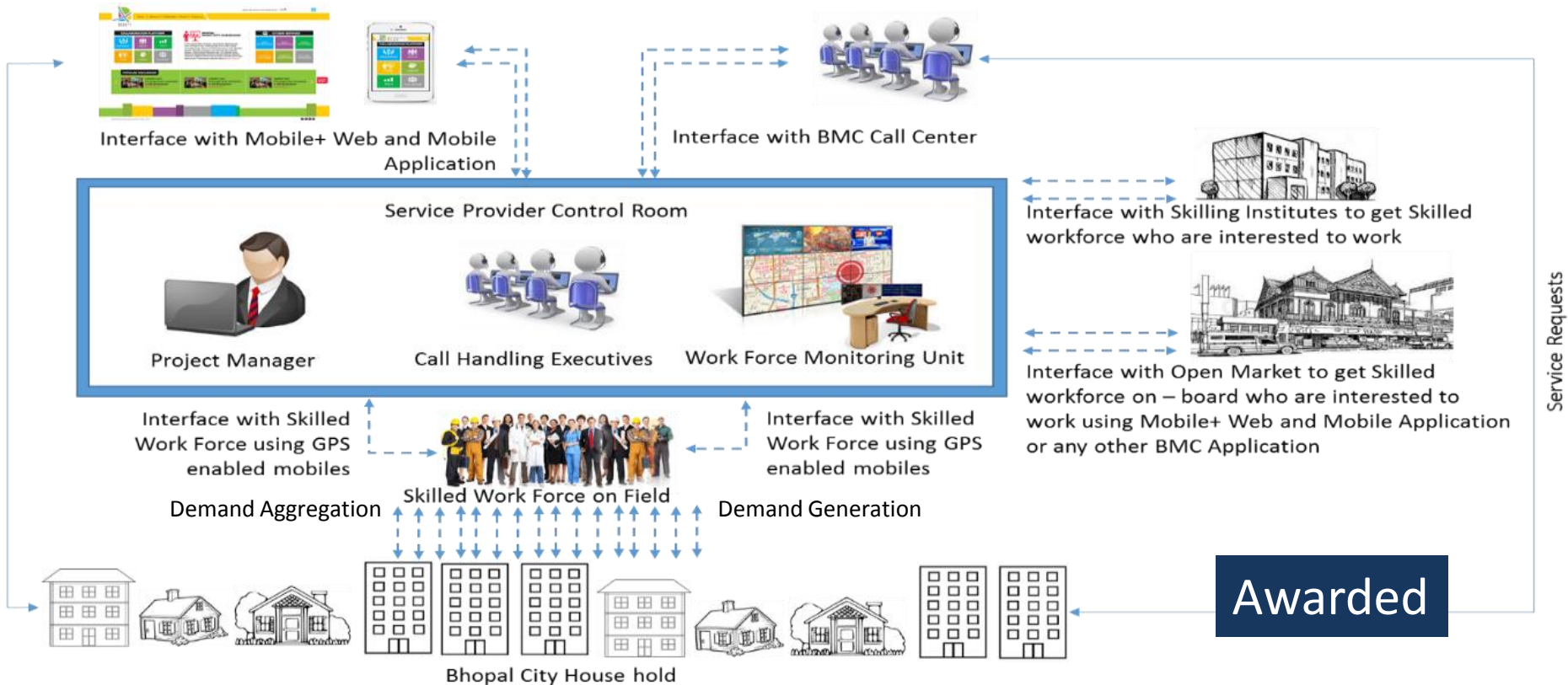


MAYOR EXPRESS- DYNAMIC MARKET PLACE



The services include

Electrician, Plumber, Carpenter, Mason, Driver, Gardener, Painter, Accountant, Air Conditioner Servicing, Baby Sitter, Beautician, Car Cleaner, Cook, Dish Washer, Domestic Maid, House Cleaning, Pest Control, Photographer, etc.



BHOPAL LIVING LABS

Support

MPSEDC
MANIT
CISCO
PWC
WRI
HP
ERICSSON
INTEL
TRUBA
COLLEGE

Objectives

- To identify & support potential cutting edge information technology entrepreneurs with a viable business plan
- To provide technical assistance in the development of processes, technologies and products along with managed workspace
- To connect researchers and entrepreneurs to commercialize innovations
- To increase economic and social growth of the region as well as the country



ENVISAGED SERVICES

Managed office space

Business modeling

Financial advice services

Advertising and
marketing services

Training services

Legal and IPR advisory
services

Industrial infrastructure

Network services

After incubation support
services

SMART BIKE



SMART
CITY
BHOPAL



Rental via NFC
or App



Rental with
Smart Cards



PIN code entry

50 Stations, 500 smart Bicycles with onboard computer and GPS

BICYCLE TRACK



5m width, 12 km long, integrated with BRTS

SMART MOBILITY

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



INTEGRATING BRTS & PBS



INTELLIGENT TRANSPORT SYSTEM



HERITAGE CONSERVATION



Chawk Bazar



Jama Masjid complex



Adaptive reuse of Sadar Manzil

UNDER IMPLEMENTATION

BHOPAL SMART PARKING



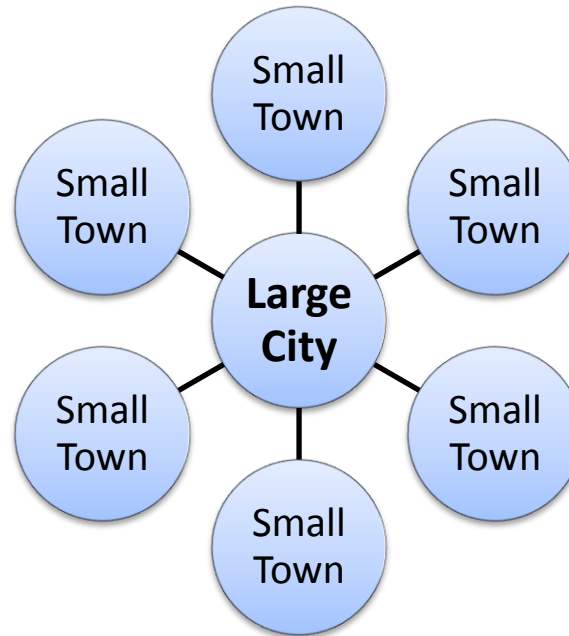
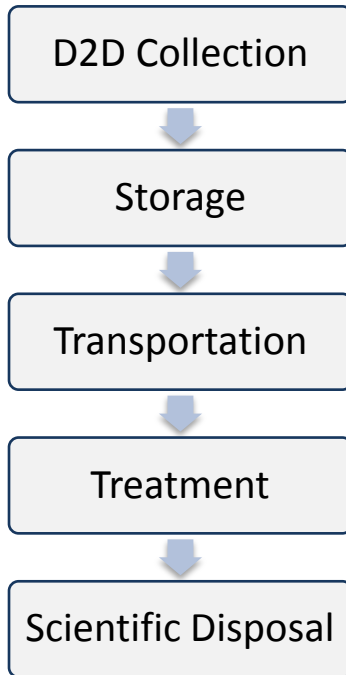
Awarded

BHOPAL SMART ROAD



PROJECT NAME	PROJECT COST (INR Cr)	STATUS	PROJECT TIMELINE	
			START	END
Polytechnic Sq. to Bharat Mata Square (2.5 Kms) in ABD area	27	Awarded	Dec 2016	Nov 2017

SOLID WASTE MANAGEMENT



Cluster Based Approach

End-to-End Solution -
Collection to Disposal
Generating Wealth from Waste (Energy/Compost)
Benefitting Small Towns through
Economies of Scale
O&M for 19 years
Integrated in Contract



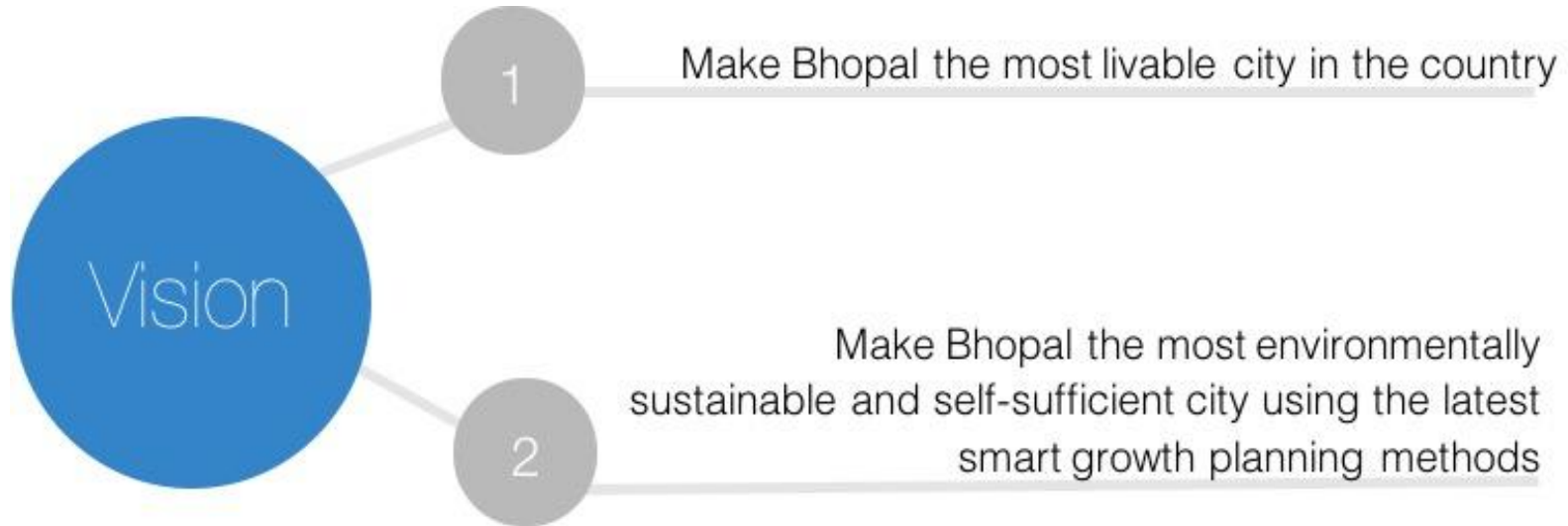
Integrated Solid Waste Management

RFID & IoT Based SMART BIN



- *Deploy RFID & IoT based solution for two way communication and organize the process of waste collection from bins to solid waste vehicles*
- *The system aims at transforming all waste as garbage bins in the city into a smart automated system*

GREEN & BLUE MASTER PLAN



Under Implementation

Green and Blue Master Plan for Bhopal City

VISION : "To make Bhopal the most livable and the most environmentally sustainable & self-sufficient city in the country using the latest sustainable growth planning methods."

OBJECTIVE 1:

To develop and implement policies, programs, and projects as part of mainstream integrated urban planning and environmental management that will enhance social and environmental sustainability of urban infrastructure and services.

OBJECTIVE 2:

To achieve a 100% green buildings and neighborhoods in phases and maximizing utilization of land parcels within city limits.

Green and Blue Master Plan



Green & Blue Spaces



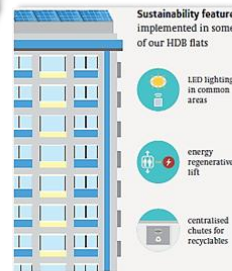
Public Cleanliness



Plans & Standards for Sustainable Water Management



Waste Management & Recycling



Eco-Friendly Buildings
Maximize green building and green neighbourhood planning



Network of Parks & Maximizing use of land parcels



Innovative solutions, Incentives and Standards for Sustainable Energy Management

TACTICAL URBANISM (SMART STREET)



Awarded
COST – 6.86 CR
PLACE – MP NAGAR



SOLAR CITY



1. BMC Signed Mou with Solar Energy Corporation of India, New Delhi for installation of 3MW and 1 MW with MP Urja Vikas Nigam Limited, Bhopal Roof top solar projects
2. First Roof top solar power project of 35 Kw Installed at Head office, BMC Harshwardhan complex Bhopal, working.
3. To encourage Roof top solar project in Bhopal city, BMC is planning to give rebate on Property tax for those who Installed RTS in their premises.
4. To enforce among the citizens, mayor has declared that in development permission a condition for providing at-least 50% of common service user area power consumption through solar and will be integrated for monitoring with city control and command center.
5. Smart city providing special incentive of cost of Net meter for domestic consumers.



Integrated Smart City Command Control Center



MP has identified 07 Cities to be developed under Smart city Missions

05 cities - Bhopal, Indore, Jabalpur, Ujjain and Gwalior are already part of the mission and 02 cities Sagar and Satna have participated in Smart City Challenge Proposal

State has additionally taken up 12 cities to be developed in line with Smart City Mission

State has decided to set-up a Common Cloud Based Data Centre with a Common Command & Control Centre Platform to be used by all Smart Cities of MP

Under this model Each Smart City shall have its own physical CCC, but leverage a common Cloud based DC/DR Infrastructure and CCC platform

CONTROL & COMMAND CENTER



This is only Conceptual Image, for Visualization.

Automatic Fare Collection

Flap Barriers



ATVM

- ATVM for Tickets and Smart Card recharge
- Flap barriers / gates for Commuter entry and exit

Barricade Sensor Gate



Sensors activated based on Bus arrival at the bus stop



Different types of Smart Cards for types of Commuters



Turnstile Tripod



POS for Card personalization



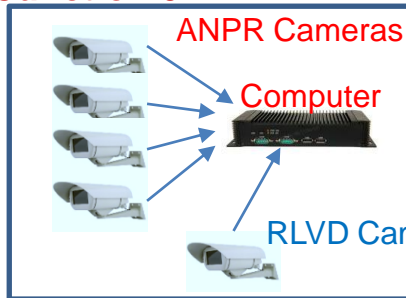
BIO-METHANIZATION PLANT

- Capacity - 5 TPD
- Biogas production - 300 Cu mtr/day
- Generator capacity - 50 Kva
- Electricity Generation - 450 Kwh/day

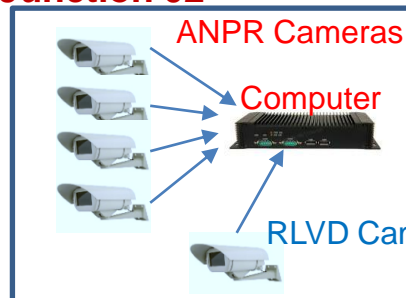


Integrated Traffic Management System

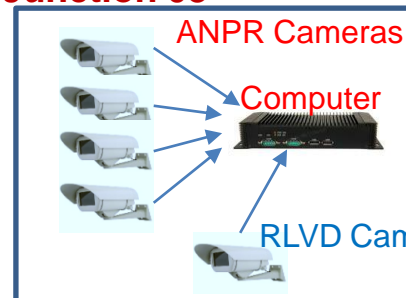
Junction 01



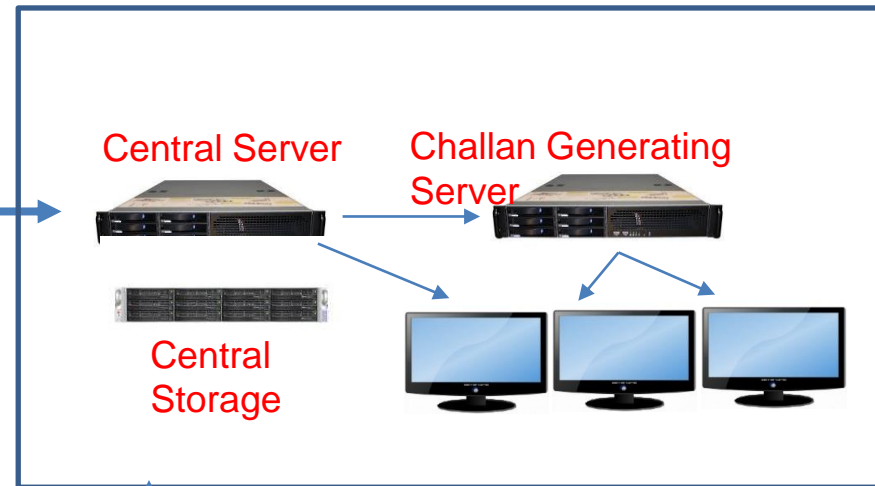
Junction 02



Junction 03



Optical Fiber
Backbone



Central Control Room

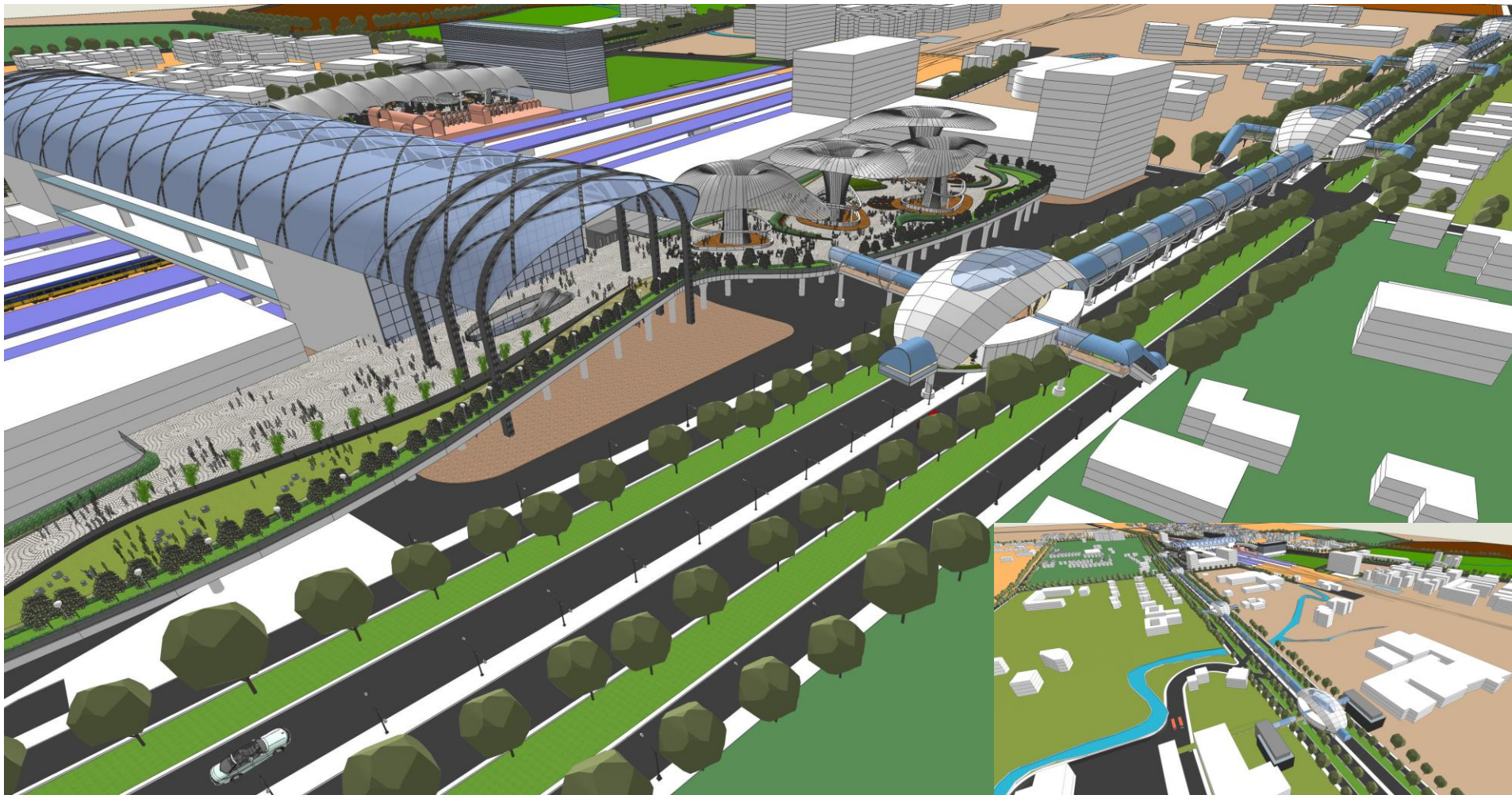
Feed for smart city
control
room

MULTI-MODAL INTEGRATION



INTEGRATING ISBT WITH HABIBGANJ RLY STN

1 km of travellers to connect ISBT and Habibganj Rly Station for seamless commute



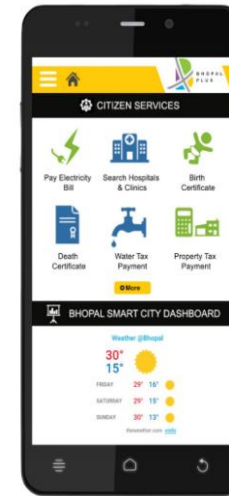
BHOPAL PLUS – THE SMART CITY APP

○ **Project Status:**

- *Application Go Live – 07 Nov 2016*
- *Phase-III roll-out rolled out on 24-June-2017*

○ **Snapshot of services on Bhopal Plus:**

- **Phase I:** *Payment of property tax, water tax & electricity bill payment, marriage/birth/death registration, search for local hospitals & clinics*
- **Phase II:** *Live bus route planner service, solar plant installation, Paytm & Mobikwik payment gateway & wallet*
- **Phase III:** *Mayor Express, report an incident, report lost article, vehicle/towed vehicle search, emergency SOS service and call administration*



○ **Project Scope**

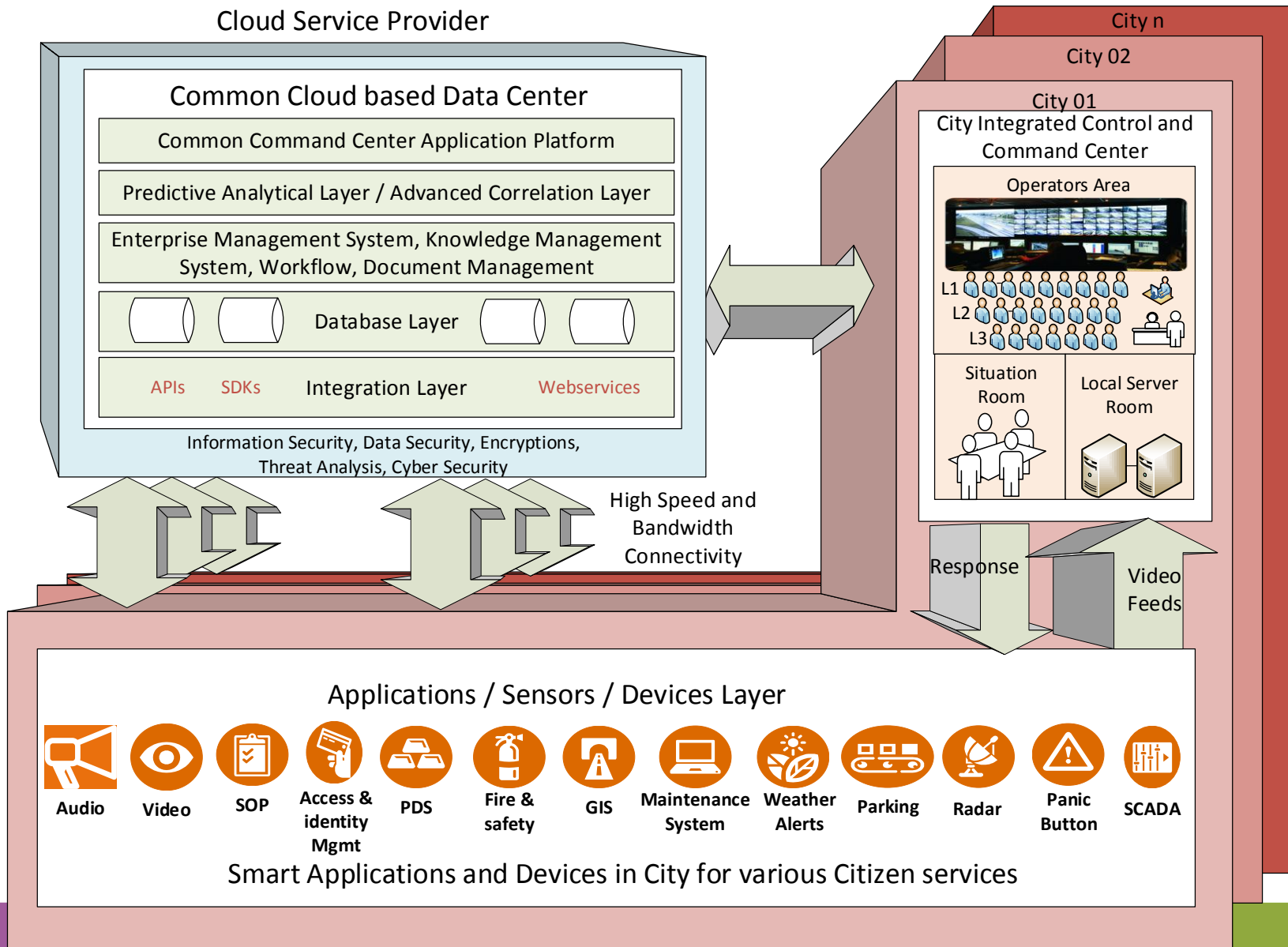
- *Government Citizen Collaboration platform*
- *Citizen services (G2C & B2C)*
- *Smart city dashboard*
- *Citizen Grievance Redressal*
- *Integration with external apps (BMC SAP system, Mayor Express, BCLL, etc.)*

BHOPAL SMART MAP



- Development of a City level GIS to act as a one-stop destination to citizens, business and government departments to discover, consume and share map and information about Bhopal.
- Development of interactive map system to provide reliable, timely and accurate location-based information and services.
- Development of foundational GIS infrastructure / platform with a citizen interface for disseminating city information
- Provision for extending GIS platform to include other departmental stakeholders such as water supply, sewerage, transportation, electric, health, education etc.
- Use GIS platform to become the hub for integrated city management by bringing together various other applications like command and control centre

Proposed Solution- Design



Work streams



SMART
CITY
BHOPAL

1

- **Workstream 1:** Develop the existing urban profile of Bhopal covering environment and socioeconomic conditions

2

- **Workstream 2:** Study Climate Risk for the City

3

- **Workstream 3:** Identify and recommend measures to increase the green cover of the city

4

- **Workstream 4:** Identify the water bodies within the city and measures for their protection

5

- **Workstream 5:** Develop sectoral list of resource efficient interventions and conduct cost benefit and co-benefit analysis

6

- **Workstream 6:** Prioritization of the options based on MAC curve analysis

7

- **Workstream 7:** Recommend policy enablers and institutional mechanisms for green and sustainable city

8

- **Workstream 8:** Develop monitoring and evaluation framework

9

- **Workstream 9:** Propose green ranking methodology for the city in line with international methodologies



Thanks

www.smartbhopal.city