SMART CITY PROPOSAL, Bengaluru
CITY PROFILE

City context & Demographics

**POPULATION**
9.8 Million (2015)

**POPULATION DENSITY**
4378 persons/sq km

**AREA OF CITY**
709.5 sq km
198 wards

**Literate males**
3,565,059

**Literate females**
3,082,135

**Sex ratio** – 923 females for every 1000 males

**DECADAL GROWTH RATE**
42.6% Pan City

**SEX RATIO**
923 females for every 1000 males

**POPULATION DENSITY**
4378 persons/sq km
CITY PROFILE

Transportation & Connectivity

**METRO NETWORK**
42.3 km operational, 72.09 km proposed

**BUS PASSENGERS**
5.02 million passengers

Environment

**AREAS OF CONCERN**
- Severe traffic congestion
- Inadequate public transport facilities
- Inadequate pedestrian and disabled friendly infrastructure
- Reduction of open spaces/lakes
- Contamination of water bodies
- Suboptimal solid waste management

Source: mobility indicators, DULT-2010

**LAKES & GREEN SPACES**
17.5 sq km & 27.9 sq km

- Sankey Tank
- Ulsoor Lake
- Cubbon Park
- Lalbagh Gardens

Roads: 13,000 km
Metro: 42.3 km
Bus coverage: 11.96 lakh km
Railway: 118.5 km
Footpaths: 3435 km
CITY PROFILE
Self Assessment

**MOBILITY AND TRANSPORT**
- 13000 km road network
- 2428 kms (18%) of public bus transit system
- 52L (53%) Daily ridership in BMTC
- 42.30 kms of Metro rail network
- 1% signalised intersection
- 26% footpath available

**WATER SUPPLY**
- 94 LPCD Water supply
- 38% coverage of water supply connection
- 50% quality of water supply
- 49% Non revenue water
- 95.5% metered connection
- 1400 smart meters
- 2% Houses with rain water harvesting facility

**WASTE WATER & SWM**
- 66.3% Coverage of Sewerage network
- 62.5% sewage treated in STPs
- 30 - 40% Segregation at source
- 60% collection at source

**STORM WATER DRAINAGE**
- 850 km Storm water drain
- 47% natural stream missing
- 38% Underground drainage network

**SAFETY AND SECURITY**
- 50% reduction in road accidents
- 21758 repeated offenders driving licenses sent for suspension
- 400 surveillance cameras

Source: Bangalore Traffic Police, Centre for Sustainable Development, BBMP, Street Quality Score
CITIZEN PARTICIPATION

15,20,414 RESPONSES

52 LAKH+ CITIZENS CONTACTED

10.37 LAKH+ CITIZENS VOTED

3 LAKH+ CITIZEN INPUTS

68,494 CITIZEN OPINIONS

Smart City Namma Bengaluru Vote Now!
VISION FOR BENGALURU

Livable Bengaluru

Healthy
GREEN BLUE WALK AND PLAY

Connected
INTEGRATED MOBILITY SAFE NEIGHBOURHOODS COMMUNITY PLATFORMS

Vibrant
STRONG IDENTITY FLOURISHING MARKETS ACTIVE STREETS THRIVING BUSINESS DISTRICT AFFORDABLE HOUSING

DECIDING FACTORS

CITIZEN INPUTS

KEY IMPROVEMENT INDICES

MOBILITY

1 ECONOMY

2 HOUSING & INFRASTRUCTURE

3 ENVIRONMENT

4 SAFETY

5 AMENITIES

STATUS OF CITY INDICES

ABD & PAN CITY PROJECTS

…And, a smart city is built by building smart communities
PROPOSED INTERVENTIONS

ABD & Pan City
AREA BASED DEVELOPMENT PROJECTS
10 areas of interventions

PROJECT 1: Revitalization of historic heart of city
- Road redevelopment under Tender S.U.R.E. model

PROJECT 2: Integrated mobility towards creating vibrant destination
- Shivajinagar bus station and Russell Market
- Kempegowda Bus Stand (Majestic)

PROJECT 3: Redevelopment of historic economic centres
- KR Market
- Malleshwaram Market

PROJECT 4: Innovation of downstream clean up of drainage system
- Ulsoor lake
- Sankey Tank

PROJECT 5: Protection & redevelopment of centrally located parkland
- Cubbon Park

PROJECT 6: Increasing affordable housing stock through slum redevelopment
- Swathanthra Palya Slum redevelopment, Gandhinagar

PROJECT 7: Retrofitting of a health care facility
- K.C General Hospital

PAN CITY PROJECT
8 proposals on governance and public services

PROJECT 1: CITIZEN CENTRIC E-GOVERNANCE AND SERVICES

GOVERNANCE
- Municipal finance reforms
- Participatory budgeting
- Improvement in property tax collections
- Grievance management
- Online project information system for public project management
- Improvement of neighborhood safety

PUBLIC SERVICES
- BTRIPS – Bengaluru Travel Related Information and Planning System
- Open data portal for citizen information and innovation
AREA BASED DEVELOPMENT
Revitalizing the city center of Bengaluru
Area for maximum impact

"BELONGS TO, AND IS USED BY EVERYONE"
AREA BASED DEVELOPMENT

Revitalizing the city center of Bengaluru

AREA: 5380 ACRES (21.8 SQ KM)
POPULATION: 5,24,000
17 WARDS

CBD & ADMIN
Vidhana Soudha
City corporation
MG road
Kasturba Road

OLD CITY CORE
Historic Pete - Chickpet
Avenue Road
Cantonment
Brigade road
Commercial street

SOCIO-CULTURAL
Kempegowda Museum
Vishweshwariah Tech. Museum
JN Planetarium
Aquarium
Chinnaswamy stadium

PARKS AND LAKES
Cubbon Park
Bal Bhavan
IG Musical fountain
JN Planetorium
Ulsoor Lake
Sankey Tank

CULTURE & HERITAGE
Bangalore Fort
Historic markets
St. Mary’s Basilica
Jama Masjid
Temples in Malleshwaram & Ulsoor

TRANSIT HUBS
2 city bus stations
2 metro interchanges
and city railway station

KEY MAP
ABD LANDMARKS
AREA BASED DEVELOPMENT

City Layers

LAND USE MAP
28% Commercial, 19% Public & Semi Public, 13% Mixed Use

BUILT vs OPEN
29% Built up

PARKS, OPEN SPACES & LAKES
13% Open space

TRANSPORTATION NETWORK
97 km of major Roads

STORM WATER DRAIN NETWORK
556 km within ABD

SEWERAGE NETWORK
417 km within ABD
AREA BASED DEVELOPMENT

1. Revitalization Of Historic Heart Of City

Redevelopment under Tender S.U.R.E.

Proposed for 66% of Major roads in ABD

- Infrastructure revitalization (increase in capacity and coverage)- Surface drainage, sewage network, water supply, power and telecommunication
- The city core needs highest degree of walkability owing to highest footfall count

“…into a walking, cycling, tree lined, economically vibrant, environmentally sensible and inclusive center”

Tender S.U.R.E.

Promoting NMT
Uniform travel lanes, underground services, smart parking, landscaping, street features Pedestrian walkway and cycling network, app enabled public bicycle share points

Improved public amenities
Smart bus shelters with digital information boards, smart dustbins, environmental sensors, e-toilets, water ATMs, smart telecom towers

Energy efficiency/ conservation
Vehicle charging points, Solar lighting/ energy efficient lighting, electric buses, e rickshaw stands with charging points

Smart S.U.R.E.
Based on PPP annuity model. Cost recovery on O&M from telecom companies

EXISTING PRECEDENT: 9 Roads – 11.5 km executed; 150 electric buses (BMTC proposal)
2. Integrated Mobility Towards Creating Vibrant Destination

Shivajinagar Bus Depot + Russell Market, Kempegowda Bus Stand

Integrated Development Of Transport Hub, Market, Civic Park & Connecting Road

- Building on Tender SURE and Proposed Metro Station
- Connecting Shivajinagar bus depot to Russell Market through overhead pedestrian bridge
- Reuse of underutilized public space and infrastructure towards economic viability

Redevelopment of Shivajinagar Bus Depot & Civic Park

<table>
<thead>
<tr>
<th>Activity</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus routing in and around bus depot. Integrate metro network to bus</td>
<td>Improved parking in CBD</td>
</tr>
<tr>
<td>transportation to increase regional connectivity</td>
<td></td>
</tr>
<tr>
<td>smart cubicles/ start-up hubs/ incubators within CBD, possibly on</td>
<td>Retrofitting of historic market building</td>
</tr>
<tr>
<td>under utilized public holdings</td>
<td></td>
</tr>
<tr>
<td>Retrofitting of Kempegowda Bus Stand (Majestic)</td>
<td>Digital information boards, way finding features,</td>
</tr>
<tr>
<td></td>
<td>CCTV surveillance</td>
</tr>
<tr>
<td>Integrated development of Russell Market</td>
<td></td>
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“Integrating transport hubs, vibrant market, school and community civic space towards a livelihood destination”
### Redesign of KR Market

- **Heritage conservation, organizing vehicular and pedestrian movement around the market, provision of loading unloading bays and time managed goods movement**
- **Creating designated vending zones with plazas – smart vendor kiosks**
- **Sensor based smart dustbins, recycling unit, composting unit**
- **Roof top solar panels, solar lighting/energy efficient lighting**
- **CCTV surveillance, e-toilets, water ATMs, Public bicycle share points**

### KR Market Context map

#### Proposals for market redesign

- Retrofitting of historic market center through improved public transport connectivity and efficient circulation management
- Efficient vending and increased retail footprint through efficient space management
- Integrating proposed metro station to market through over head pedestrian bridge

**Towards resilient markets: Connectivity with Metro Station, Reuse of existing unused municipal built assets and Solving the garbage crisis**
**AREA BASED DEVELOPMENT**

**4. Innovation Of Downstream Clean Up Of Drainage System**

Ulsoor Lake, Sankey Lake

200 acres of lake precincts & 2.5 km of nallah clean up

- Green initiatives for water body clean up
- Increased ground water recharge
- Creating a vibrant and accessible public space within the ABD

“Developing a water body as a replicable model towards reclaiming the dying historic drainage system of the city”

<table>
<thead>
<tr>
<th>Ulsoor lake and nallah clean up</th>
<th>Creating public space</th>
<th>Improved public amenities</th>
<th>Sankey tank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction of DEWAT system, Green Bridges for natural filtration and Bio-Swales in lake and nallah for reducing water contamination</td>
<td>Lake front development as an active public space, Pedestrian and cycle network around the lake</td>
<td>Provision of e-toilets, Smart bins, Public space features/ furniture, public bicycle share points, energy efficient lighting, Solar trees and CCTV installation for improved security</td>
<td>Pedestrian and cycle network around the lake, smart features, children’s play equipment, public space furniture</td>
</tr>
</tbody>
</table>
5. Protection & Redevelopment Of The Centrally Located Parkland

Cubbon Park

25000 foot fall / day (weekends)

- Revitalizing the central city green through improved pedestrian connectivity and place making
- Integrate green network to heritage and cultural landmarks around Cubbon park

Cubbon Park

6. Increasing Affordable Housing Stock Through Slum Redevelopment

Swathantra Palya Slum (Gandhinagar)

Housing + road + Utility Services

- Upgrading of housing units
- Physical infrastructure - roads, water supply, sanitation, street lighting
- Social infrastructure - Community centre

Proposed slum upgradation

Cubbon Park

7. Retrofitting Of A Health Care Facility

K.C. General Hospital

Building redesign + abutting road under Tender SURE

- Building redesign of health care centre
- Heritage conservation of building

Existing KC General Hospital

<table>
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<tr>
<th>Cubbon Park</th>
<th>Safety and security</th>
<th>Rain water harvesting</th>
<th>Affordable housing</th>
<th>K.C. General hospital</th>
</tr>
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<tbody>
<tr>
<td>Digital information board (activities, events, eateries and places of interest), tourist information kiosk, seating</td>
<td>CCTV Installation and improved energy efficient lighting</td>
<td>Collection and reuse towards ground water recharge</td>
<td>Housing units, physical infrastructure, social infrastructure, roof top solar panel on community centre, energy efficient solar lighting</td>
<td>CCTV surveillance, Rooftop solar panels, public bicycle share points, Tender SURE road for abutting</td>
</tr>
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PAN CITY INTERVENTIONS

Project: Citizen Centric E-Governance and Services
PAN CITY PROPOSALS

Project 1: Citizen Centric E-governance And Services

1. Grievance Management
   - Central Command Centre for accepting citizen queries across agencies
   - Smart Kiosk for people without digital reach

2. Municipal Finance Reforms
   - Municipal Audits
   - City dashboard as a single MIS
   - Surveying wards and streets to accurately report condition of infrastructure

3. Participatory Budgeting
   - Campaigns and drive to involve residents and publish the collated, analysed results
   - Citizen app that consolidates neighbourhood and ward level inputs from the citizens

4. Improvement of Neighborhood Safety
   - Community Policing
   - CCTV monitoring

5. Improvement in Property Tax Collections
   - 3D building mapping for city using drone technology for property assessment, public assets, regulation and revenue augmentation

6. B-TRIPS (Bengaluru Transport related information and planning system)
   - Single smart card for all public transport
   - PIS system

7. Public Project Management
   - Online project information system displaying projects information

8. Data for Citizens
   - Open data portal is based on the ideology of providing spatial data to citizens
Thank You