

पुणे
स्मार्ट सिटी
डेव्हलपमेंट
कॉर्पोरेशन लिमिटेड



PUNE
SMART CITY
DEVELOPMENT
CORPORATION LTD.

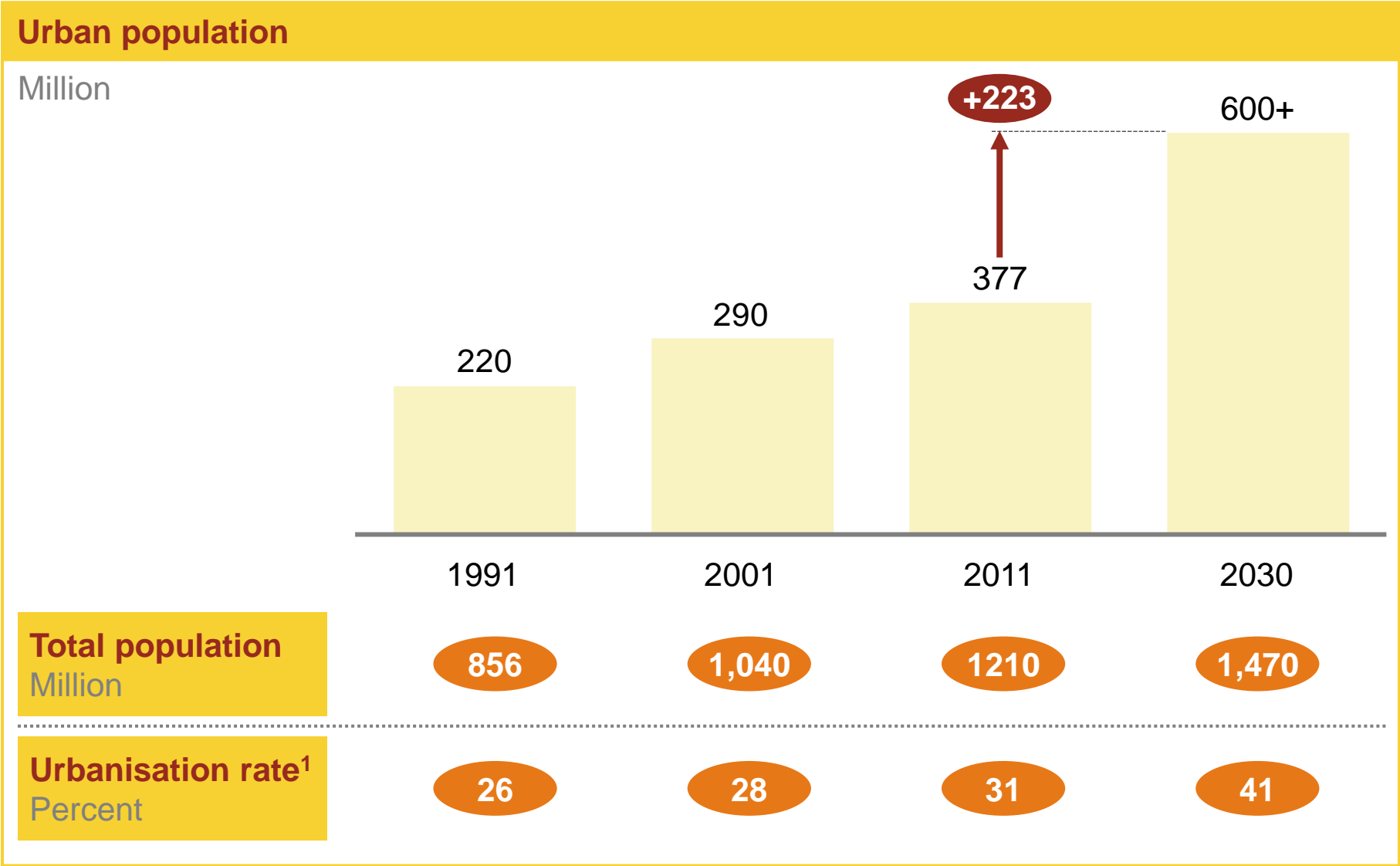


Opportunities in Geo-Spatial Space in Smart Cities

Presentation by CEO, PSCDCL
18th Jan, 2018



Cities are likely to house 40% of India's population by 2030



¹ Defined as the ratio of urban to total population based on the census definition of urban areas; population >5,000; density >400 persons per square kilometre; 75 percent of male workers in non-agricultural sectors; and statutory urban areas.

However, the quality of urbanisation in India has immense challenges

Water supply



Only 105 LPCD supplied, need 140-150

Sewage



Only 30% of sewage is treated

Affordable housing



24% of urban population lives in slums

Public transportation



Public transport share has declined to ~30%

Storm water drains



Storm water drain coverage of only 20%

Private transportation



Peak travel time of 1.5-2 hours in large cities

Solid waste



Only 70% of solid waste is collected

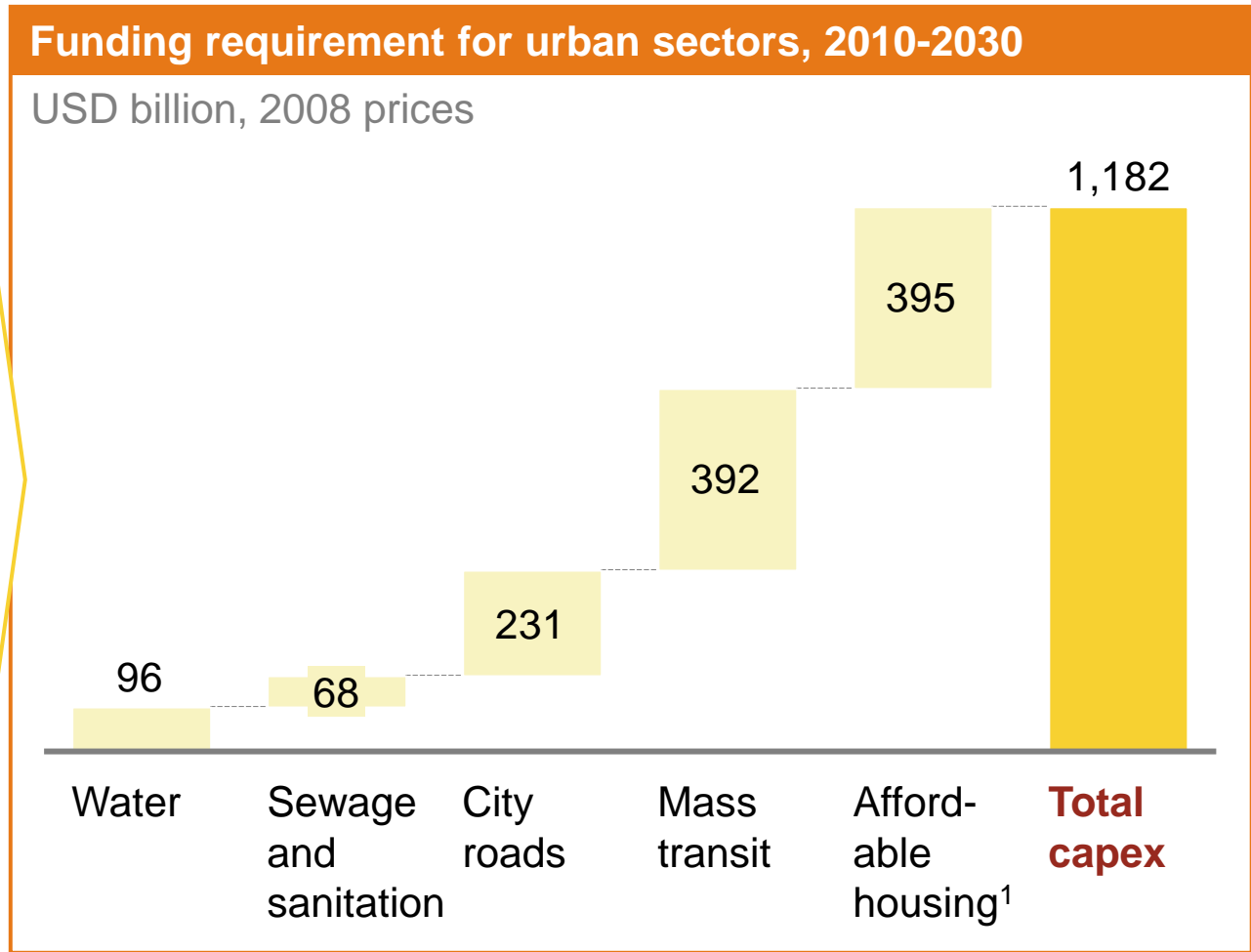
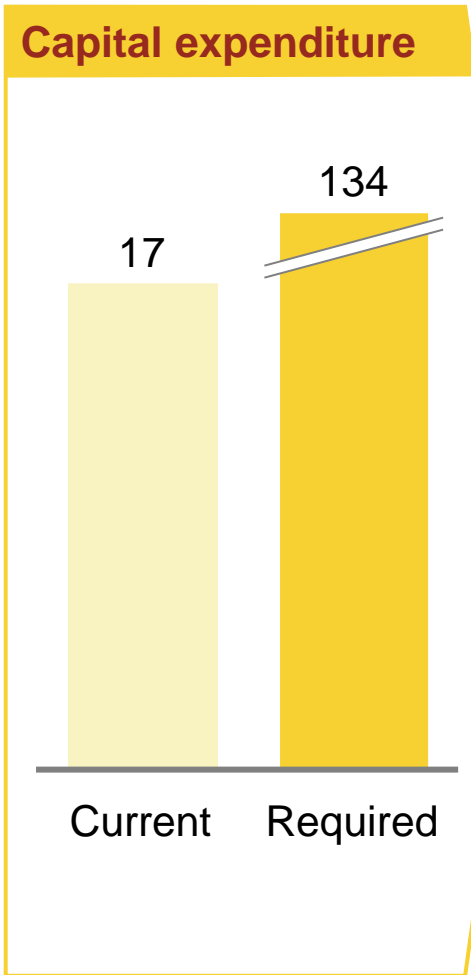
Open space



Just 2.7 m² open space per capita (compared to 14 m² in Beijing)

To improve the situation, Indian cities need capital funding of USD 1.2 trillion over 20 years

USD per capita per annum



¹ Net of beneficiary contribution

How do you kick-start an urban movement when funding is a massive challenge? Smart cities may just be that trigger



What Smart City Mission believes makes a city “smart”...

While ICT is an important component, **Smart Cities cannot simply be created by just deploying sensors, networks and analytics** in an attempt to improve efficiency. A true smart city is **much more holistic**, where

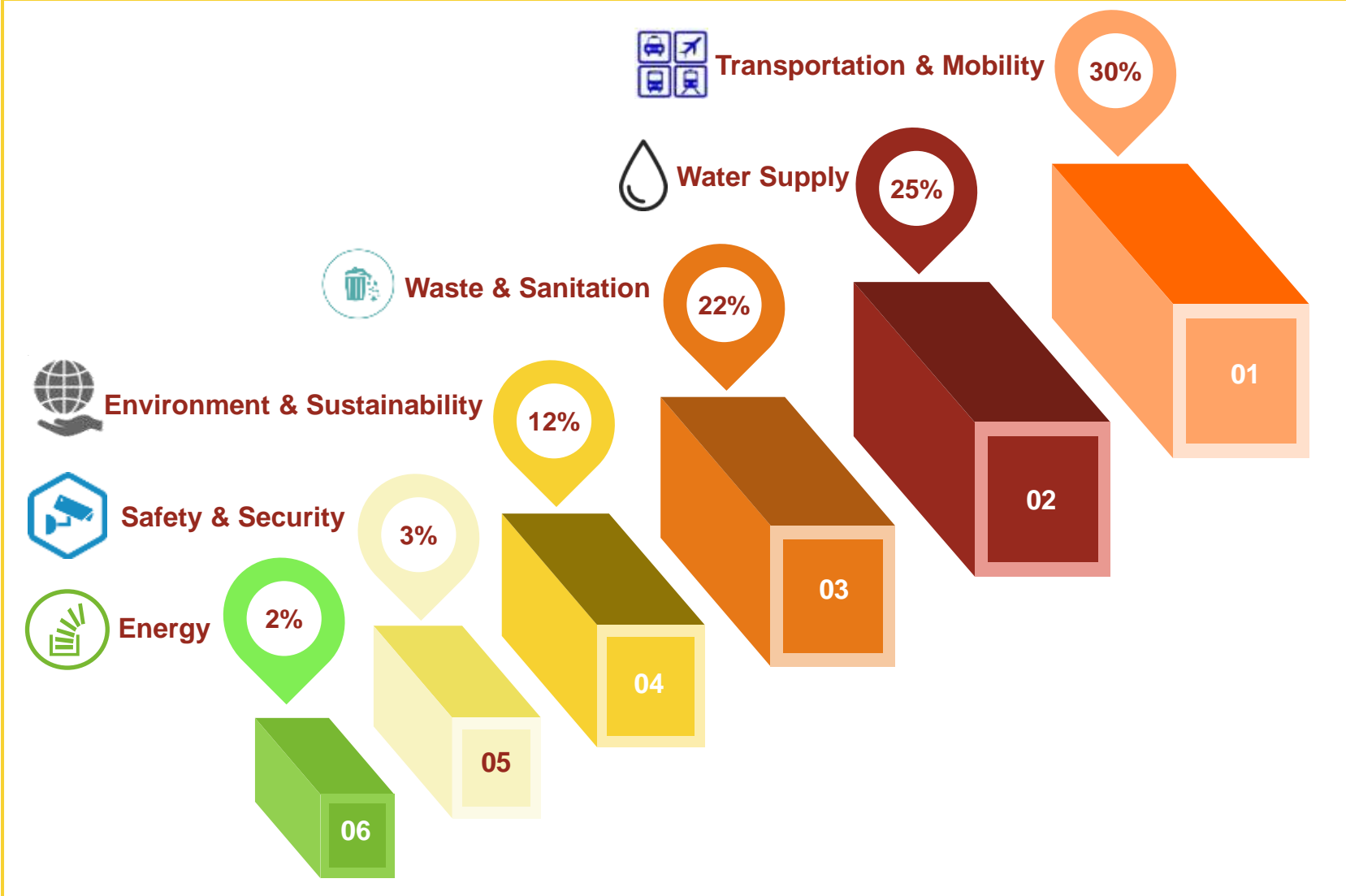
- Basic infrastructure for decent quality of living is in place
- A long term strategic plan is created for infrastructure and sustainability parameters
- Citizens get fully activated to participate in both highlighting issues and solving them
- There is focus on productivity, getting “more from current assets”
- Economic development and job creation is an essential component of smart cities



Therefore, there is a two pronged strategy for the development of the smart city

- 1 **Pan-city initiative** in which at least one Smart Solution is applied city-wide and has to be IT oriented (e.g., Pune selected water and transportation as the PAN City Solution)
- 2 **Area based development-** Develop Areas step-by-step through any of the following model:
 - **Retrofitting:** Development of an existing built area greater than **500 acres** so as to achieve the objective of smart cities mission to make it more efficient and livable e.g. Local Area Development (Ahmedabad)
 - **Redevelopment:** Replace existing built environment in an area of more than **50 acres** and enable co-creation of a new layout, especially enhanced infrastructure, mixed land use and increased density e.g. Bhendi Bazar, Mumbai
 - **Greenfield :** Develop a previously vacant area of more than **250 acres** using innovative planning, plan financing and plan implementation tools with provision for affordable housing, especially for the poor e.g. New Town, Kolkatta.

Pune identified 6 key challenges through engagement with over 60% of the city population

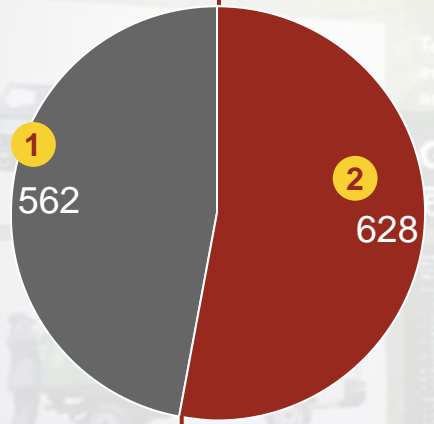


..and has identified a list of 51 projects with a total value of Rs. 3000 Crores to be executed during the Mission Period

ABB		Pan City	
#	Smart feature	#	Smart feature
1	Road and road widening	18	Smart metering (water)
2	100 Electric buses	19	River water cleaning
3	Redesign of streets	20	Solid waste management
4	Smart parking	21	Sanitation
5	Footpaths (additional and retrofit)	22	Electricity distribution – Smart grid and metering
6	Placemaking	23	Solar energy supply
7	Bicycles	24	Street lighting
8	Bus stops (revamp 54 stations)	25	Security
9	Junction redesign for 14 junctions	26	Riverfront development
10	Non-motorised street	27	Open spaces
11	BRT	28	Fire stations - 2
12	Express airport services	29	Low income skill development and healthcare
13	e-rickshaws	30	Build affordable housing
14	Waste water recycling	31	e-gov
15	Storm water use	32	IT connectivity
16	Adequate water supply	33	Transit hub
17	Rainwater harvesting	34	Start up zone
		35	Adaptive Traffic Control System
		36	Bus System ITMS
		37	Command Control Center
		38	Total Smart Parking
		39	Intelligent Road Management
		40	Traffic modelling system
		41	e-Chalaan
		42	Connectivity costs
		43	Pilot DMA for 24X7 Water
		44	Bulk Meters
		45	Helium leak identification
		46	Smart Commercial Meters
		47	Smart Domestic Meters
		48	Customer Mapping and Survey
		49	Naidu STP Energy Generation
		50	Mobile app and website
		52	Consultancy Services
		51	Consumer Awareness

For Pune, it has a plan of ~Rs. 3000 Crores for the Smart city program out of which ~Rs. 1200 is under tendering/execution

Projects under execution/completed
Project Tendered



Total Project Costs (Rs. Crores)

150



CHANGING NEIGHBOURHOODS

- Affordable housing 40 crore
- Lighthouse project 52 crore
- Place making 40 crore
- Startup zone 15 crore
- MoUD consultancy 3 crore

449



SMART SOLUTIONS

- Street lighting 90 crore
- Smart element 155 crore
- Optical Fiber Cable 200 crore
- Intelligent Road Mgmt. 4 crore

166



TRANSFORMING MOBILITY

- Street Redesign – I 20 crore
- Bus ITMS & Transport CCC 53 crore
- Bus Rapid Transport 44 crore
- Baner & DP roads & retrofit 46 crore
- Public Bicycle Sharing 3 crore

425



IMPROVING WATER SUPPLY

- Water supply – Reservoir 70 crore
- Smart Meter & SCADA 329 crore
- Riverwater cleaning 26 crore

1190¹

- 1 Projects completed or under execution
- 2 Projects under tendering

1 17 Projects worth Rs. 1190 crores have been completed, are under execution or have been tendered

As a part of Pune Smart City, we are creating a Command and Control Centre with strong analytical capabilities through Smart elements project



Smart city operations center (SCOC)

State of art command and control center which will seamlessly integrate with all elements to monitor & manage entire city operations from single command centre



Wi-Fi

200+ Wifi hotspots to be created across strategic locations including parks, hospitals, other important public spaces. Limited free access to citizens supporting digital transformation



Environment sensors

50+ Environmental monitoring systems at various locations to monitor critical parameters across sound, temperature, air quality, noise pollution, etc.



PA system

125+ Public announcement system at key locations to broadcast general and emergency messages for public awareness



Emergency box

Emergency response system for citizen safety, to seek help in case of emergency situations and accidents



Variable messaging

150+ Variable Message System for broadcasting informative messages, alerts and city updates supported with commercial

~75% of the Elements are live as on Dec-17



Role of Geospatial for Smart Cities

Objective: Not only landuse-oriented

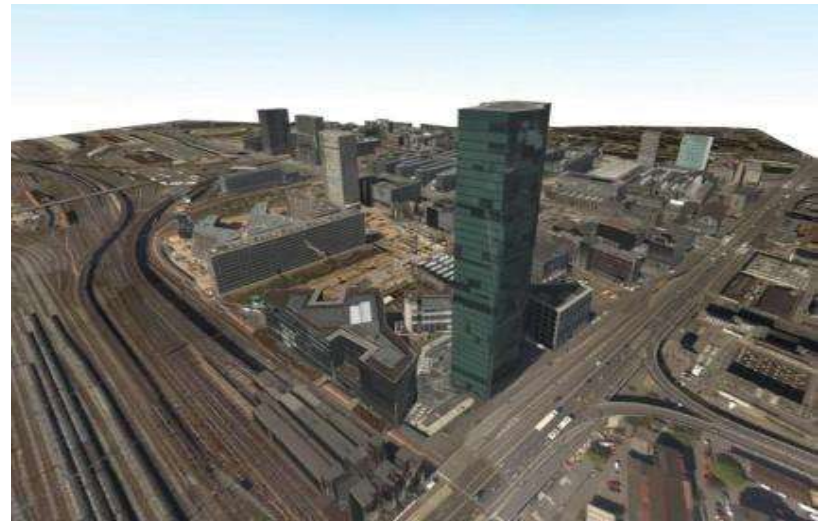
- Energy, temperature, security, sustainable development, etc.

Design: Not only designed by specialists

- Strong citizen involvement

Decision Making: Not only 2D maps

- 3D
- Video
- Sensor Integration
- Real-time data fusion for smart decision making



Several initiatives have been under taken in Pune in the geo-spatial space

Geo-tagging of key locations

- We have already **undertaken a massive exercise** of identifying geo-coordinates of some major assets
 - Bus stops (4000+)
 - Toilets (800+)
 - Major buildings, Property (15 lac +)
 - Trees (40 lac +)
 - Hawkers (24,000+)
 - Land asset (8000+)
- Ones which are relevant for public have been made available through google maps (E.g., location of hospitals, public toilets etc.)



Road Inventory Survey

- Undertaking a geo-coordinate based survey of the road inventory including road width, street furniture present on the road etc.
- Each of the street inventory to be appropriately geo-tagged



GIS platform for the city of Pune

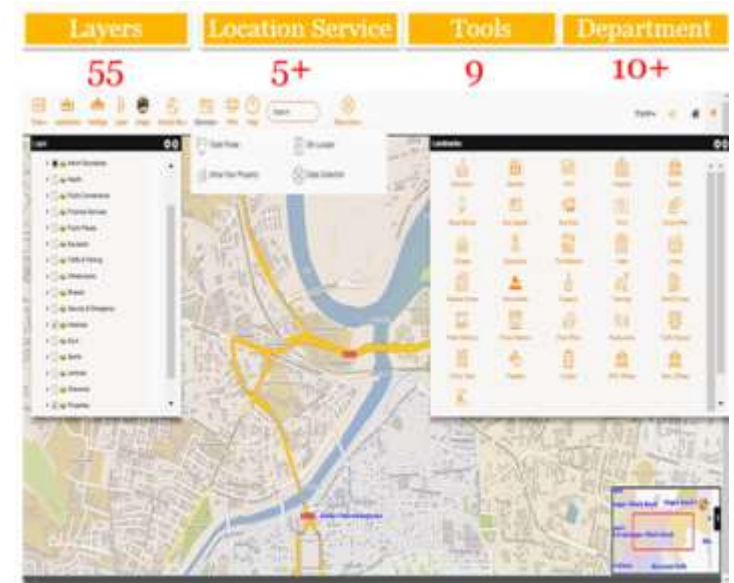
- On-boarded a vendor for creating a GIS platform for the city of Pune based on the maps from ISRO
- Further, provisions made to overlay 55+ layers of data including tree census, Grievance Analysis etc.



Enterprise GIS Project for Pune City: Already underway

Scope of work

- Design of Enterprise GIS Architecture
- Supply and installation of the GIS Solution
- (Platform) for creation, storage & maintenance of GIS data
- Sizing of servers required for hosting the GIS Solution
- Creation/updating of the base map using the high resolution satellite imagery (made available by PMC)
- Development of GIS application Suite
- Testing, Training and Go-Live of the System
- Annual Technical Support for 5 years
- Post Implementation Software Enhancements / Customizations and maintenance of GIS software platform and applications for 5 years
- Road inventory survey
- Vehicle tracking system (Solid waste, Water , Municipal Transport correlated with ITMS)
- Fleet Management



What does future entail: We want to build a 3D model for Pune to enable real time decision making

Key elements include

1 Additional data capture through use of either

- Drone
- Satellite imagery
- LIDAR survey
- Integrated SCOC GIS with 55 platforms working with different siloes and departments
- Real time think-tank for the whole city by the use of Big Data and Predictive analysis

2 Creating a 3D model to support real-time decision making on key projects such as

- Infrastructure requirement for the area and impact of new buildings on the existing infrastructure
- Rain water and solar potential for the area
- Utility planning to ensure that there are no clashes

3 - Geo-tagging of all projects

TODAY WE ARE REACTIVE BUT WE WANT TO BE PROACTIVE AND WITH GIS AND BIG DATA WE WOULD BE PREDICTIVE

PUNE Smart City

Development Corporation Limited

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