
India's Industrial Corridors Creation of Greenfield Smart Cities The Making of Dholera

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Development Corporation (DMICDC)

What is a Smart City

Our simplistic definition is.....

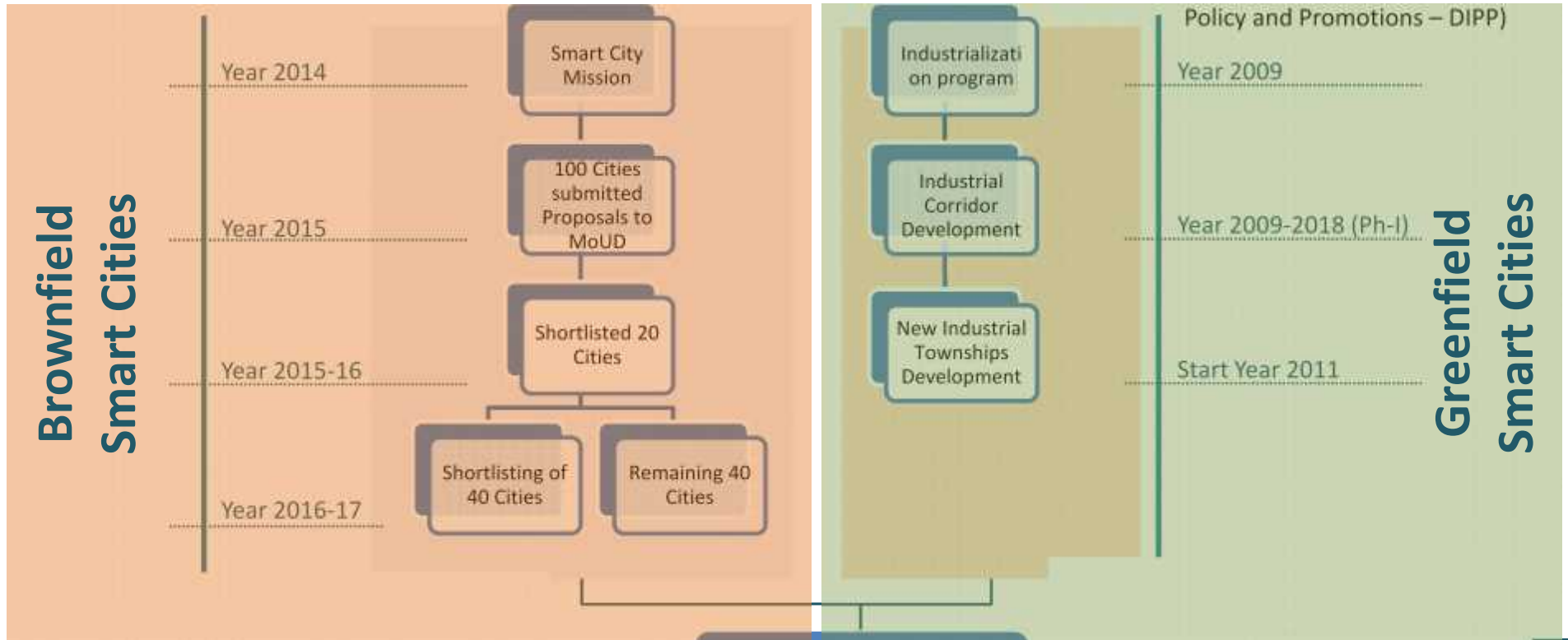
“A city that creates infrastructure and implements Systems, Tools and Processes to enhance the quality of life of its people”

Smart Cities Programs in India

Under Ministry of Urban Development (MoUD)

Under Ministry of Commerce (through Department of Industrial

Policy and Promotions – DIPP)

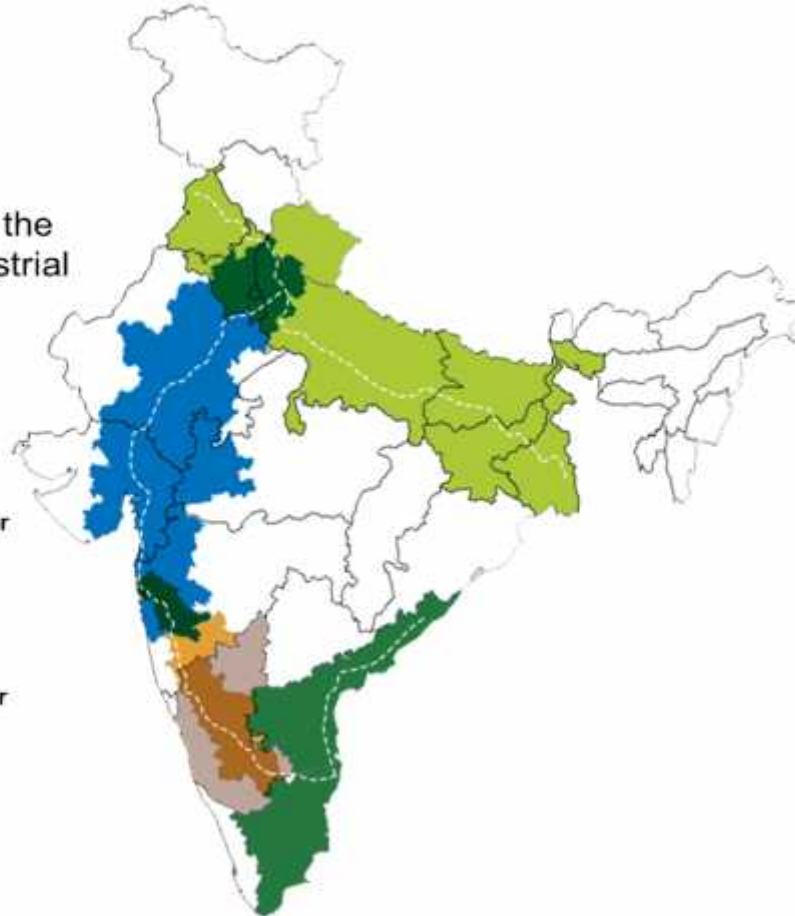


The Industrial Corridors - Engine of Economic Growth

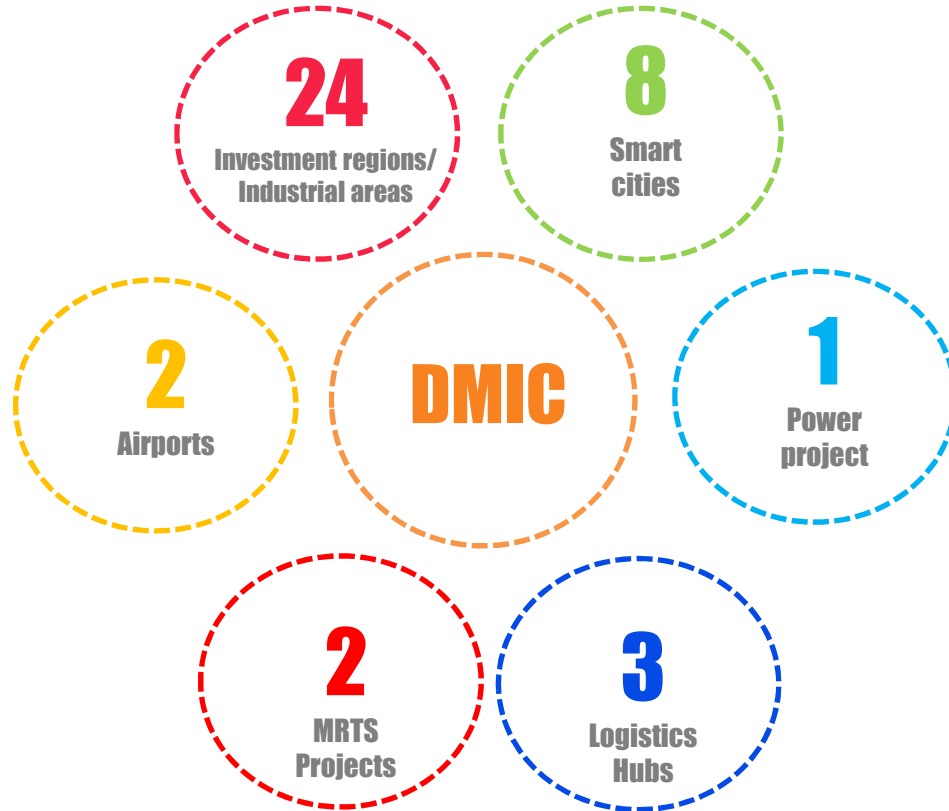


Government of India is taking up the development of the following industrial corridors:

-  Delhi Mumbai Industrial Corridor
-  Bangalore Mumbai Economic Corridor
-  Amritsar Kolkata Industrial Corridor
-  Chennai Bangalore Industrial Corridor
-  Chennai Vizag Industrial Corridor



The DMIC Corridor



● DMIC Phase I Industrial Node



DMIC at a Glance

High Access Corridor- Road & Rail

Estimated Investment

USD **\$100 Billion**

- Global manufacturing and investment destination
- 1504 km long Dedicated Freight Corridor (DFC)
- 7 states - Delhi, Uttar Pradesh, Haryana, Rajasthan, Madhya Pradesh, Gujarat & Maharashtra
- 24 Investment Regions/Industrial Areas will be developed
- Develop sustainable industrial cities with world class infrastructure



International Aviation Hub



Railway Station



Multi-modal Logistics Hub



Power Plants



Road link projects



Exhibition and convention centre



Water Supply



Waste Water Recycling



Solar Power Projects



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Key Sustainable Development Concepts in Master Planning

Key **Sustainable development** concepts





Advantage
DMIC



Existing Site



Existing Site



Existing Site conditions



Ecology

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Settlement



T P roads -

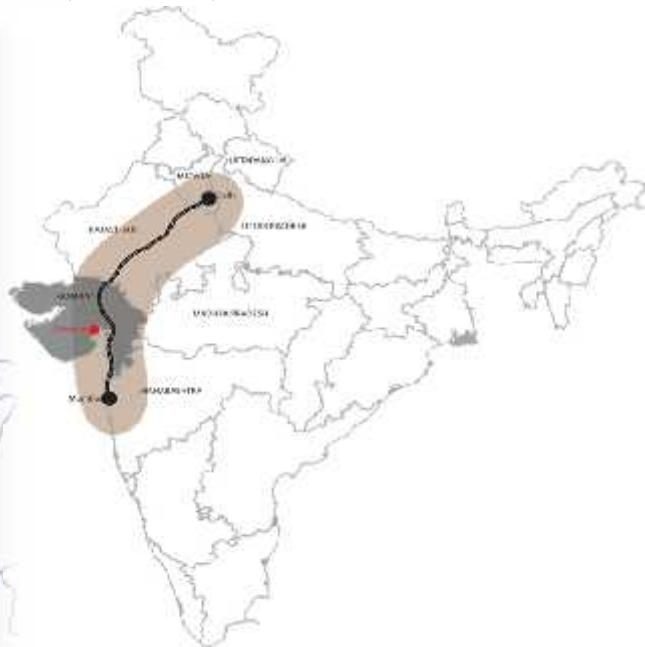
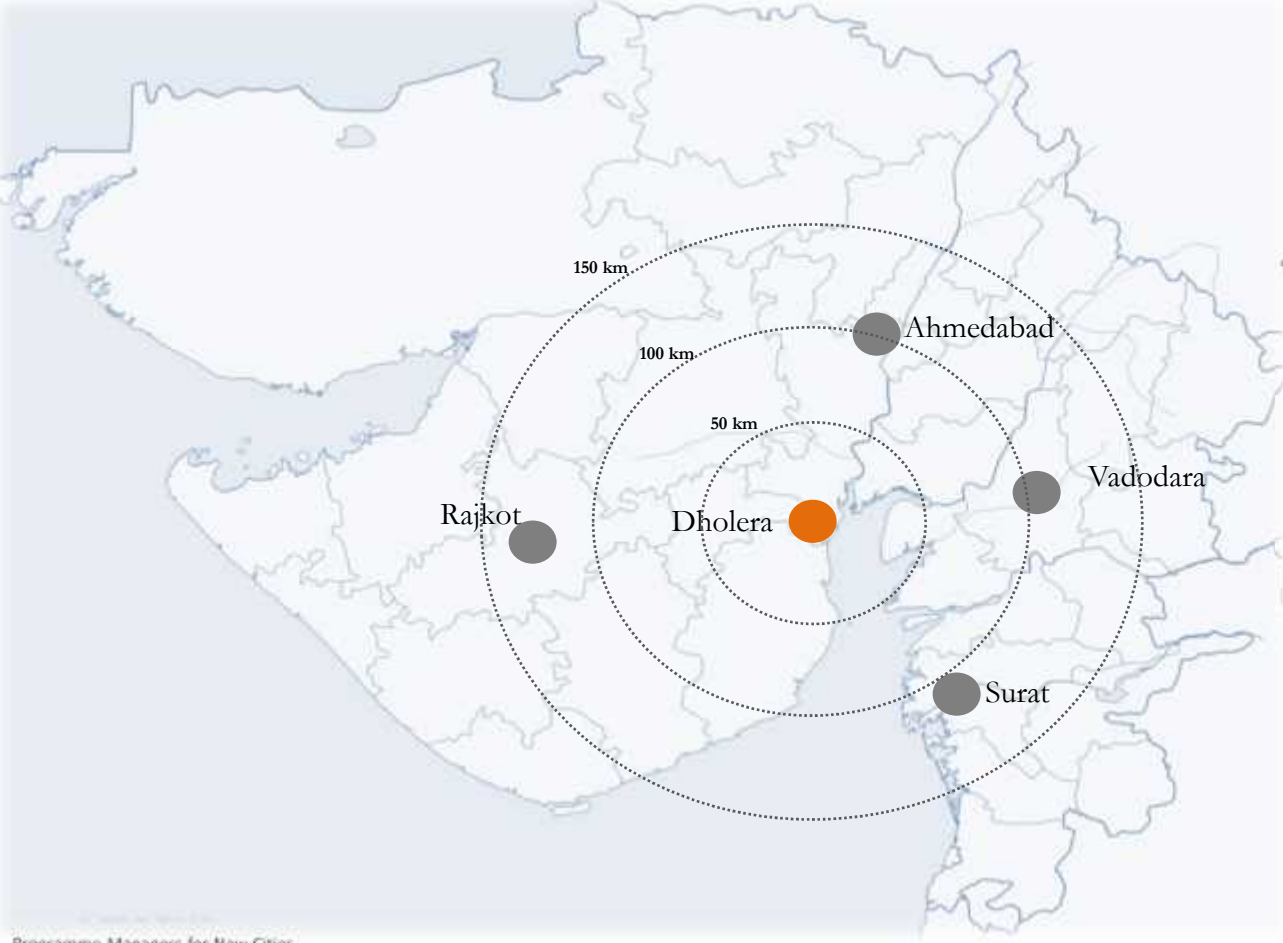
Phase 1 Development



Phase 1 Development



Dholera Special Investment Region (SIR)-Location



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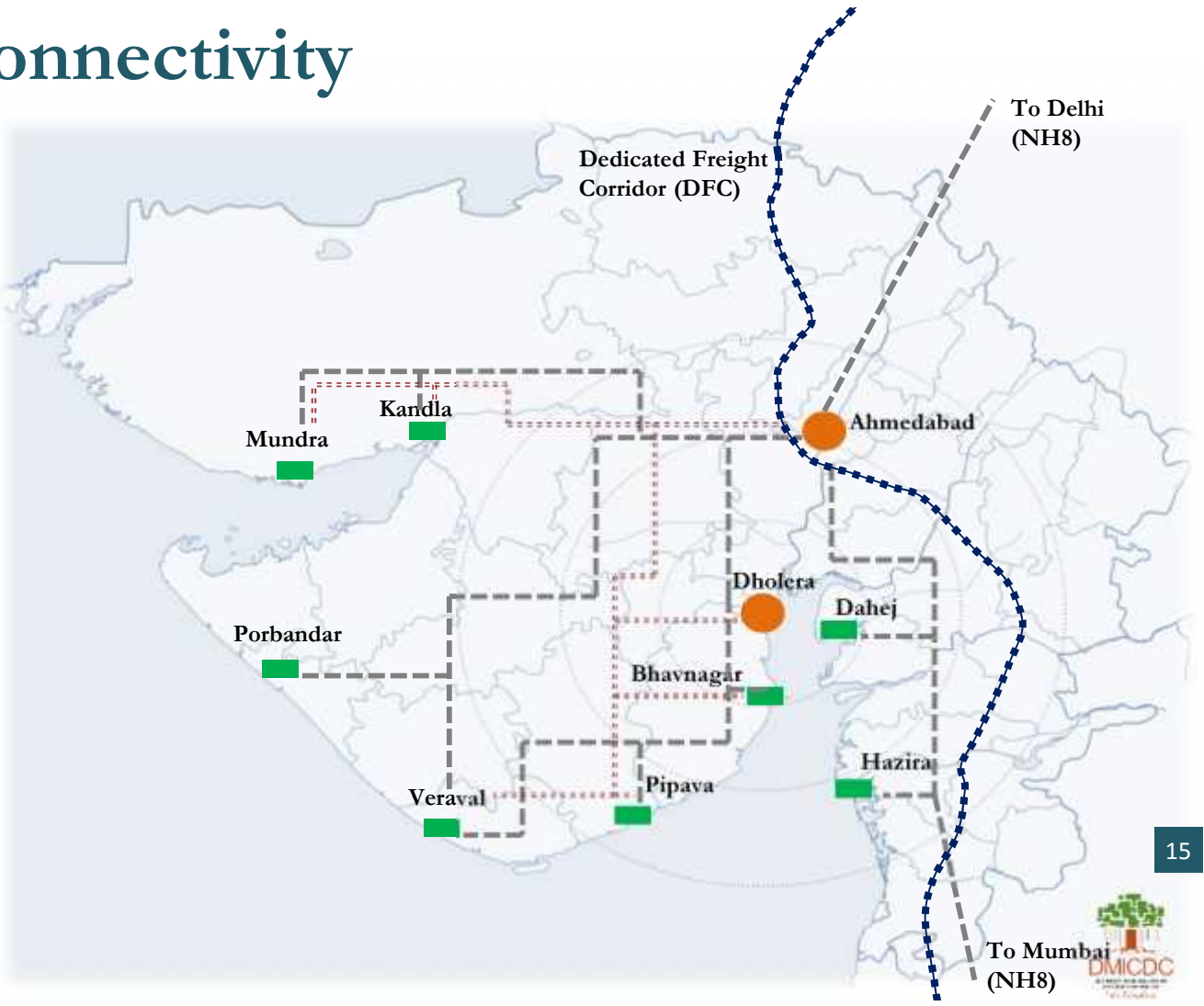


Dholera SIR - Connectivity

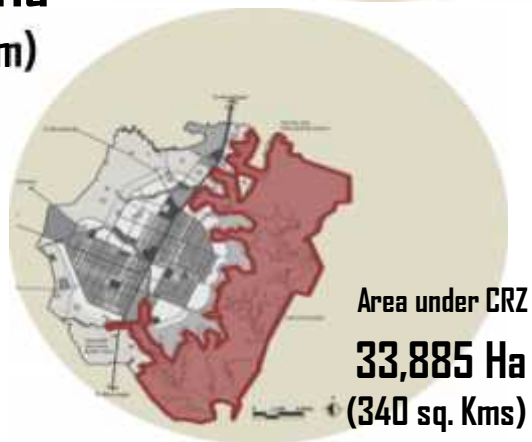
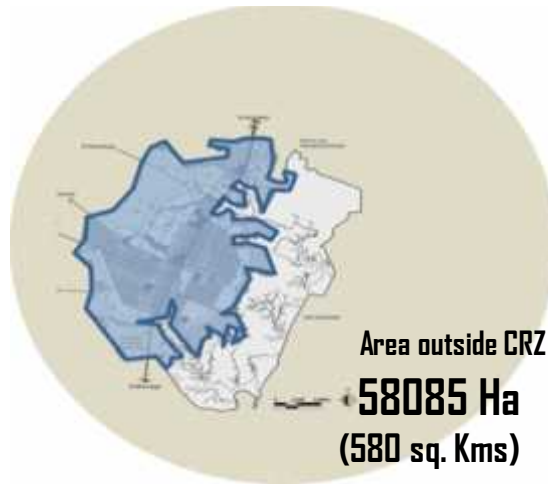
- 06HRS**
Mundra Port
- 02HRS**
Pipava Port
- 02HRS**
Ahmedabad Airport
- 1.5HRS**
DFC
- 15MIN**
Dholera Airport

- Dedicated Freight Corridor
- Road Connectivity
- Rail Connectivity

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Dholera SIR



Resident population in DSIR
2.0 million

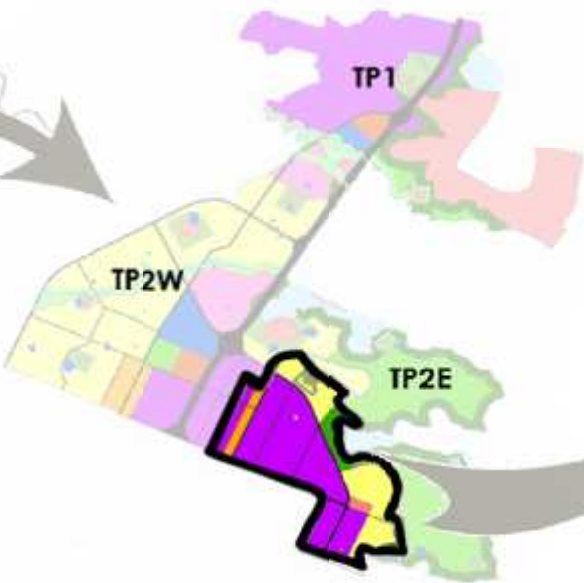


Total Jobs in DSIR
827 Thousand

Dholera Implementation Strategy



Dholera SIR (TP1 to TP6)
422 Sq Km



DSIR Phase I (TP1 & TP2)
153 Sq Km



Activation Area
22.54 Sq Km

Activation area Key Statistics

Target Residential
Population

96 Thousand



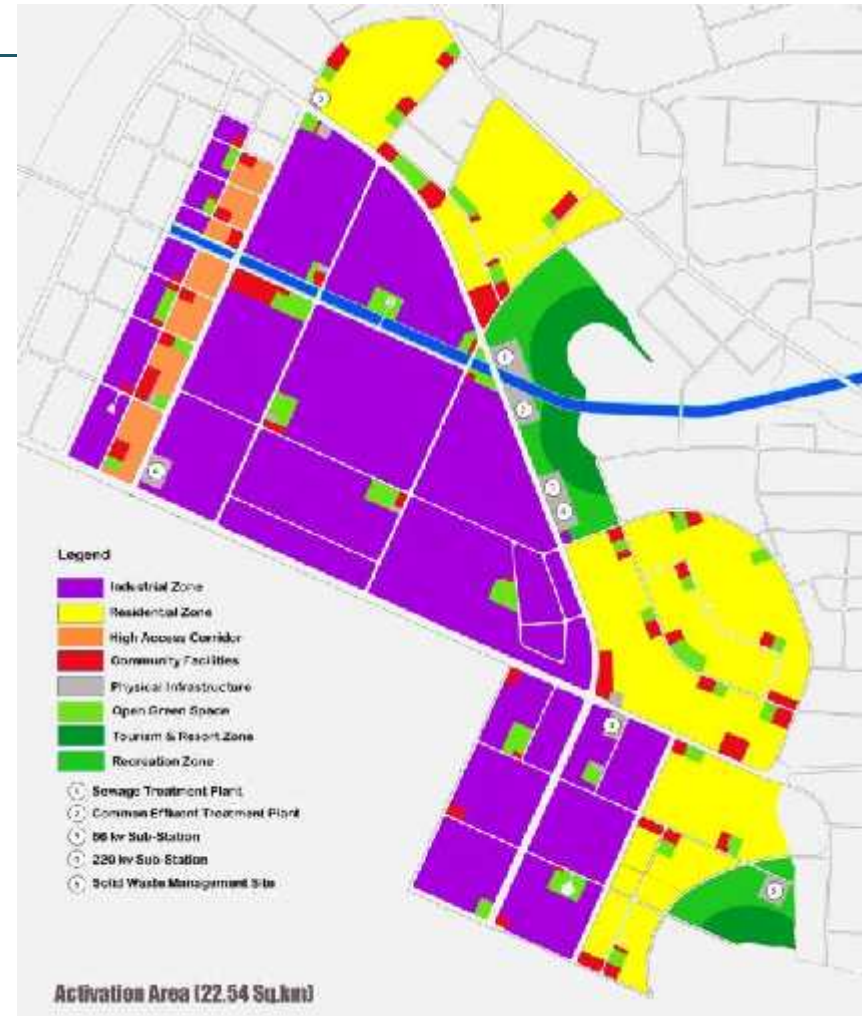
Target Employment

76 Thousand



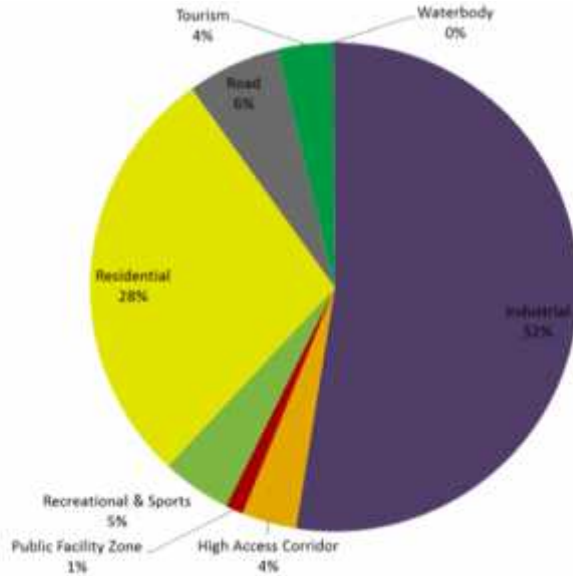
Total Area

22.54 sq.kms.

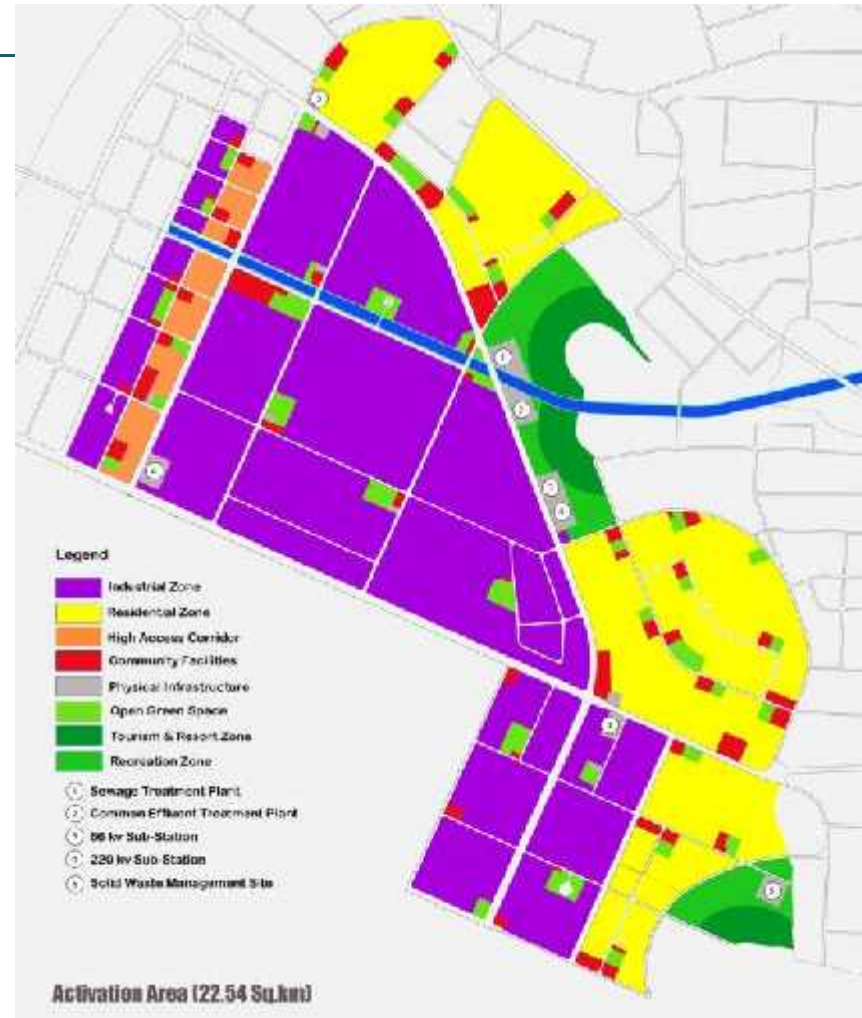
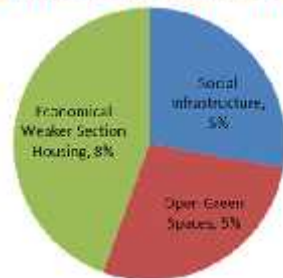


Activation area land use

Major Land use distribution



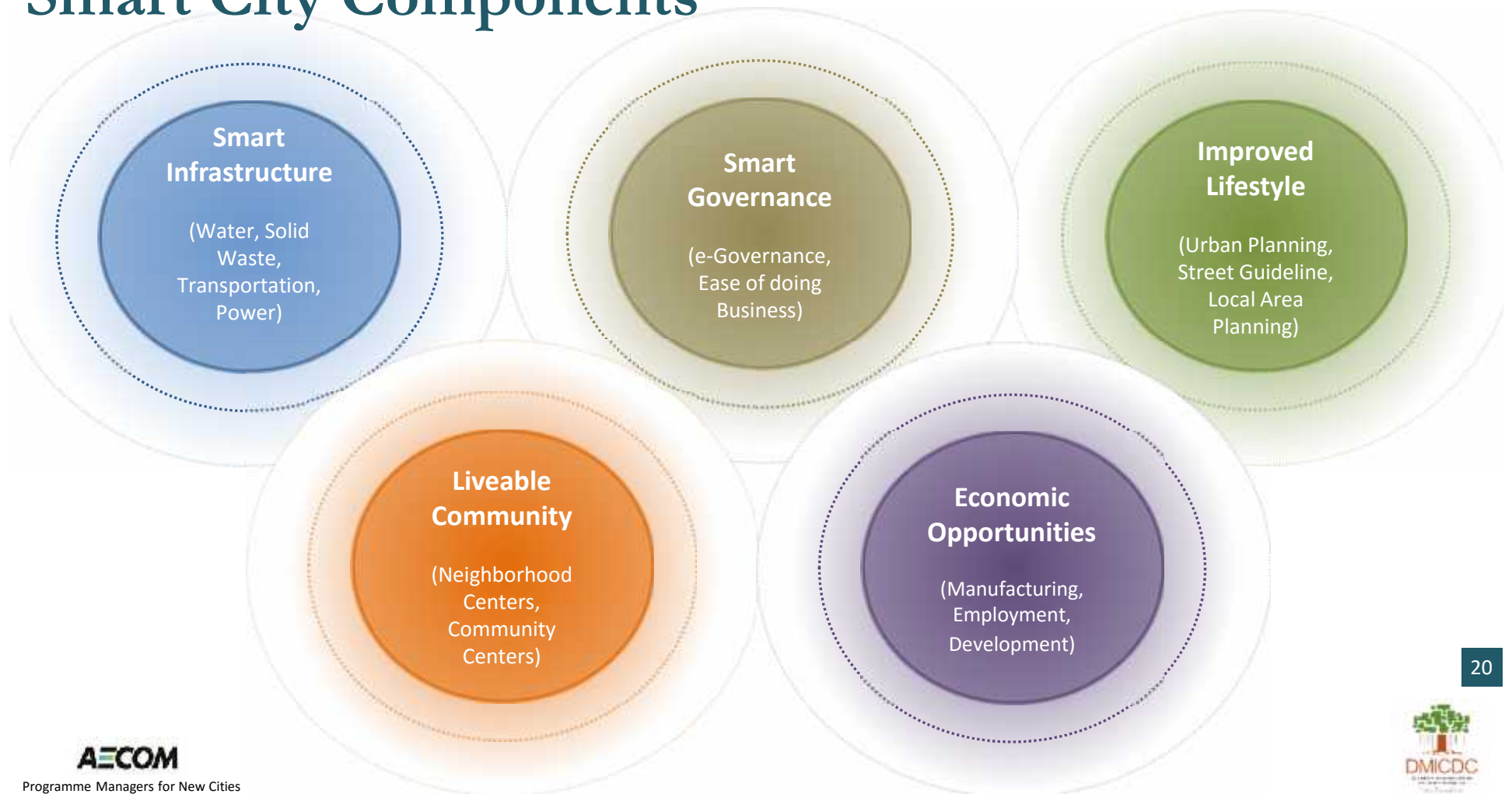
Sub Land use distribution



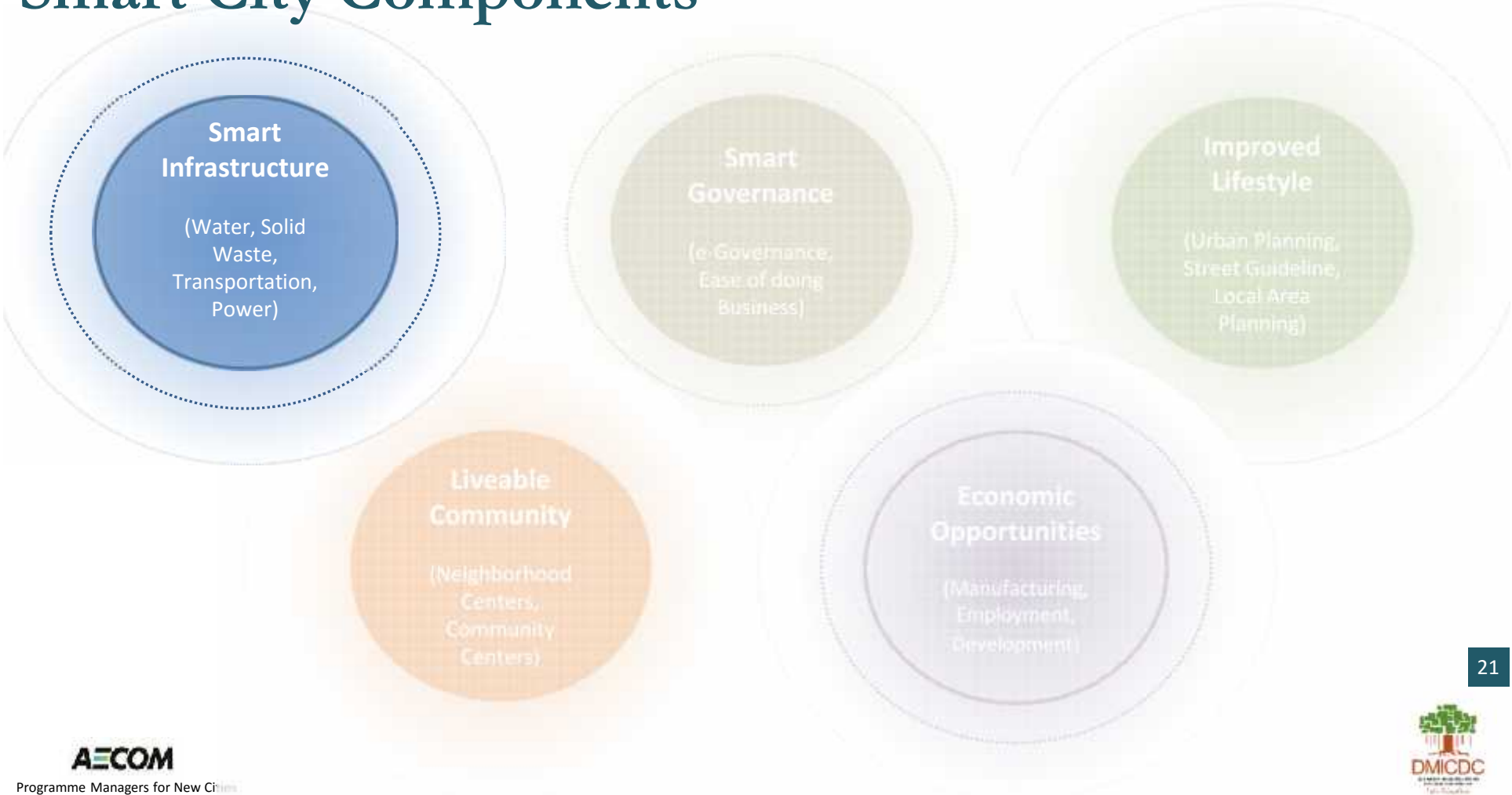
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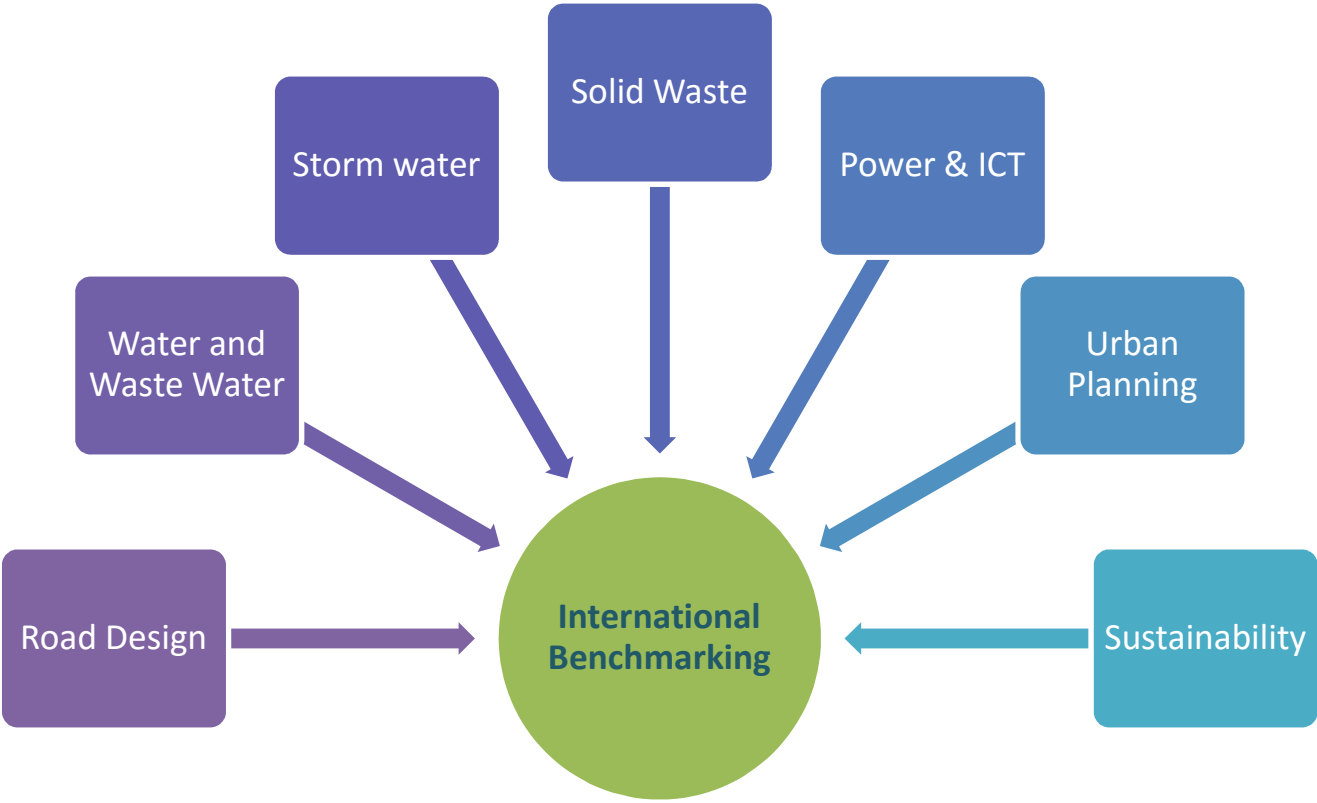
Smart City Components



Smart City Components



International Benchmarking



Smart Infrastructure

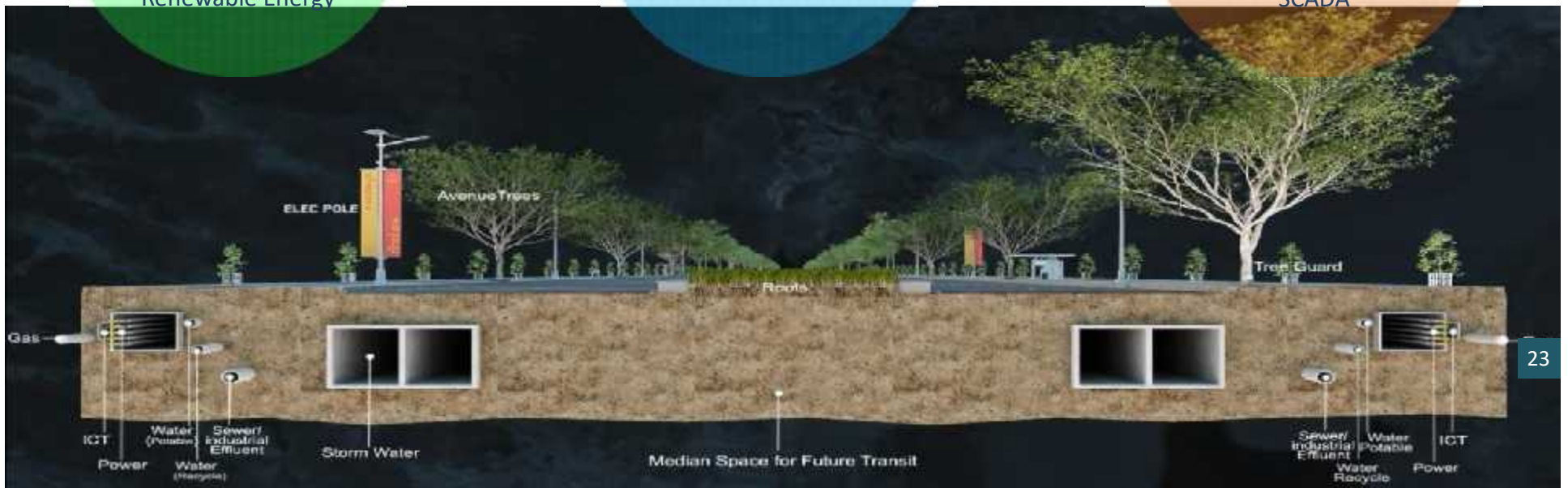
Sustainable

Zero waste discharge
100% Recycle
Renewable Energy

Future Proofed

Intelligent

ICT Enabled Infra
E-Governance
Analytics
SCADA



Roads & Services

- 72KM of Roads (RoW from 18m to 70m)
- “Plug & play” at plot level (All utilities at door step)
- “Future proofed” (Utilities planned for 30 Years)



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Intelligent Traffic Management



City Corridor Speed Monitoring
(ground radar)



Real Time info at Bus Stops



Centralized Signalling System



Traffic Monitoring Cameras



Emergency Response



Sensors on Vehicles



Info through RFID



Parking Management



CCTV Surveillance

Potable Water

- Raw Water Source (from Saurashtra Branch Canal)
- 50 MLD Water Treatment Plant
- 10 ML Master Balancing Reservoir
- 82 km Pipeline

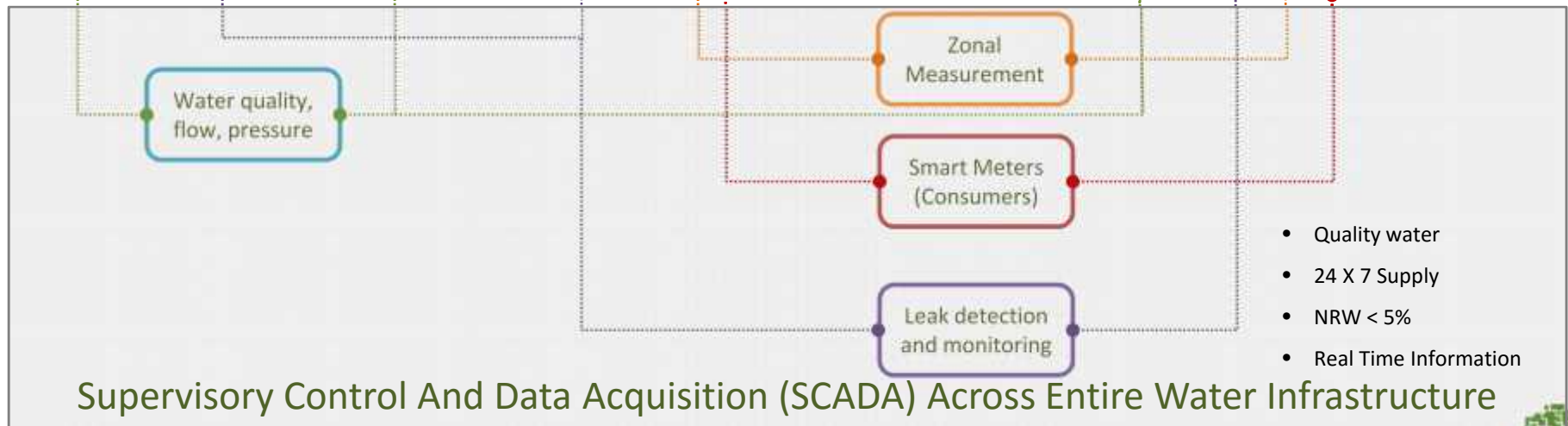
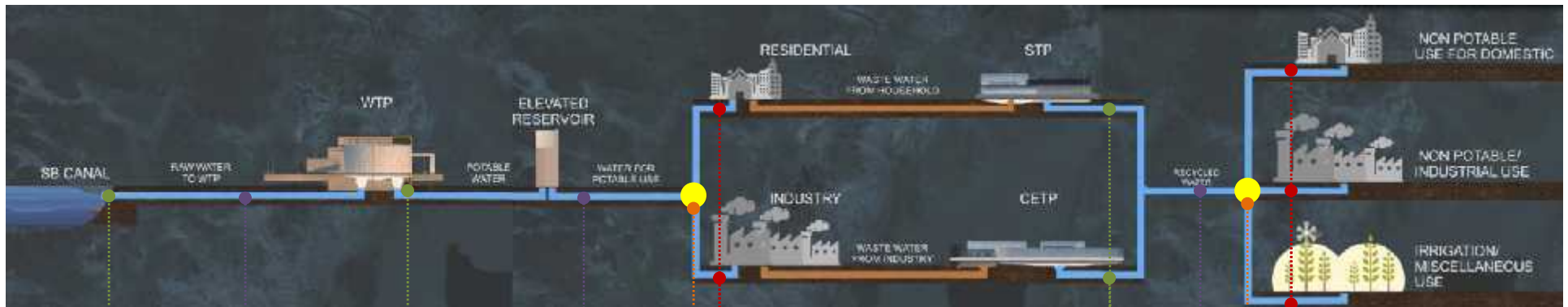


Water Recycling

- 10 MLD Sewage Treatment Plant
- 20 MLD Common Effluent Treatment Plant
- 81 km Recycled Water Pipeline
- 32 km Sewage Collection line
- 66 km Industrial Effluent Collection Line



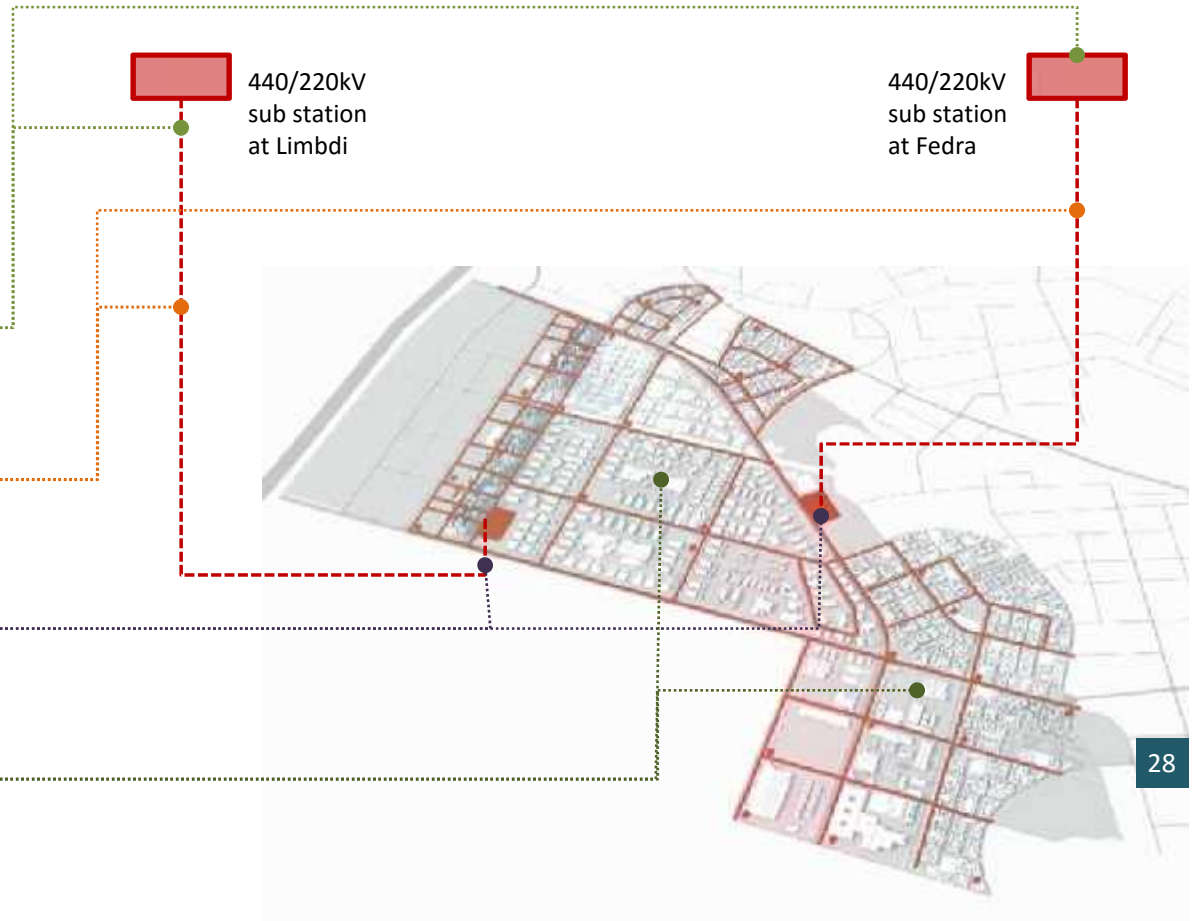
SCADA for water, waste water & recycled water



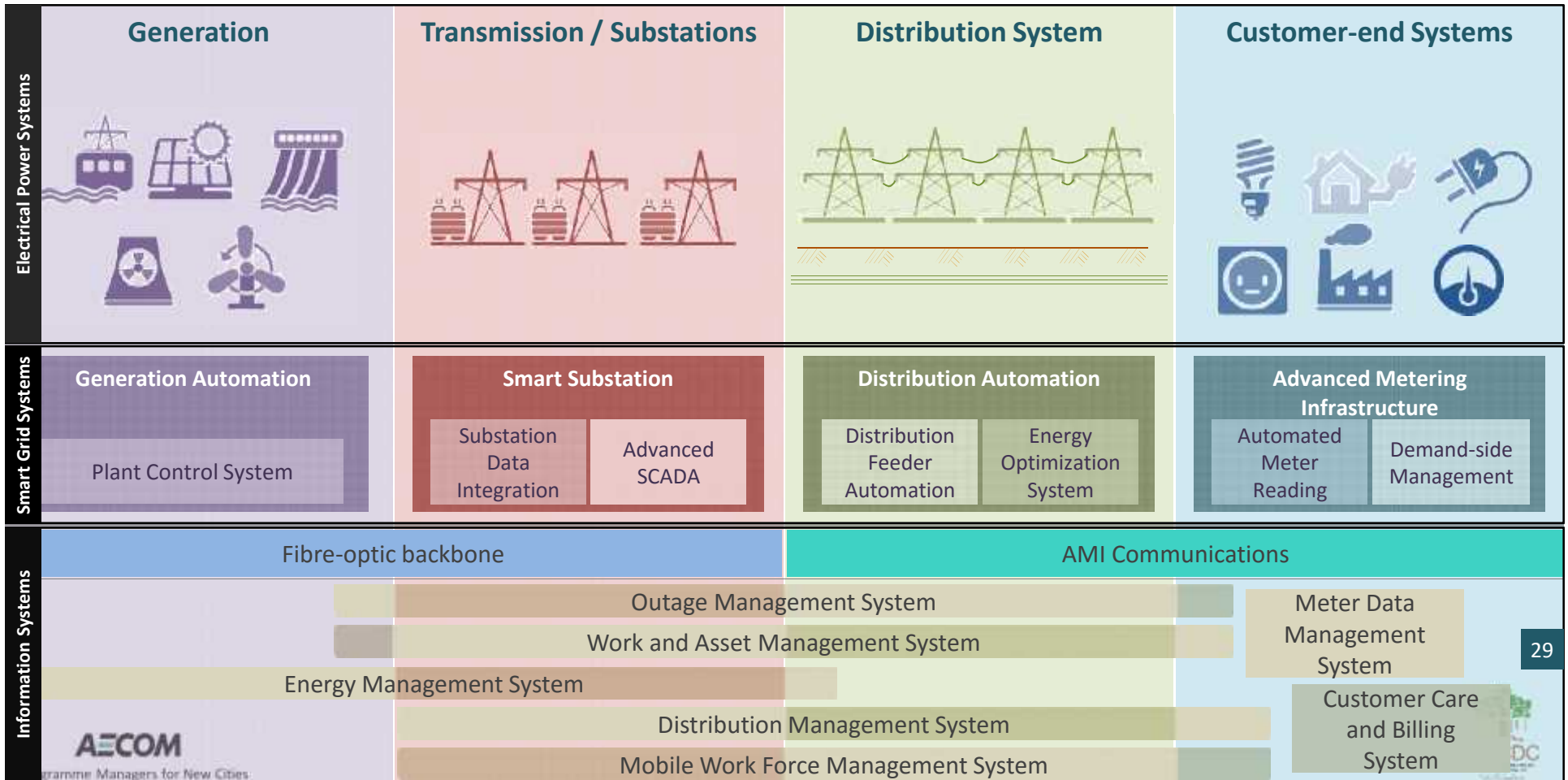
Power Infrastructure

- 220kV Sub Stations – 2 nos
- 66kV Sub Stations – 3 nos
- 400kV Transmission Line – 100km
- 115 km Underground Power Duct

- Highly Reliable Power
- 24 X 7 Supply
- Losses < 5%
- Real Time Information



Power - Smart Grid



City wide WiFi and Fibre based network

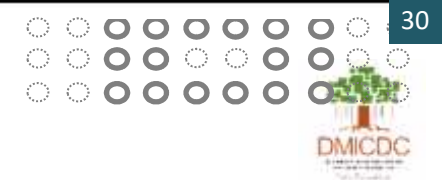
Meet comprehensive requirement of city wide voice, video, data for surveillance, traffic sensors, utilities, telecommunications for city tenants and civic authorities

Network Characteristics:

- Fault Tolerant
- Scalable
- Quality of Service Enabled
- Highly Secure



ICT Ducts for fibre cables (30 nos) on both sides of the street



Dholera City Wide Sensors Network

City wide sensors establish nervous system that offers maximum controls at all levels through intelligent controls

Smart Grid Sensors

Pollution Sensors

Smart Meters
Sensors on
Distribution lines

Air pollution
Sensors

Meteorological
Sensors

Water Pollution
Sensors

Traffic Cameras
Sensors on
Vehicles
Sensors on
Ambulances

Leak & Theft
Detection Sensors

Waste Water
Sensors

Smart Water
Sensors

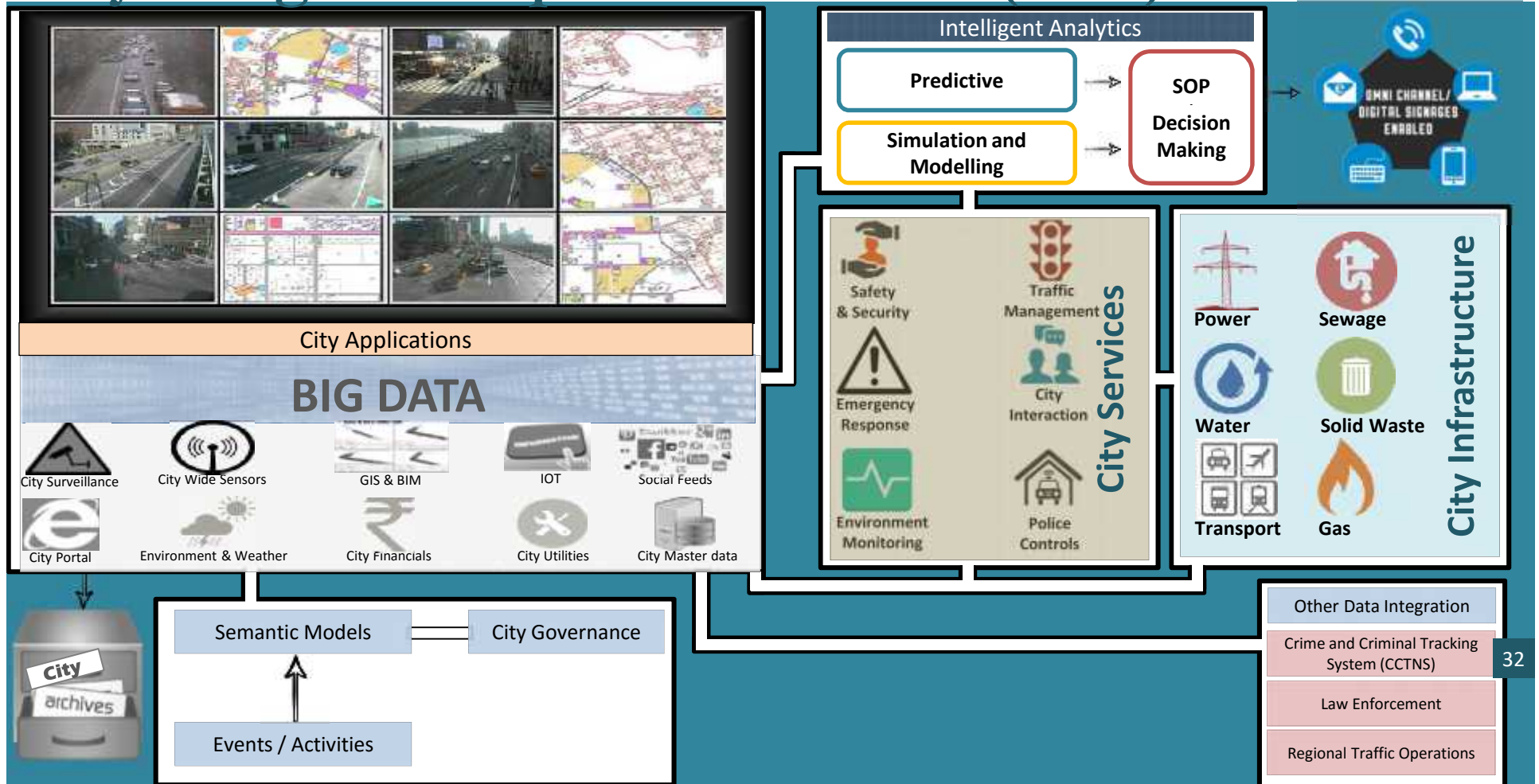
Automation Sensors

Traffic Sensors

Leak Detection Sensors



City Integrated Operation Centre (IOC)



City Portal

Real time information availability to **citizens**



Providing real time information with drill down facilities:

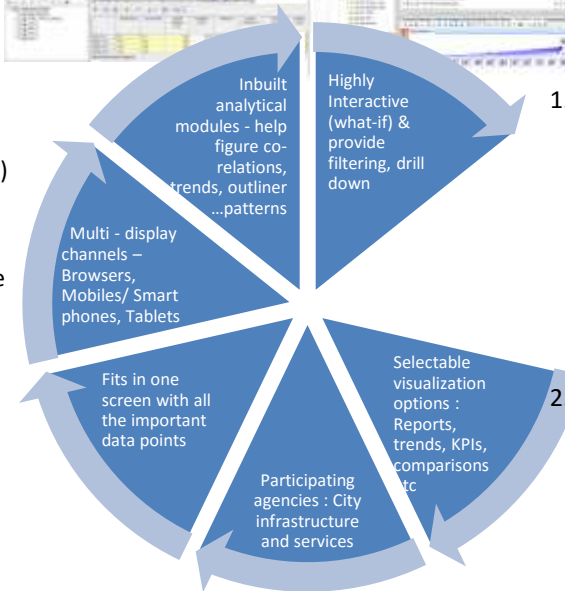
- Dholera economic indicators
- Energy uses / carbon foot print
- Public transportation (routes, connectivity, charges, status trips planned / made, on time, etc.)
- Air quality and climate (NO2, CO, PM10, noise level, light etc.)
- Water availability in different pockets (normal, abnormal, scarce etc.)
- Safety and security (means available to reach out various agencies, different crimes took place in last week/month/year etc.)
- Waste / sanitation scenario (missed waste collection spots etc)
- Basic services status (street light, lights under repairs, open pot holes, etc)
- Current events in Dholera
- Education events
- Housing availability
- How does Dholera presently compare with contemporaries
- Access to all the city services over icon buttons (links)

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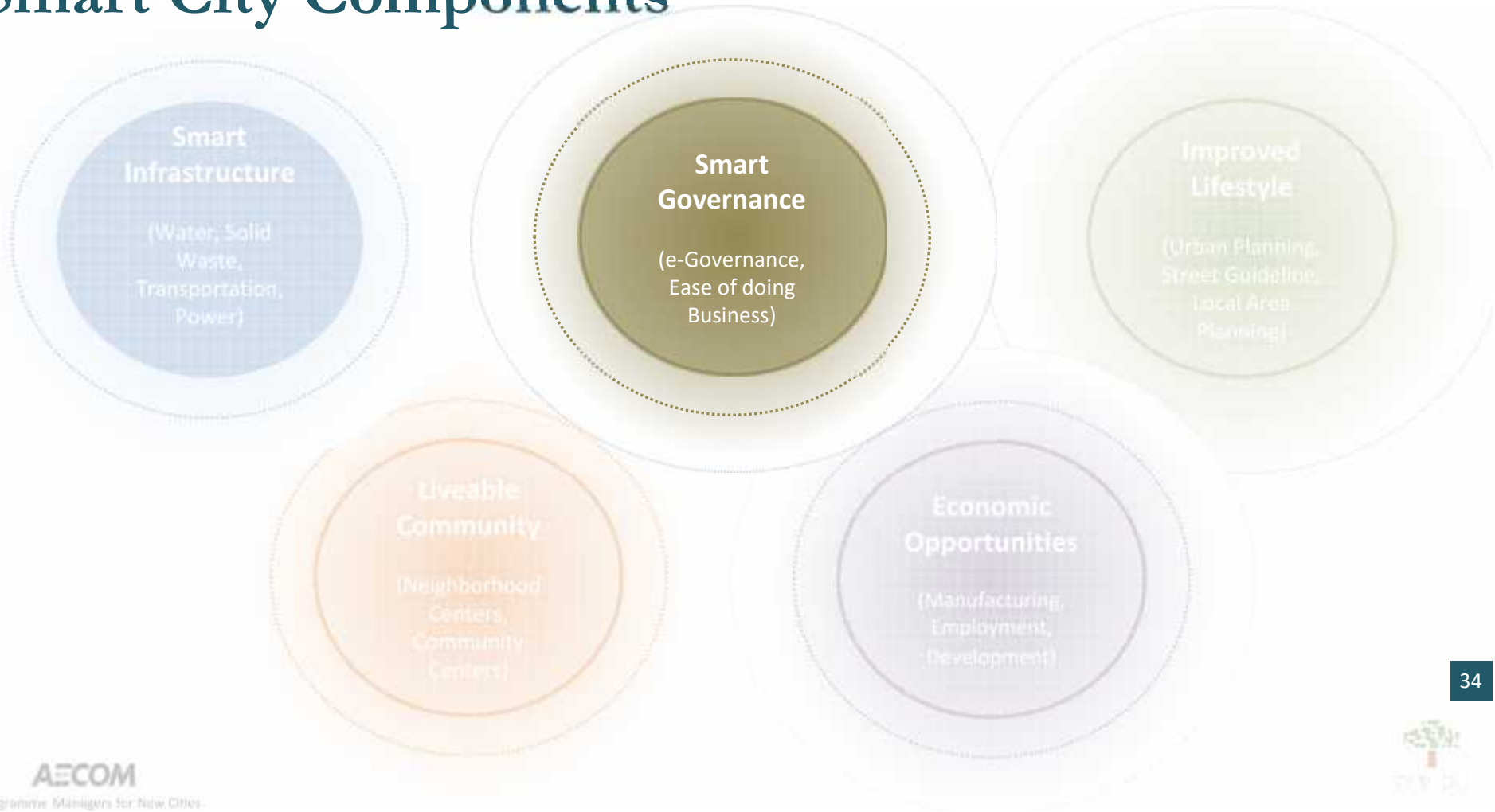
Dashboard

Real time information for **City Managers**



1. Mayor/CEO Dashboard at a glance view combines official, observational, social media data that updates on real time basis to help understand city's vibrancy, health and morphologies.
2. Presentation layer supported through analytics and visualization means.

Smart City Components



City Governance

- City level SPV between DMIC Trust + Government of Gujarat (GIDB)
- Program Manager leads initial project development and implementation
- City to Municipal management structure in the long run

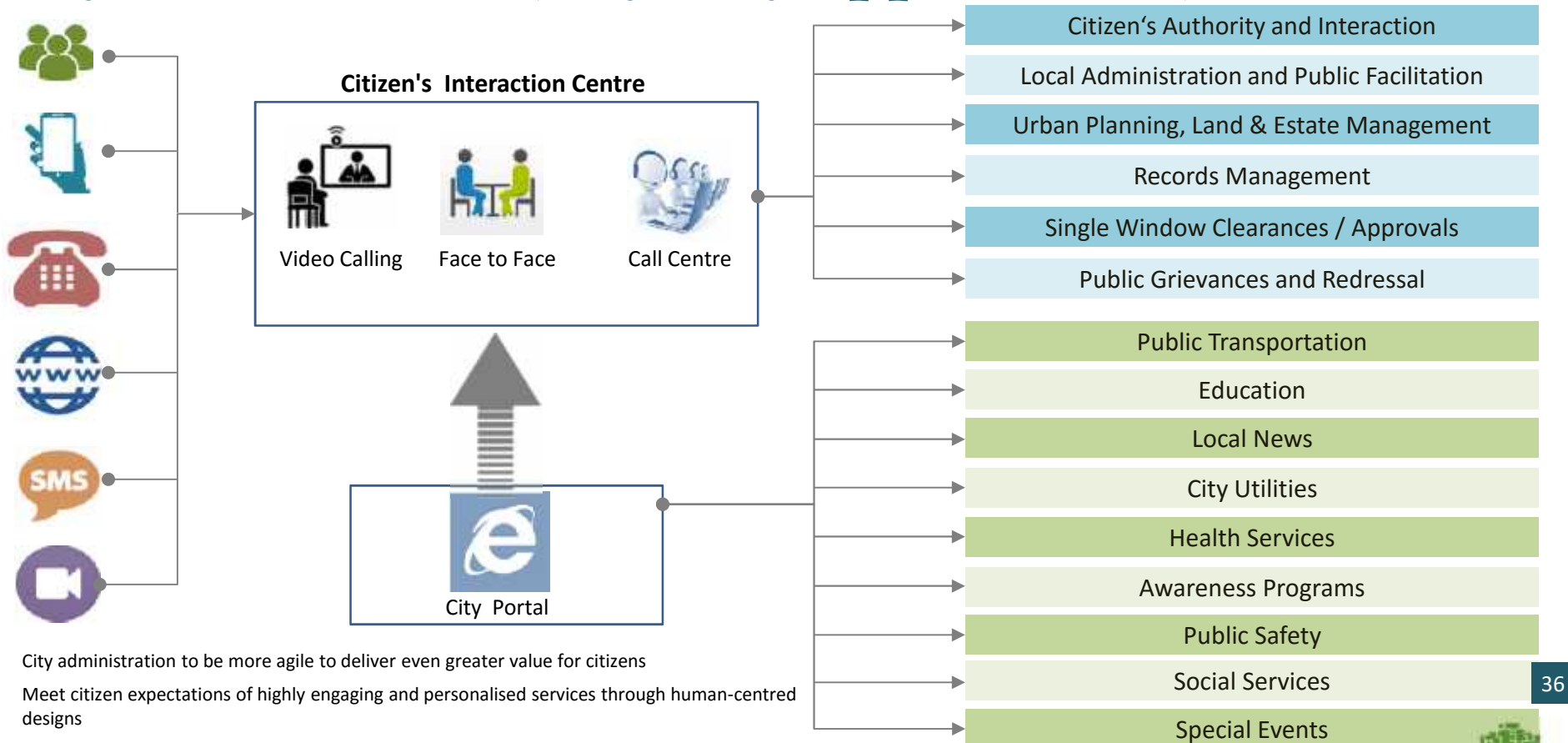
Managing Director reporting to 7 Board member

City services under one umbrella for co-ordination and smooth operation

Single window clearances



City-Governance (Key City applications)



- City administration to be more agile to deliver even greater value for citizens
- Meet citizen expectations of highly engaging and personalised services through human-centred designs
- Governance will play an active role in opening up city data to foster growth, innovation and improved services

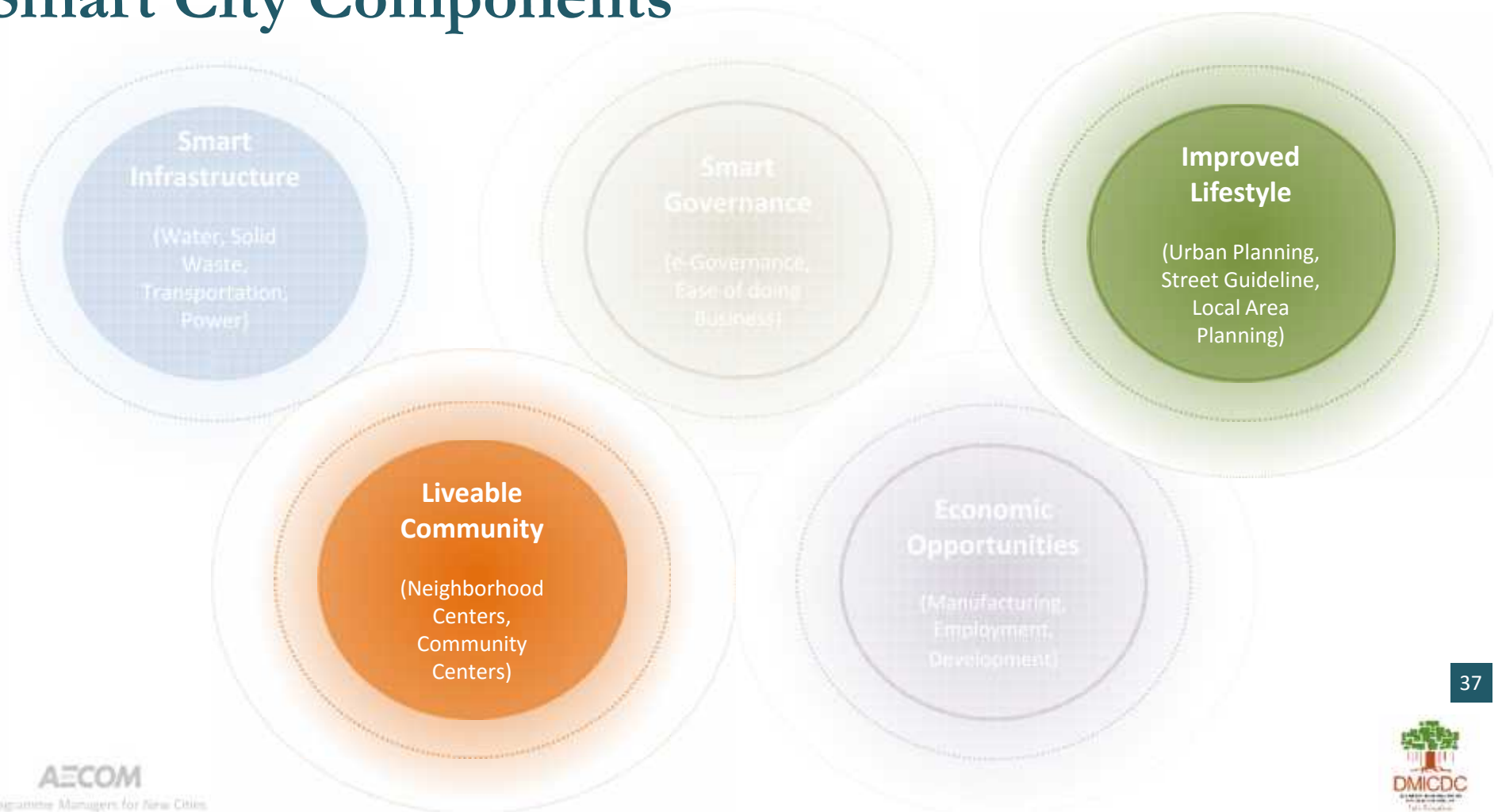


Programme Managers for New Cities

“Host of technological applications for city including citizen relationship management, ERP, SRM, Business intelligence, Analytics etc. being deployed”



Smart City Components





The Benefit

Hierarchy of Parks



Area – 3 to 4 HA with 800m radius
(10-minute walking radius)

Prioritize parks along TP roads

Parks within residential clusters and/or
between multiple residential clusters
(shared), and central in industrial areas.



Area – 1 to 1.5 HA with 400m radius
(5 minute walking radius)

Maximize parks within residential areas ,

Prioritize parks along TP roads

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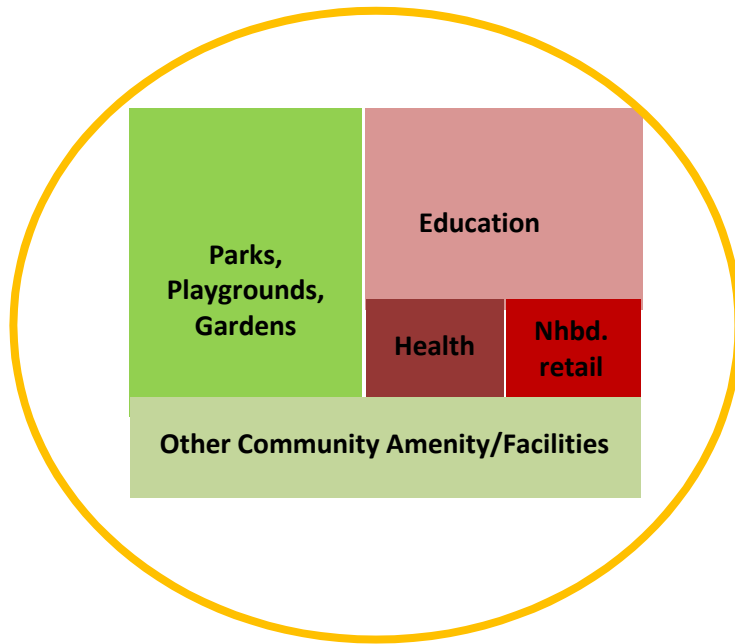
Catchment area of 4 km

Across entire Activation area

1km segment to promote public art & education
health & wellness, national initiatives like swachh
Bharat

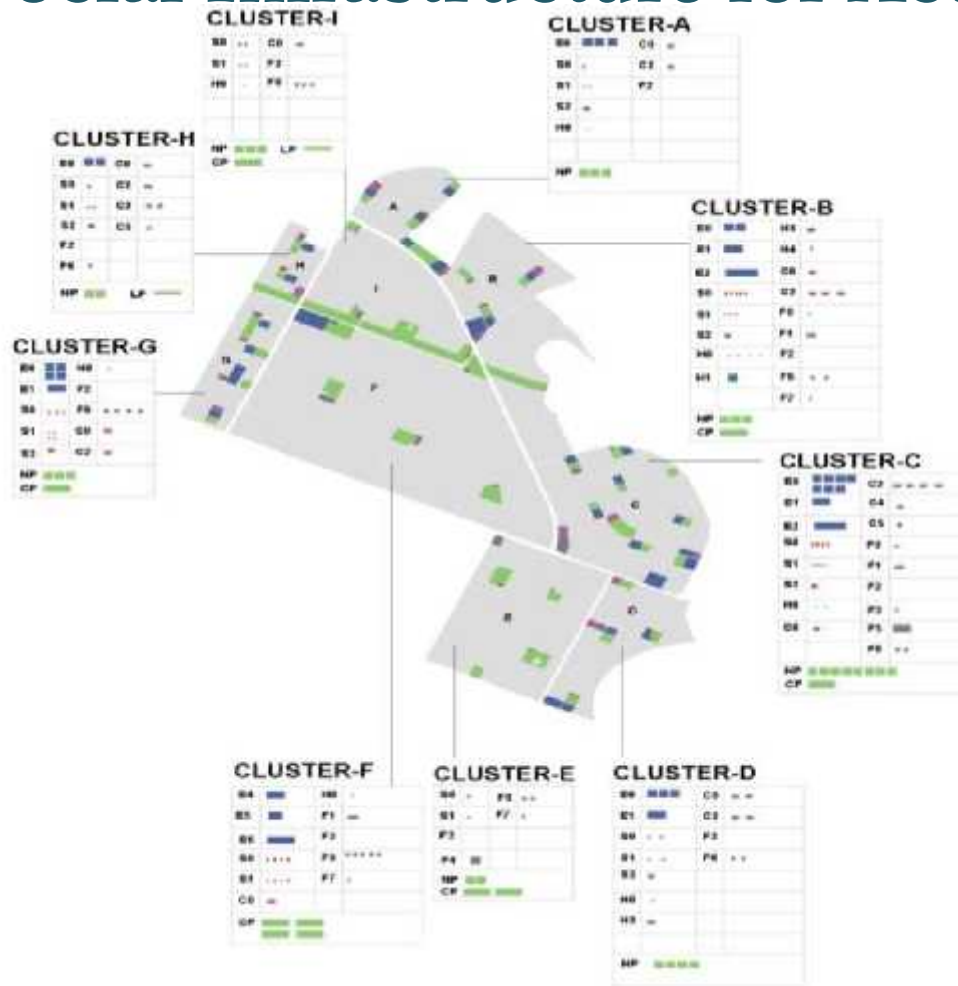


REAP E the benefits



- Social Infrastructure builds upon Open Green Space
- Neighbourhood Centres, regional centres and centres within industrial areas
- Cluster Social Infrastructure with Open Green Spaces to form Centers/nodes
- Spatially testing locations for each where social amenities are provided central to residential clusters
- Clustering of various compatible amenities for optimum use of land
- Prioritize social infrastructure along TP roads

Social Infrastructure for Activation Area



Categories	FACILITY	NUMBER
Education		
E0	Nursery + Primary	21
E1	Secondary School	4
E2	Integrated School (Without Hostel)	1
E4	Scientific Research Institute	1
E5	General College	1
E6	Professional College	1
Shopping		
S0	Convenience Shopping	23
S1	Aanganwadi & Day care facility	23
S2	Community Market & Informal Bazaar	6
Community Facility (Healthcare)		
H0	Dispensary / Poly clinic	11
H1	Hospital C (101 beds to 200 beds)	1
H2	Dispensary for pet animals	1
H3	Maternity Home & Nursing Home/Poli clinic	2
H4	Cluster Family welfare, pediatric, geriatric, diagnostic, maternity with Nursing Home	1
Community Facility (Cultural/Entertainment)		
C0	Religious Center	9
C2	Banquet Hall	12
C3	Socio Cultural Centre	1
C4	Multipurpose Community hall	1
C5	Cinema Hall	2
Community Facility (Others)		
F0	Police Post	1
F1	Fire Station (1-3 km radius)	3
F2	Three wheeler and Taxi Stand	22
F3	Bus Terminus	1
F4	Truck Terminus	1
F5	Disaster Management Centre	1
F6	Petrol Pump	22
F7	LPG Godowns	3
Sports and Recreation		
NP	Neighborhood Park	27
CP	Community Park	9
LP	Linear Park	1



Project Implementation Status



Roads and Underground Services including Storm water



Administrative and Business Centre for Dholera (ABCD Building)



Potable Water: WTP



Sewage: STP



Industrial Effluent: CETP



Raw Water: RW Transmission from SBC/Pipli



Flood Control: Adhiya River Training and Bunding



Solid waste: Collection, Transfer, Treatment and Disposal



Power: Power Transmission and Substations



ICT: City wide Information Communication & Technology

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Construction in progress

Construction in progress

Construction in progress

In Tendering process

In Tendering process

Design under Progress

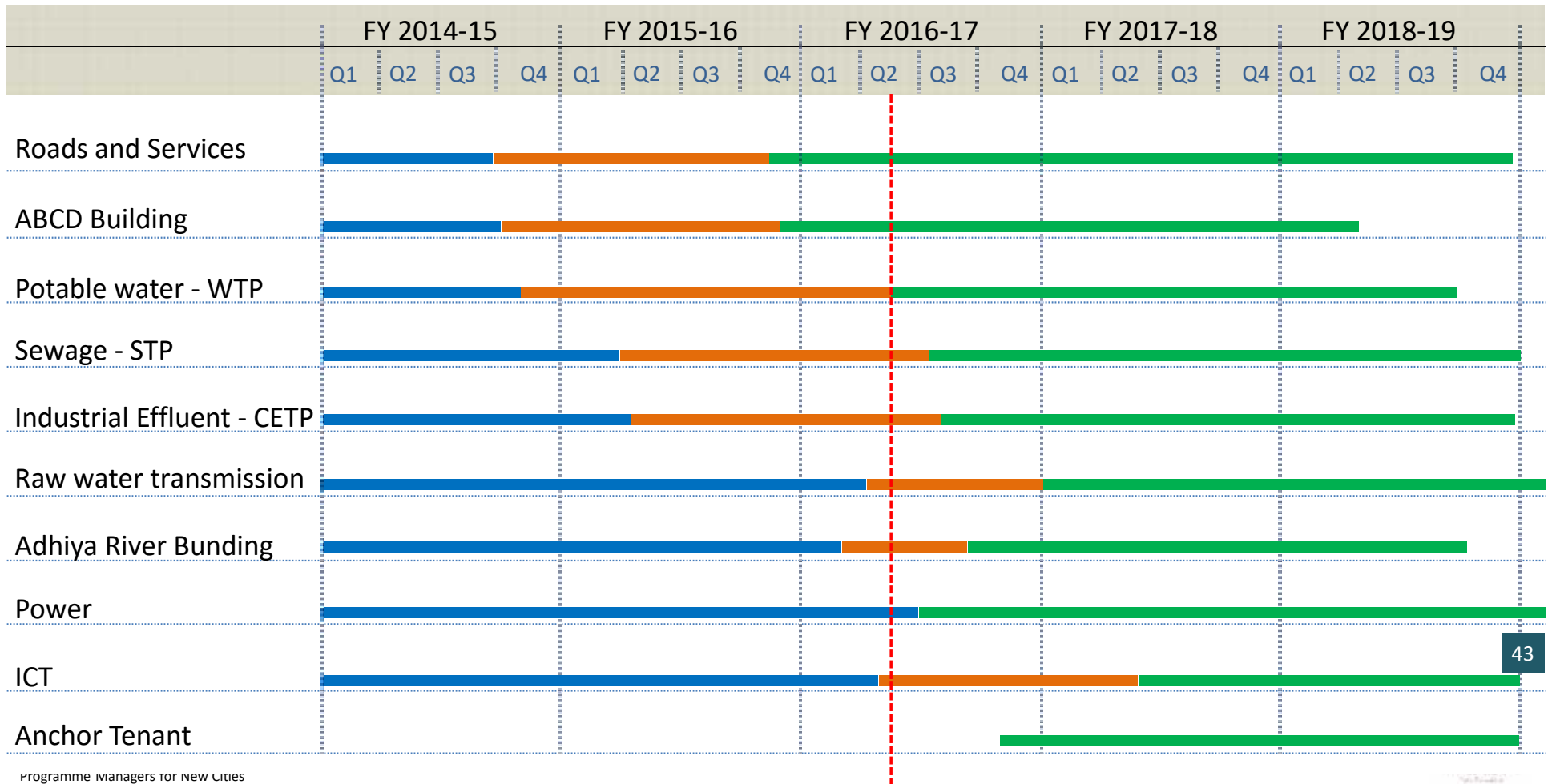
Design under Progress

In Tendering process

Design under Progress

Design under Progress

Activation Area - Schedule



Why should companies and people consider Dholera

Large land parcels

ICT enabled infrastructure

Ease of doing business

Plug & Play services

Planned Communities

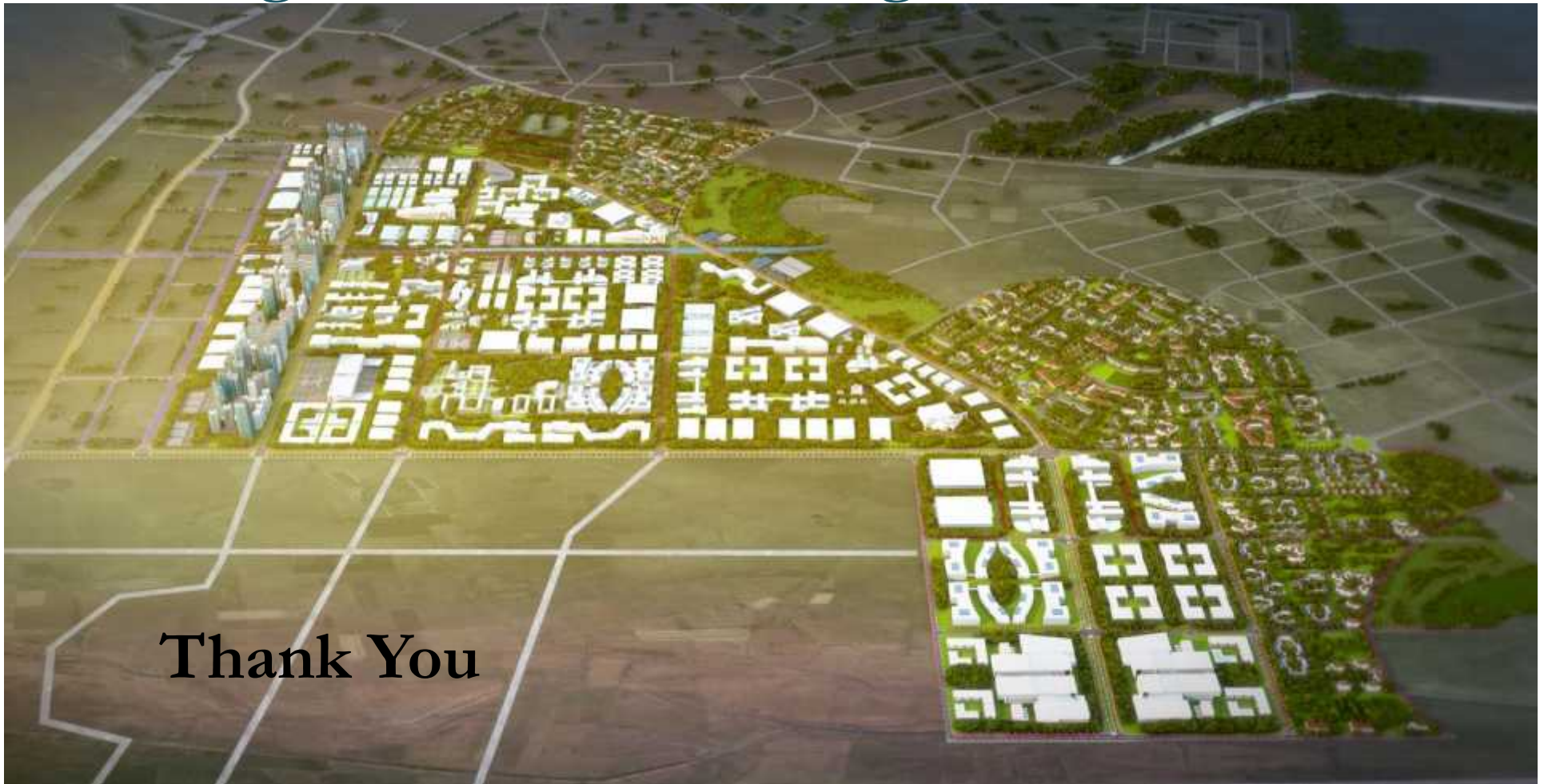
Sustainable living

Live – Work – Play Environment

Supportive policies



What begins in Dholera, changes India!!



Thank You