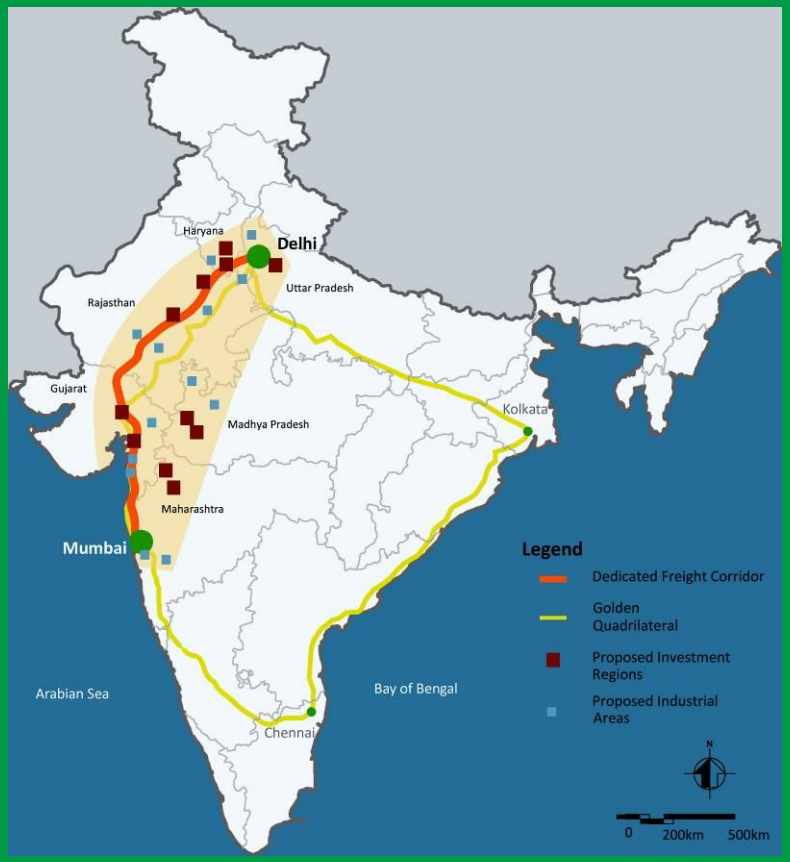
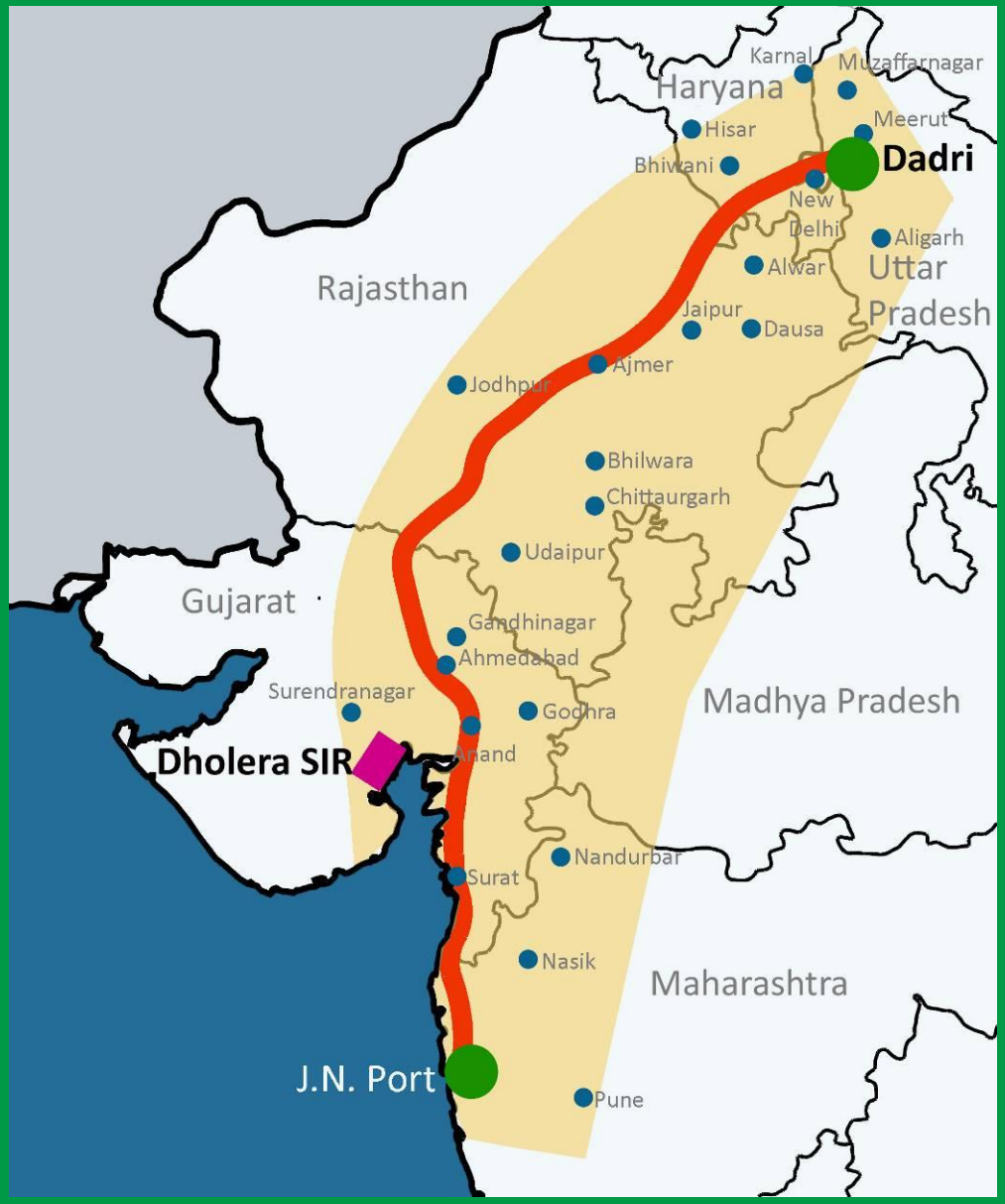

Delhi Mumbai Industrial Corridor
(DMIC) Project

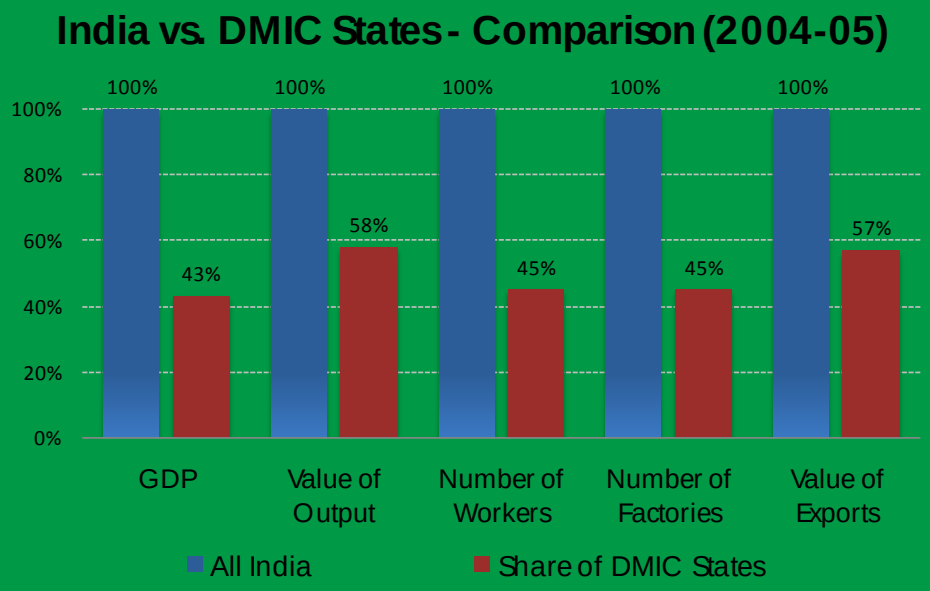
The DMIC Corridor





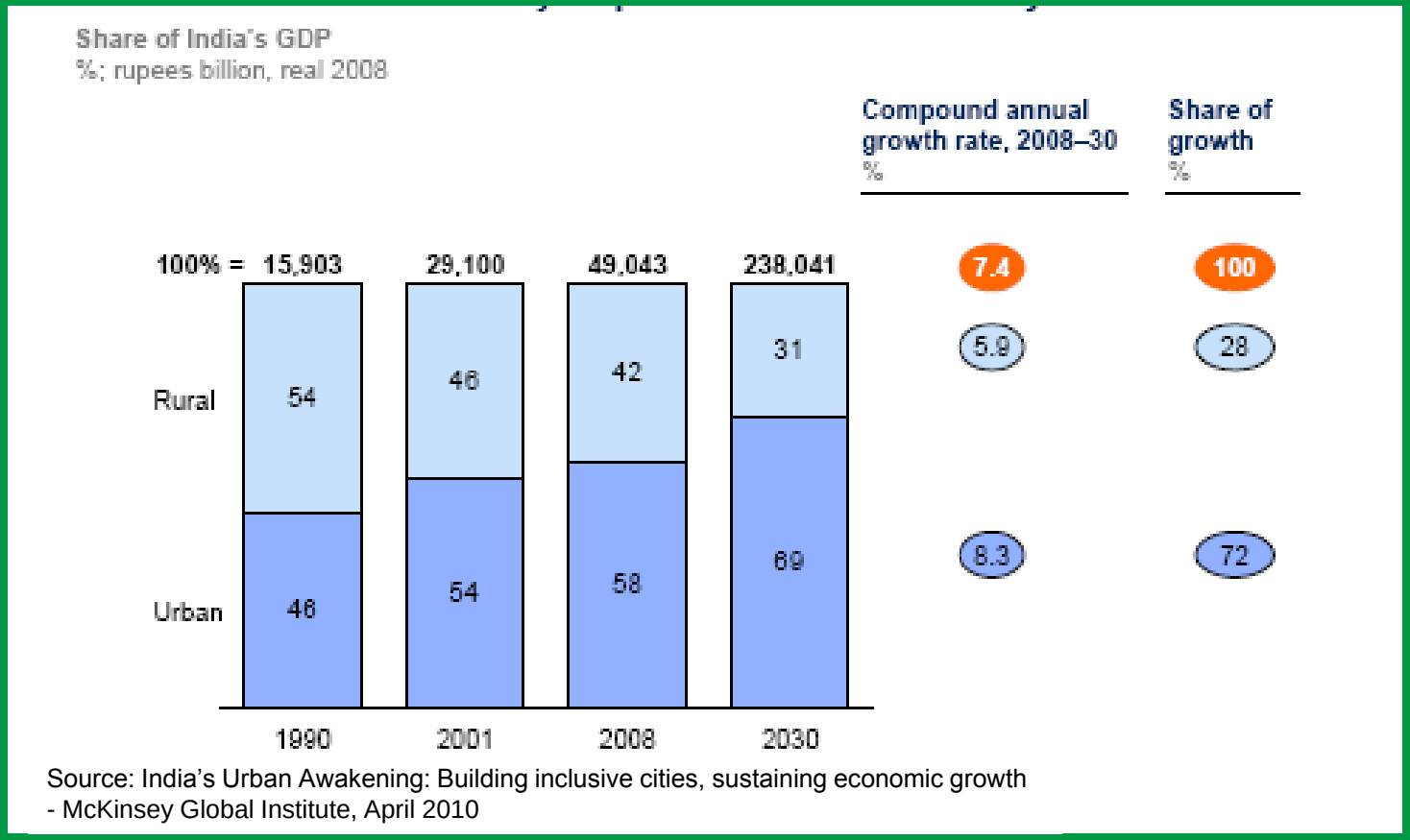
DMIC States- Traditional Industrial Base

- Approx. **43% contribution to the country's GDP**
- Contributes to **more than half of India's industrial production & exports**
- Accounts for over **40% of workers & number of factories** across India



Source: Ministry of Statistics & Programme Implementation (Govt. of India), ASI, Labour Bureau

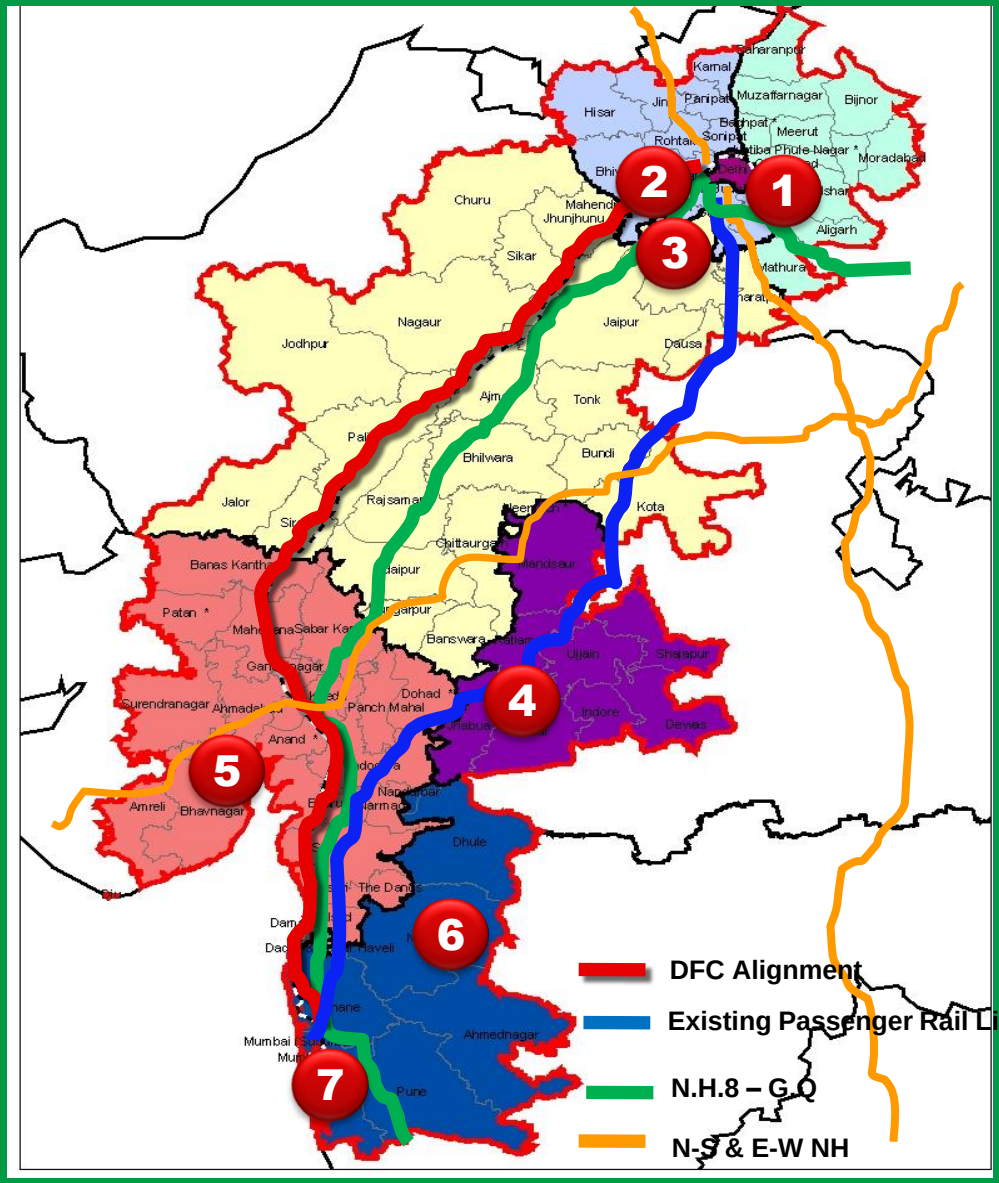
Cities will account for nearly 70% of India's GDP by 2030



Source: India's Urban Awakening: Building inclusive cities, sustaining economic growth - McKinsey Global Institute, April 2010

New DMIC Cities will help to meet pressures of urbanisation and also lead India's economic growth for the next 20 years

7 Nodes being developed in DMIC Phase 1



1 Dadri – Noida Ghaziabad IR, UP

2 Manesar – Bawal IR, Haryana

3 Neemrana – Khushkhera – Bhiwadi IR, Rajasthan

4 Pithampur- Dhar - Mhow IR, MP

5 Ahmedabad – Dholera IR, Gujarat

6 Nashik– Sinnar – Igatpuri IR, Maharashtra

7 Dighi Port IA, Maharashtra

Planning of DMIC Nodes

Benchmarked against the best new generation Industrial Cities in the world

Global Regional Cities: Blueprint for Smart Growth

Sustainable, smart cities of the 21st century

Transit oriented, walkable and livable cities

Interconnected roads, rail and communication systems providing speed, access and world wide connectivity.

Master Planning - Key sustainable dev. concepts

- Reduction of commuting needs for the workforce
  - Polycentric structure – with multiple CBDs and Industrial zones
  - Integration of land uses encouraging mixed-use
  - Affordable Workers Housing located near the industrial zones

- Neighborhoods distributed around High access Mass Transit Corridors
    - Encouraging cycling & pedestrian modes over cars

- Recycling and Reuse of water and solid wastes

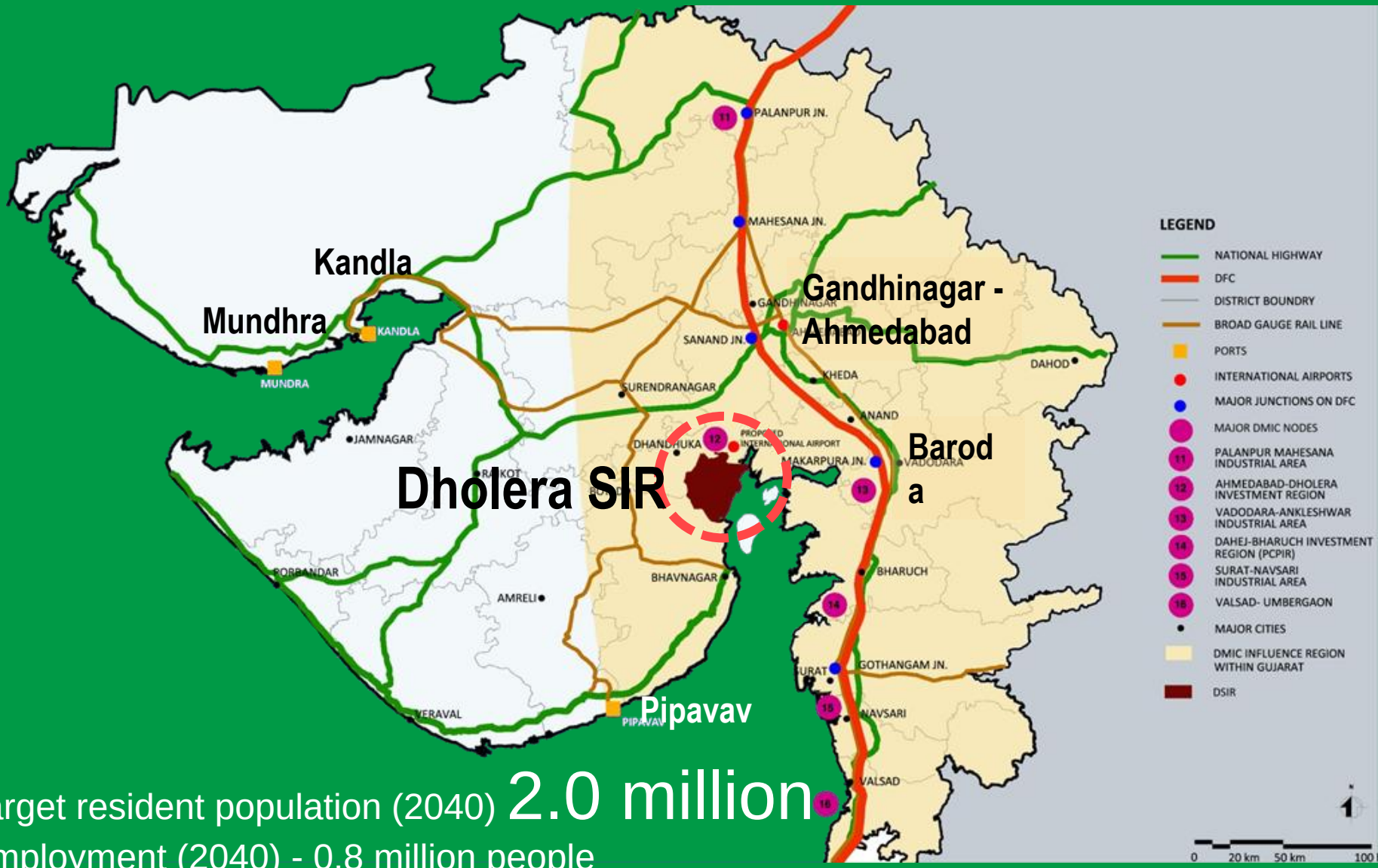
Master Planning - Key sustainable dev.concepts

- Energy sufficiency through use of renewables
- Conservation of better agricultural land & Protection of sensitive natural environment (Coastal zones, forests, sanctuaries)
- States following different models to acquire land
- Integration of existing villages into the new city
- SMART City - IT based real time Control and Governance

Best practices in Master Planning being brought in through international consultants

Node	Consultants	Area (sq. km)
Ahmedabad-Dholera Investment Region, Gujarat	**Consortium led by M/s Halcrow, UK**	**903**
Manesar-Bawal Investment Region, Haryana	**Consortium led by M/s Jurong, Singapore**	**402**
Khushkhera-Bhiwadi-Neemrana Investment Region, Rajasthan	**Consortium led by M/s Kuiper Compagnons, Holland**	**160**
Pithampur-Dhar-Mhow Investment Region, Madhya Pradesh	**Consortium led by M/s Lea Associates South Asia**	**372**
Dadri-Noida-Ghaziabad Investment Region, Uttar Pradesh	**Consortium led by M/s Halcrow, UK**	**200**
Dighi Port Industrial Area, Maharashtra	**M/s AECOM, Hong Kong**	**253**
Nashik-Sinnar-Igatpuri Investment Region, Maharashtra *(Additionally EBP of **Mega Industrial Park, Shendra** of 84 sq. km)*	**M/s AECOM, Hong Kong**	**84**

Dholera Special Investment Region



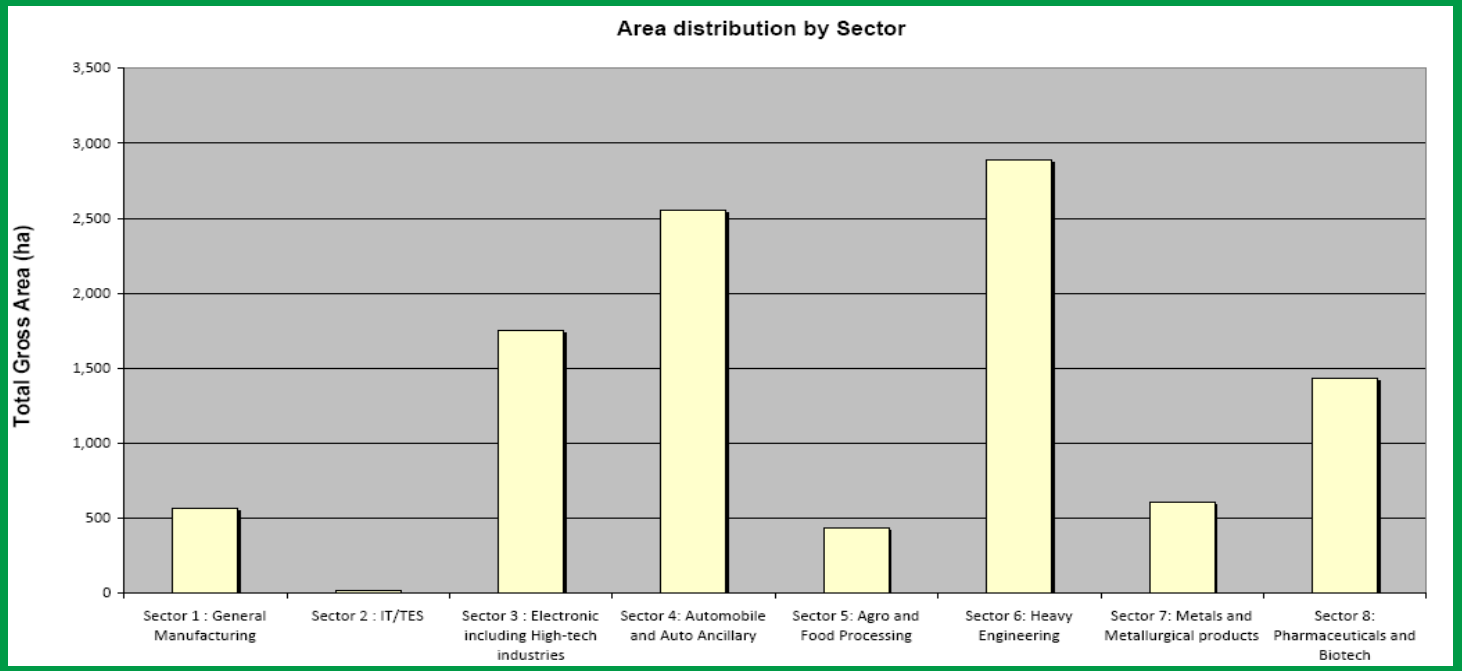
Target resident population (2040) 2.0 million

Employment (2040) - 0.8 million people

Priority Industrial Sectors

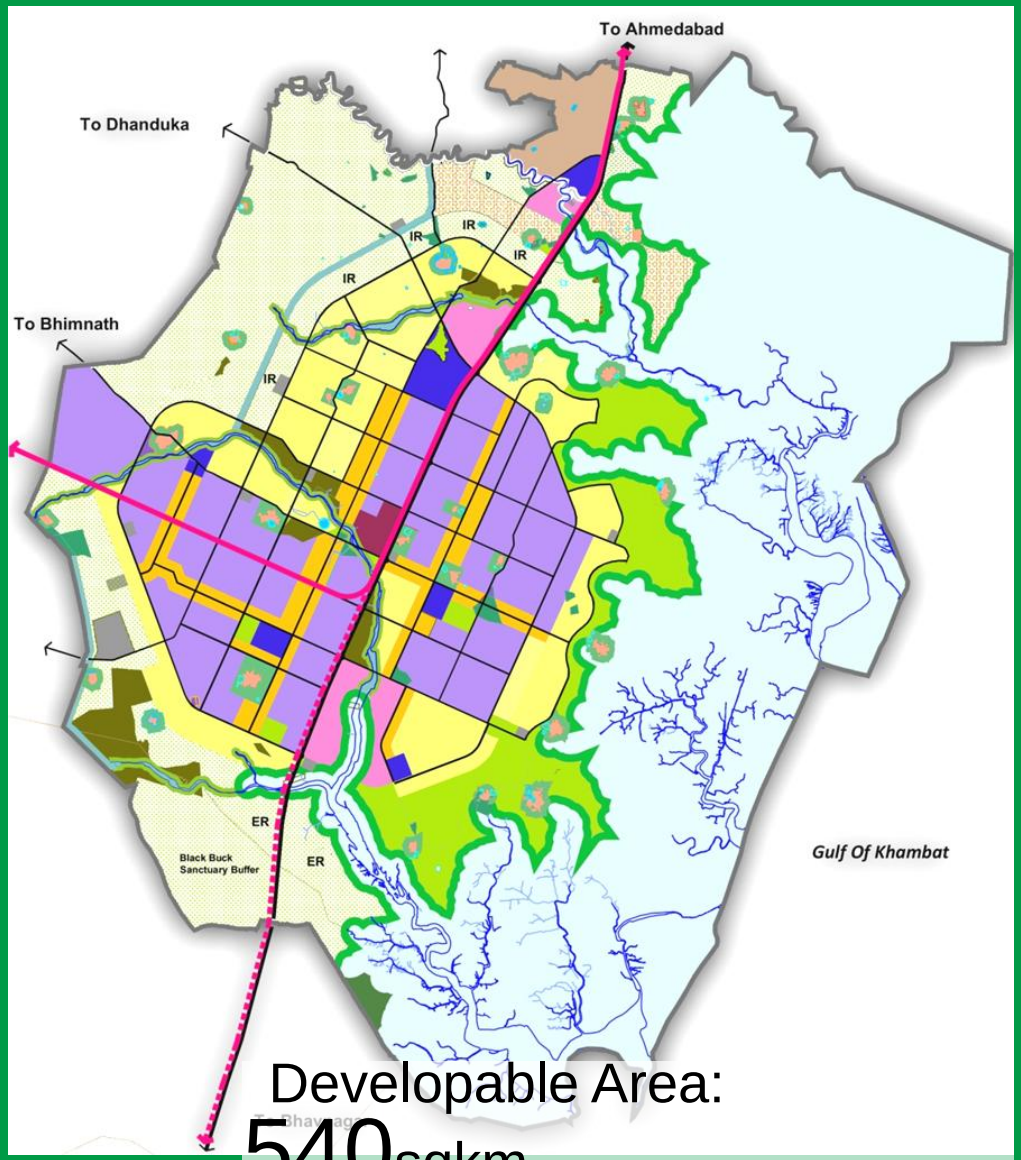
– Illustration: Dholera Special Investment Region, Gujarat

Sector 1 : General Manufacturing
Sector 2 : IT/ITES Component
Sector 3 : Electronic including High-tech industries
Sector 4: Automobile and Auto Ancillary
Sector 5: Agro and Food Processing
Sector 6: Heavy Engineering
Sector 7: Metals and Metallurgical products
Sector 8: Pharmaceuticals and Biotech

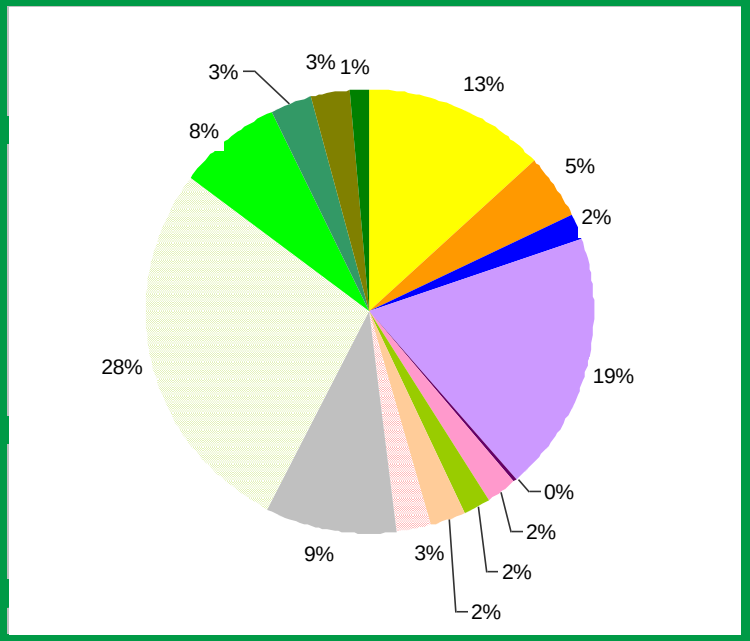


Total Industrial Area reqd. : ~1000 ha
Potential Industrial Employment : ~ 0.35 million by 2040

Master Plan



Developable Area:
540sqkm



Key

LAND USE

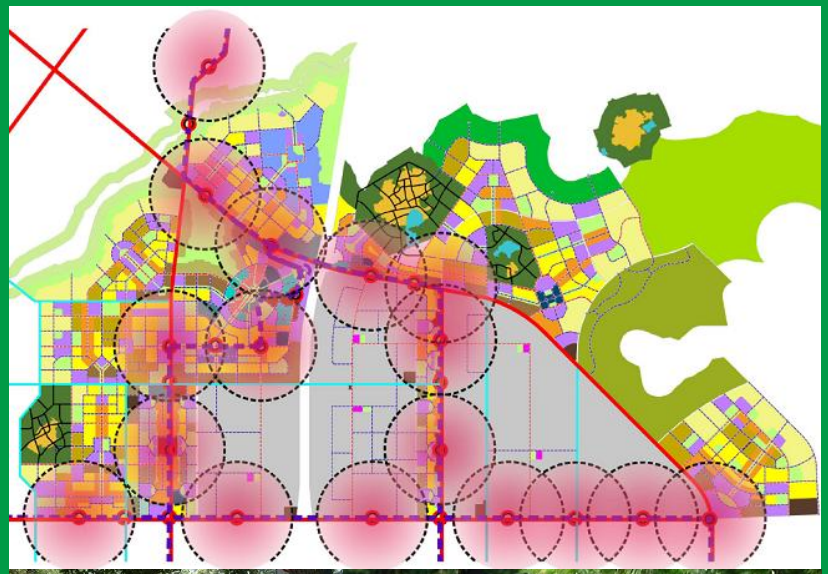
- Residential
- High Access Corridor
- City Centre
- Industrial
- Logistics
- Knowledge and IT
- Entertainment
- Village Buffer
- Green Parkland & Canals
- Recreation & Sports
- Resorts
- Solar Energy Park
- Strategic Infrastructure
- Forest
- Agriculture

OTHER

- DSIR Boundary
- Broad Gauge Railway
- Roads
- Land Under CRZ-I
- Canal
- Village Settlement
- Black Buck Sanctuary Buffer
- Rivers and Streams

Transit and Walkability

- A **Compact city** that promotes the creation of neighborhoods and walkable places connected by transit

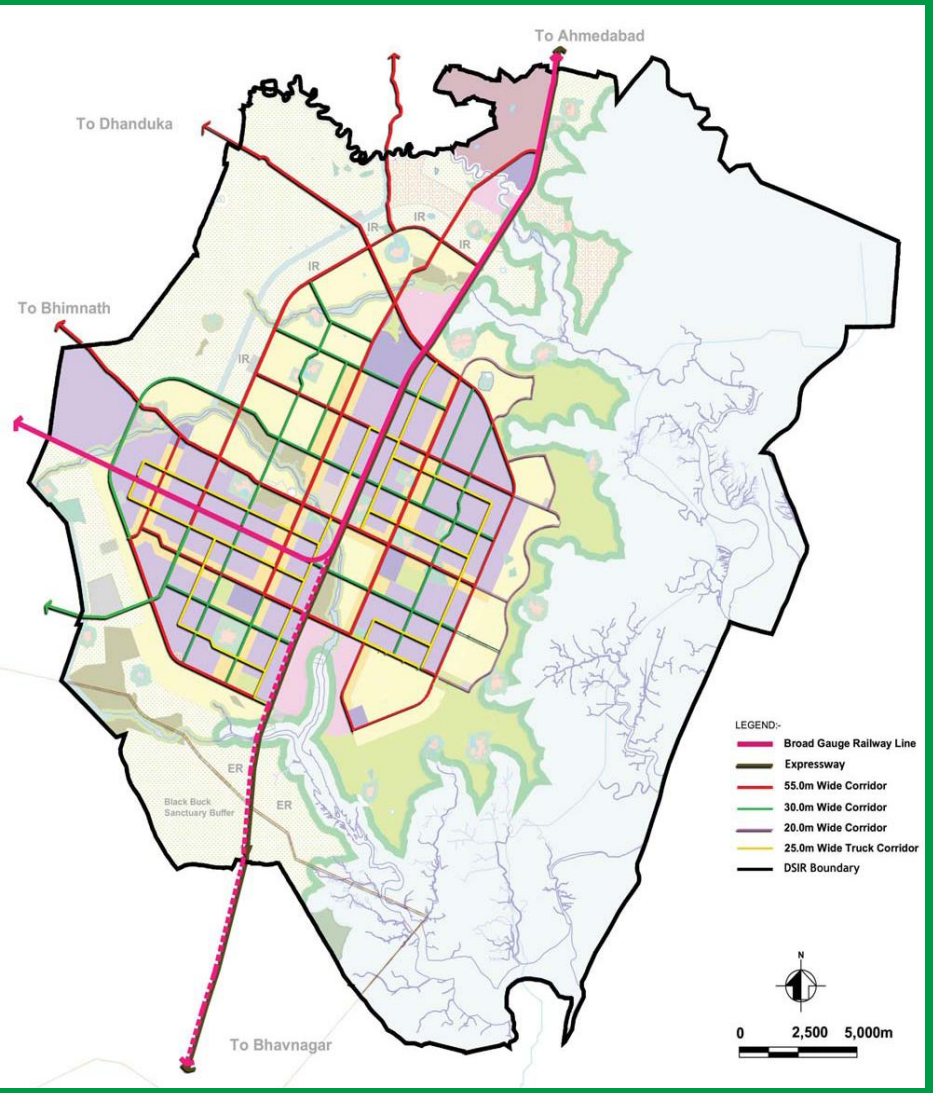


10 min walking distance

Proposed BRT In Phase I and…

LRT In the later phases

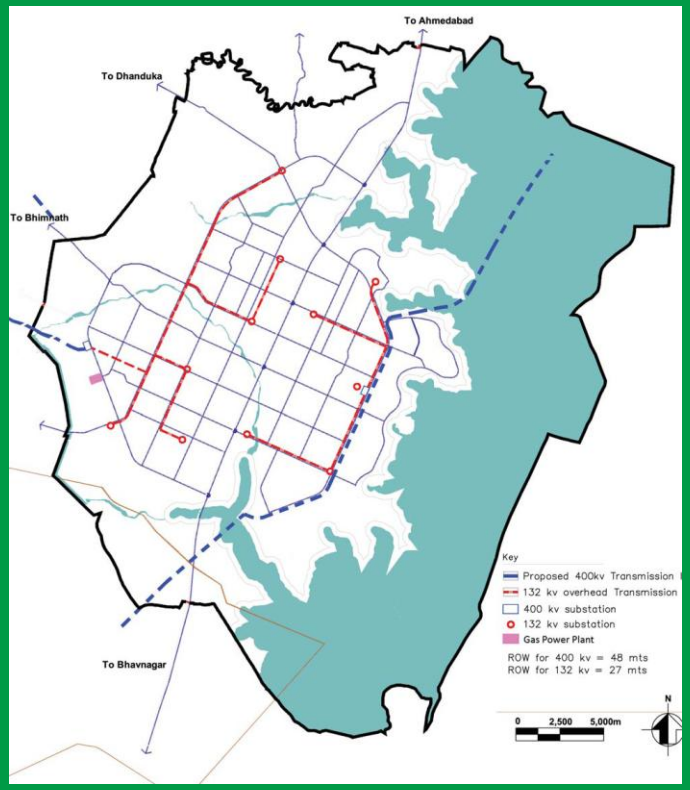
Building world-class infrastructure



Roads

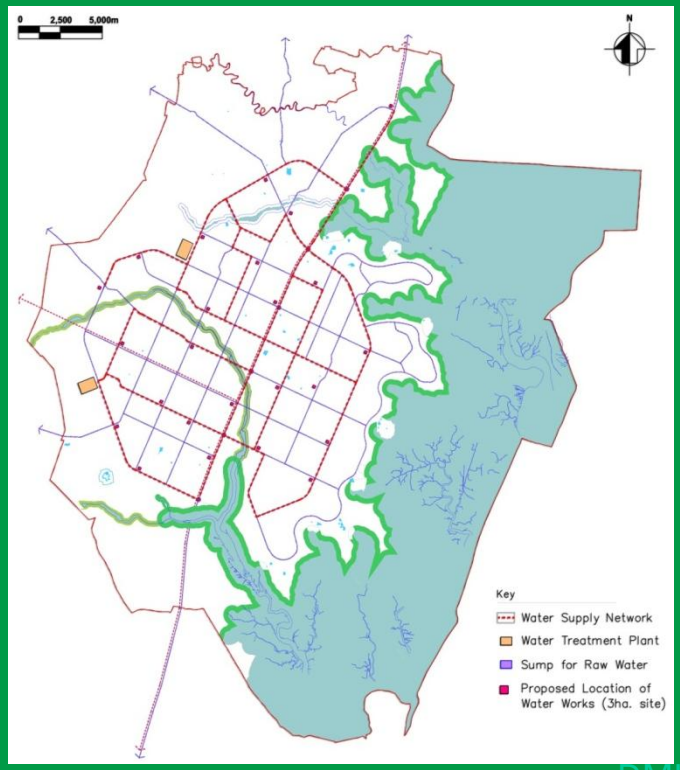
Hierarchy of Arterial and other Roads with dedicated lanes for Public Transport, Cycling, Walking

Building world-class infrastructure



Power

- Total Requirement: 1,700 MW
- Phase I : 400 MW

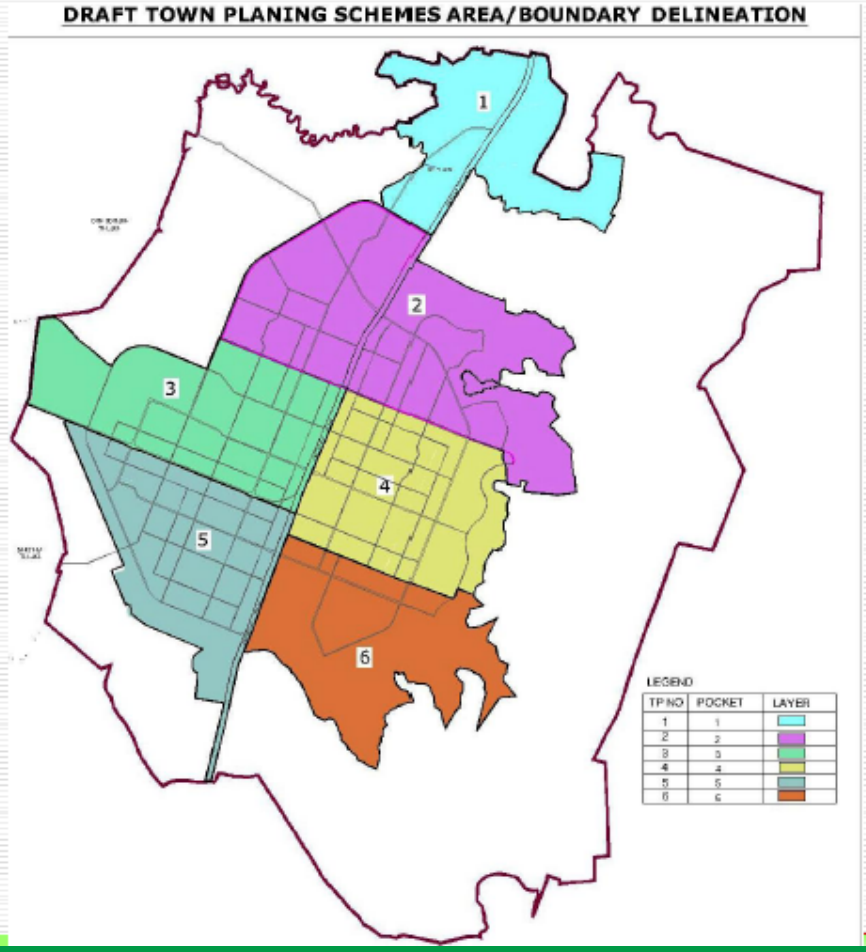


Water

- Total Demand = 950 mld
- Phase I = 260 mld

Draft Town Planning Scheme

DRAFT TOWN PLANNING SCHEME NO. 1 TO 6

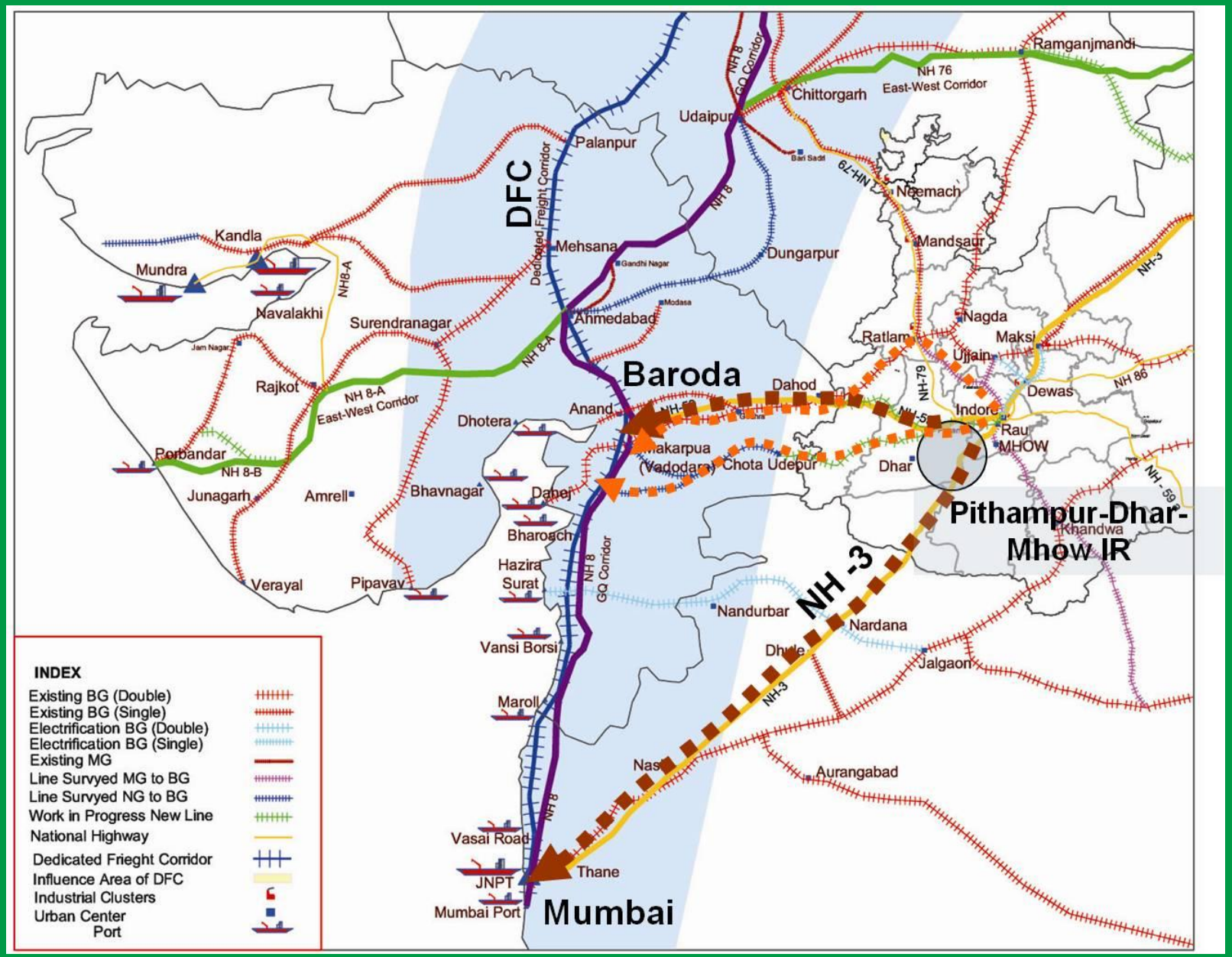


Draft Town Planning Scheme Area Table

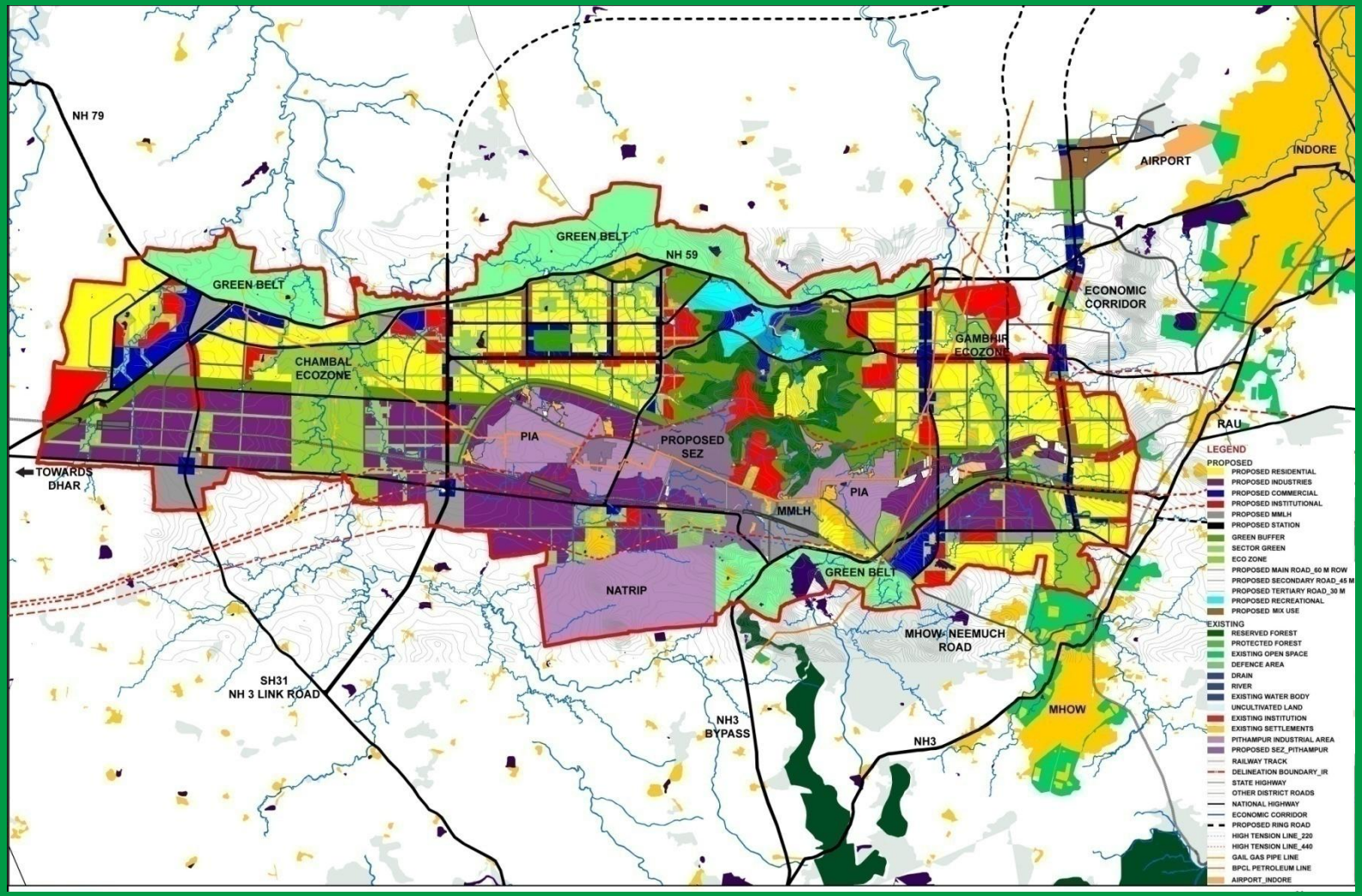
SR. NO	T.P.S NO.	AREA IN SQ. KM
1	1	51.28
2	2	103.00
3	3	67.06
4	4	59.85
5	5	63.00
6	6	62.40
Total		406.59

Consultations with village communities

Pithampur-Dhar- Mhow IR



Pithampur-Dhar- Mhow – Master Plan



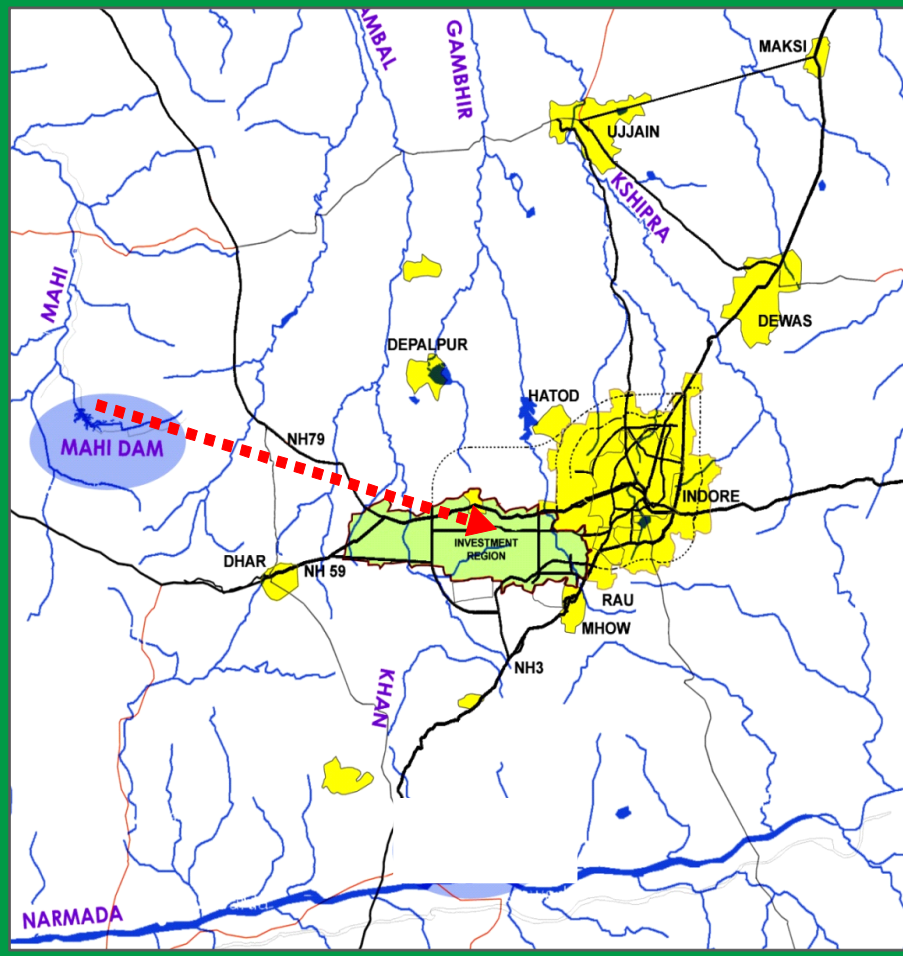
Residential
Commercial
Industrial
Institutional
Mixed Use
City Greens

Total Area – **372.4** sq.km. Population – 1.16 million

Water Supply System & Phase 1 of IR

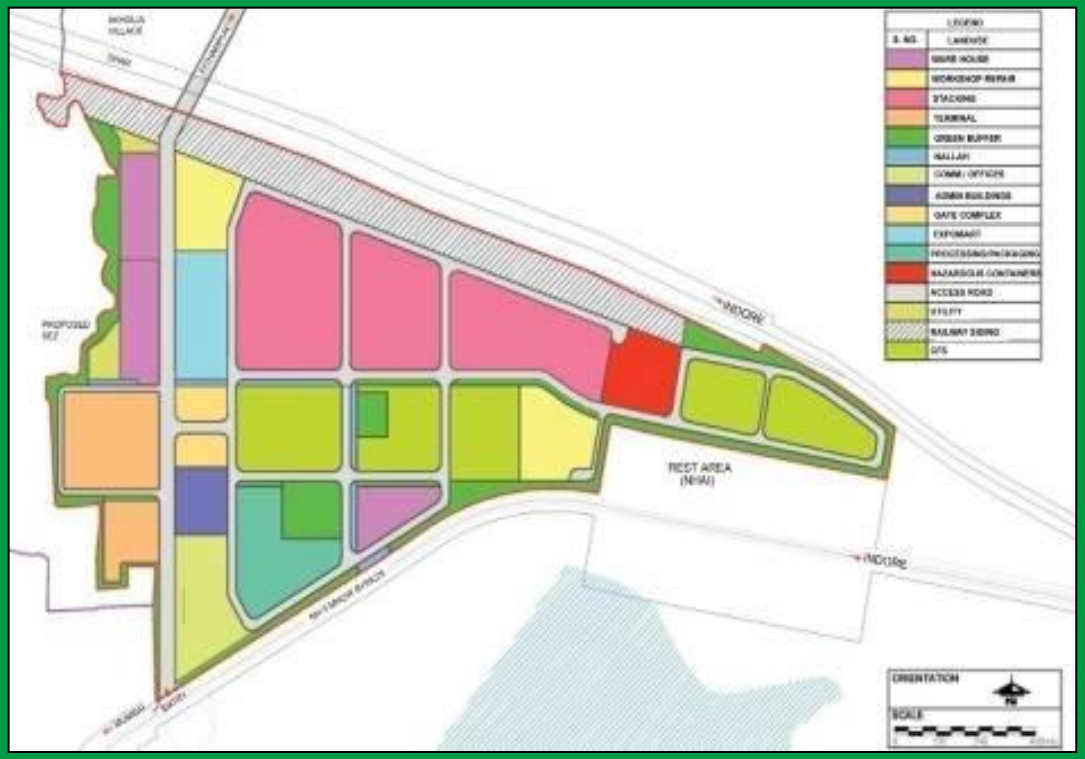
- Replacement & Rehabilitation of existing system and O&M
- Raw water Source: Mahi dam
- Water Allocation: 90mld
- Length of Pipeline: 92 km

- Total project cost : Rs. 350 Crore
- To be implemented on DBFOT
- Concession period : 30 Years



Multimodal Logistics Hub at Pithampur

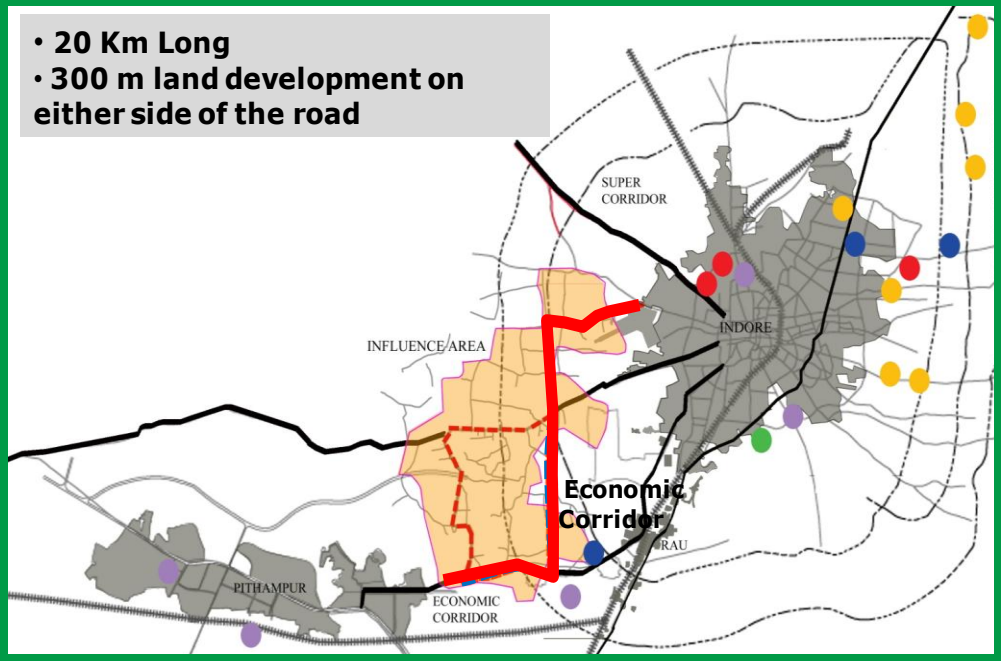
- Site Area : ~1.8 sq km
- Design Capacity: 0.63 million TEUs
- Indore-Dahod railway link under implementation will connect it to the DFC

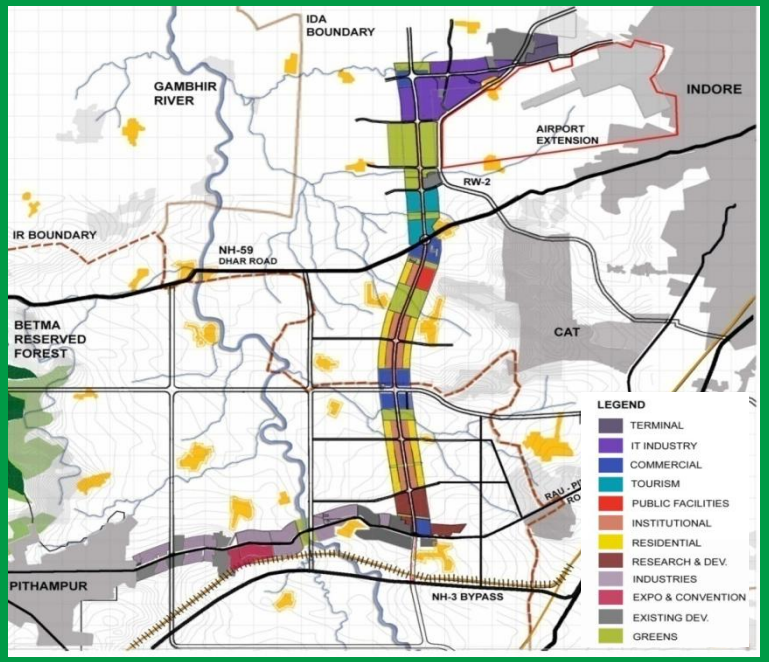


Current Status

- Land Acquisition
  - Government land (0.158 sq. km) has been transferred & possession taken
  - For Private land of 1.6214 sqkm, Sections 4 & 6 notifications have been completed and section-9 has been issued.
- Project Structuring being undertaken

Economic Corridor – Indore to Pithampur



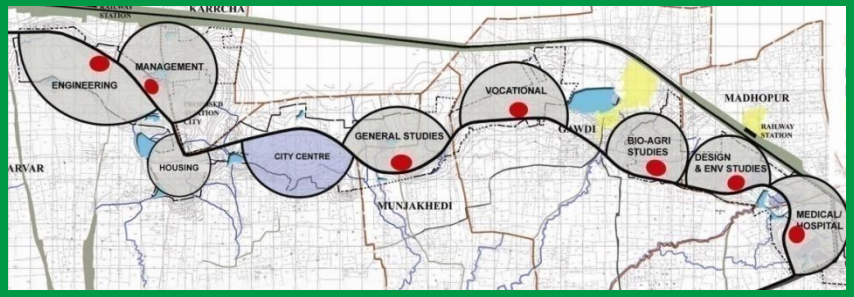


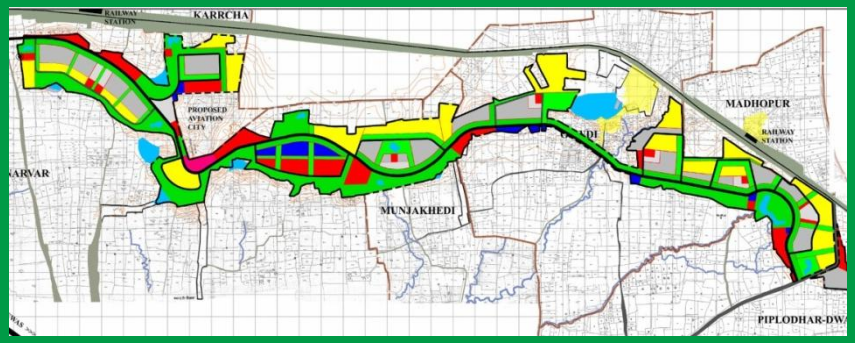
- Link between Pithampur and Indore (RoW- 75 M)
- Economic Infrastructure Development
- Mixed Use Based Product Mix

<u>Current Status</u>

- Project referred to the State Steering Committee
- Land Acqsn - 0.97 sq. km reqd. for 75m ROW ; comprising 0.1962 sq. km of Govt land
- Administrative approval of State Govt. for land acquisition / transfer has been accorded

Knowledge City near Ujjain



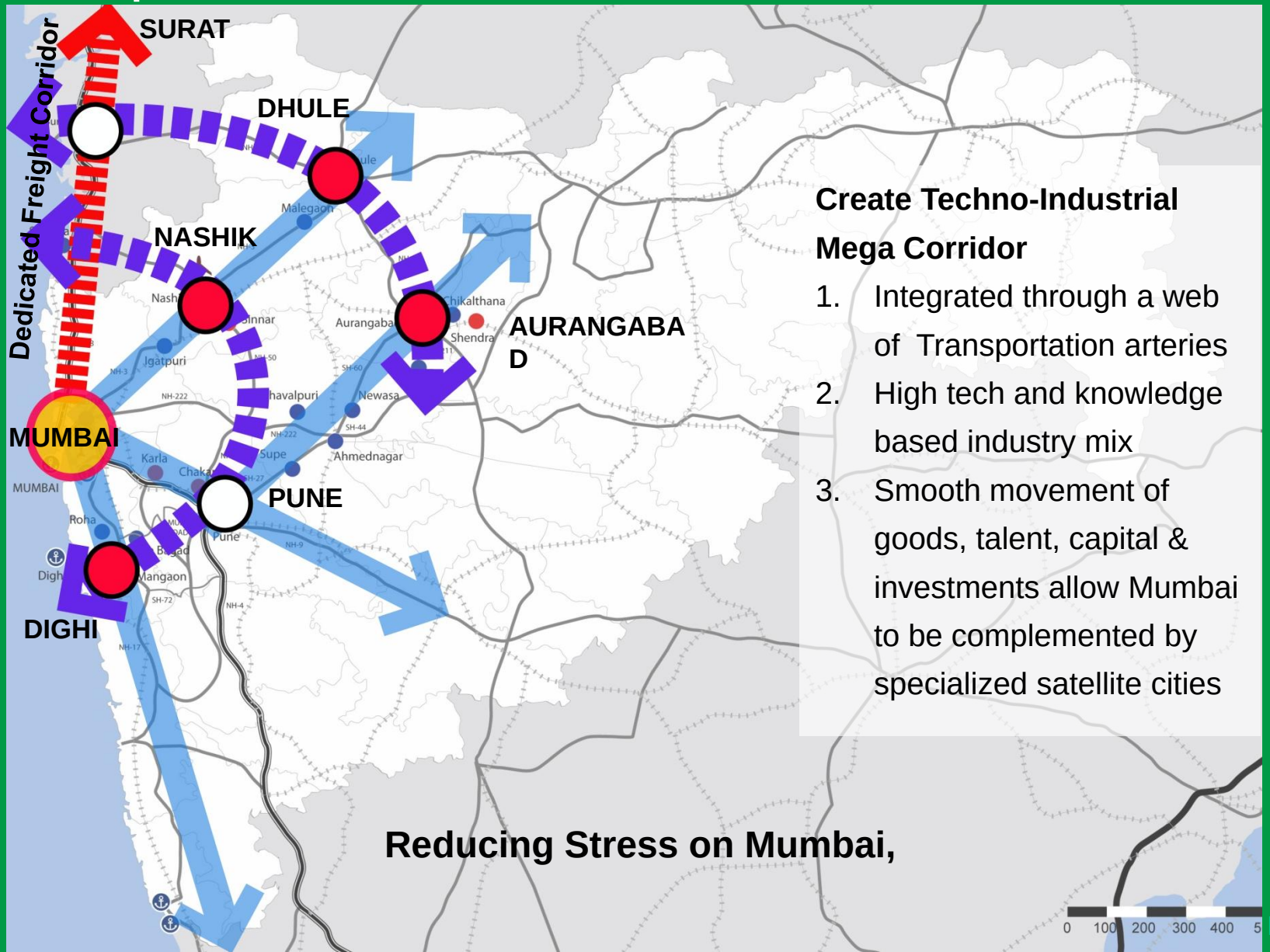


- 50 km from Indore
- Planned Area: 4.42 sq km
- Will provide skilled & technical workforce in the DMIC
- Cluster led development
- Projected Capacity - 50,000 students
- Total Population - 64,500

<u>Current Status</u>

- Land Acquisition: 2.18 sq. km is Govt land. 2.09 sq. km already transferred)
- Private portion: notification issued u/s 4 and 6 and action u/s 9 is being completed for 2.08sqkm; for remaining 0.16sqkm, Section 4 has been issued
- Development of initial infrastructure i.e. access road, boundary wall, water and power line would be initiated through DMIC funds.
- ToR for inviting bids from consultants for detailed engg and TA is under finalisation

Philosophy - Decentralised Regional Development



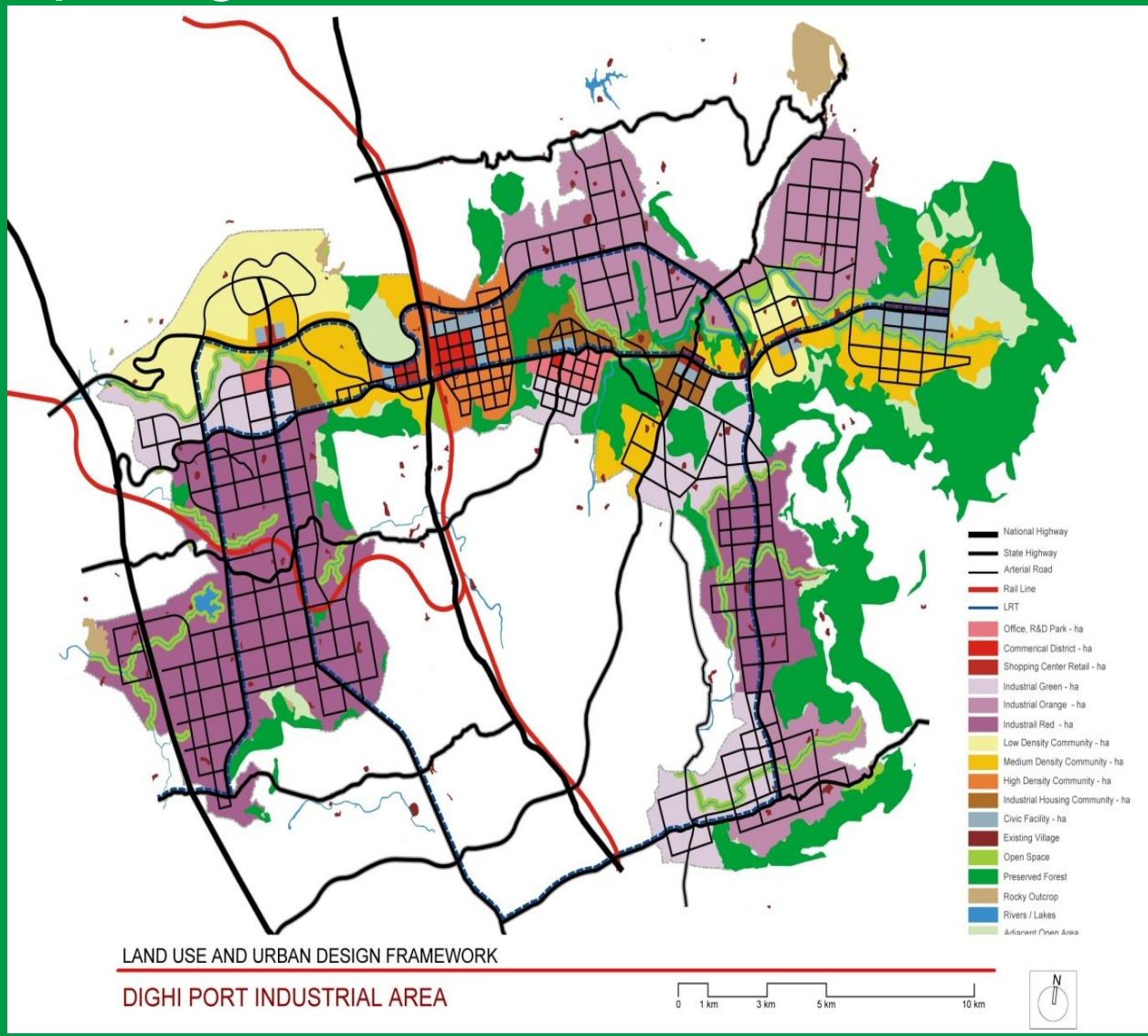
Create Techno-Industrial Mega Corridor

1. Integrated through a web of Transportation arteries
2. High tech and knowledge based industry mix
3. Smooth movement of goods, talent, capital & investments allow Mumbai to be complemented by specialized satellite cities

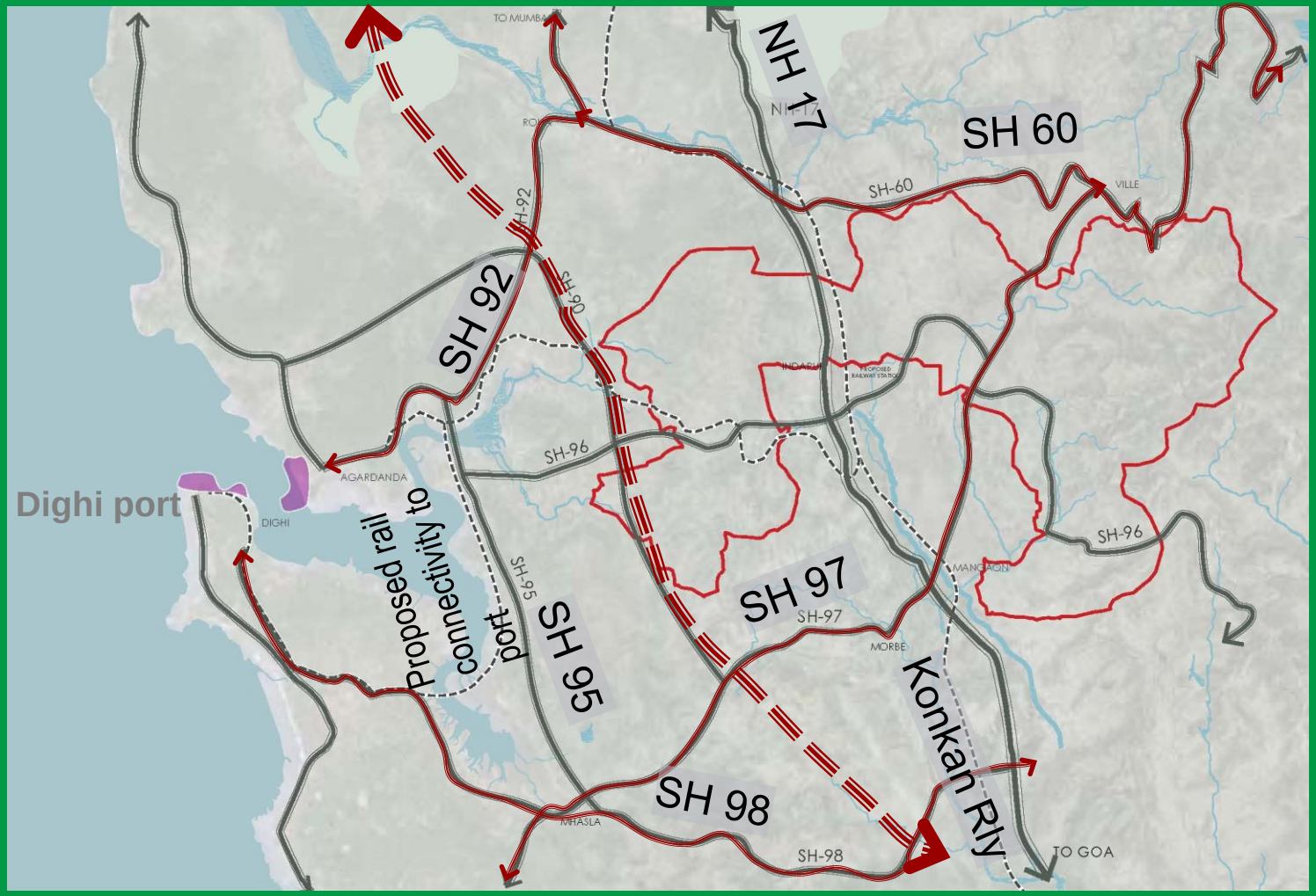
Reducing Stress on Mumbai,

Industrial Township, Dighi

- **Population** (2042): **1.6mn**
- **Total area: 253 sqkm**
- **Phase 1: 50 Sq.Km**
- **New integrated industrial and township enclave**
  - 71% area under industries
  - Balance - residential & commercial use.
- **Three major industrial clusters,**
  - Engineering, Heavy Industry and Food Processing Park.
- **Smaller, mixed-use centres in between**



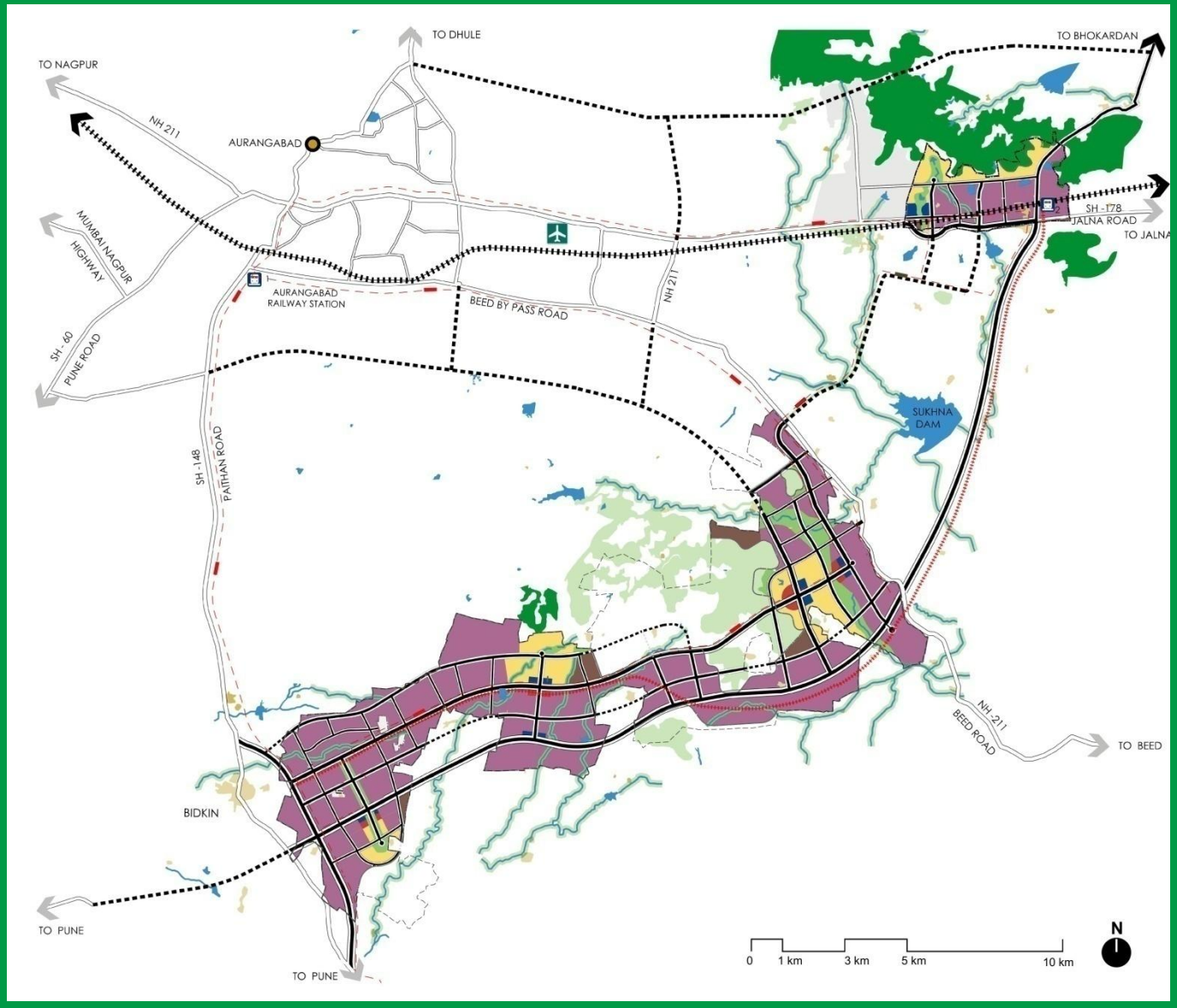
Dighi – Proposed Connectivity



Proposed Industrial City

Proposed Rly Links

Master Plan - Shendra-Bidkin



Area: **84** sqkm

Population: **0.5** mn

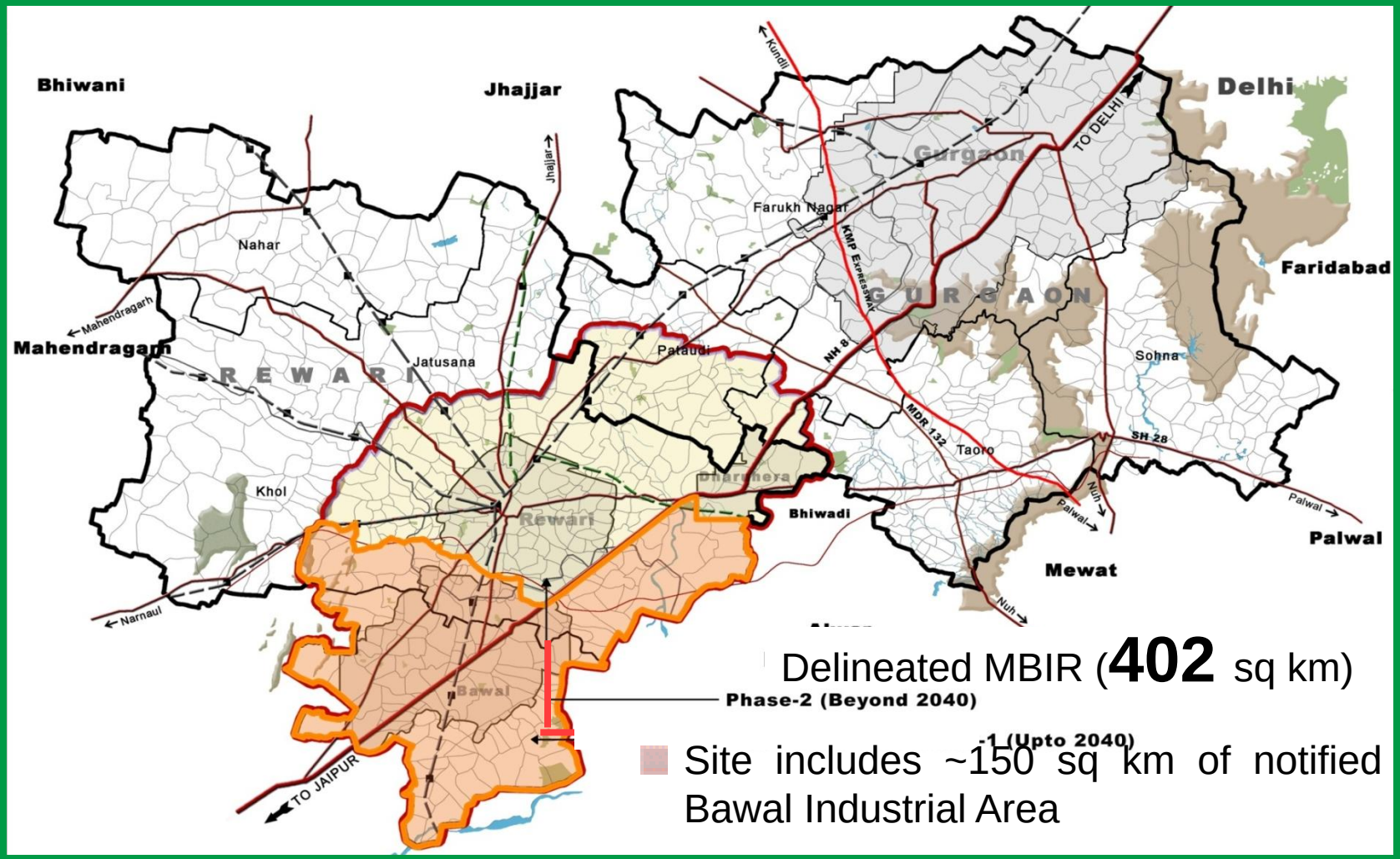

MIDC
ADDITIONAL
SHENDRA

Exhibition cum Convention Centre, Aurangabad

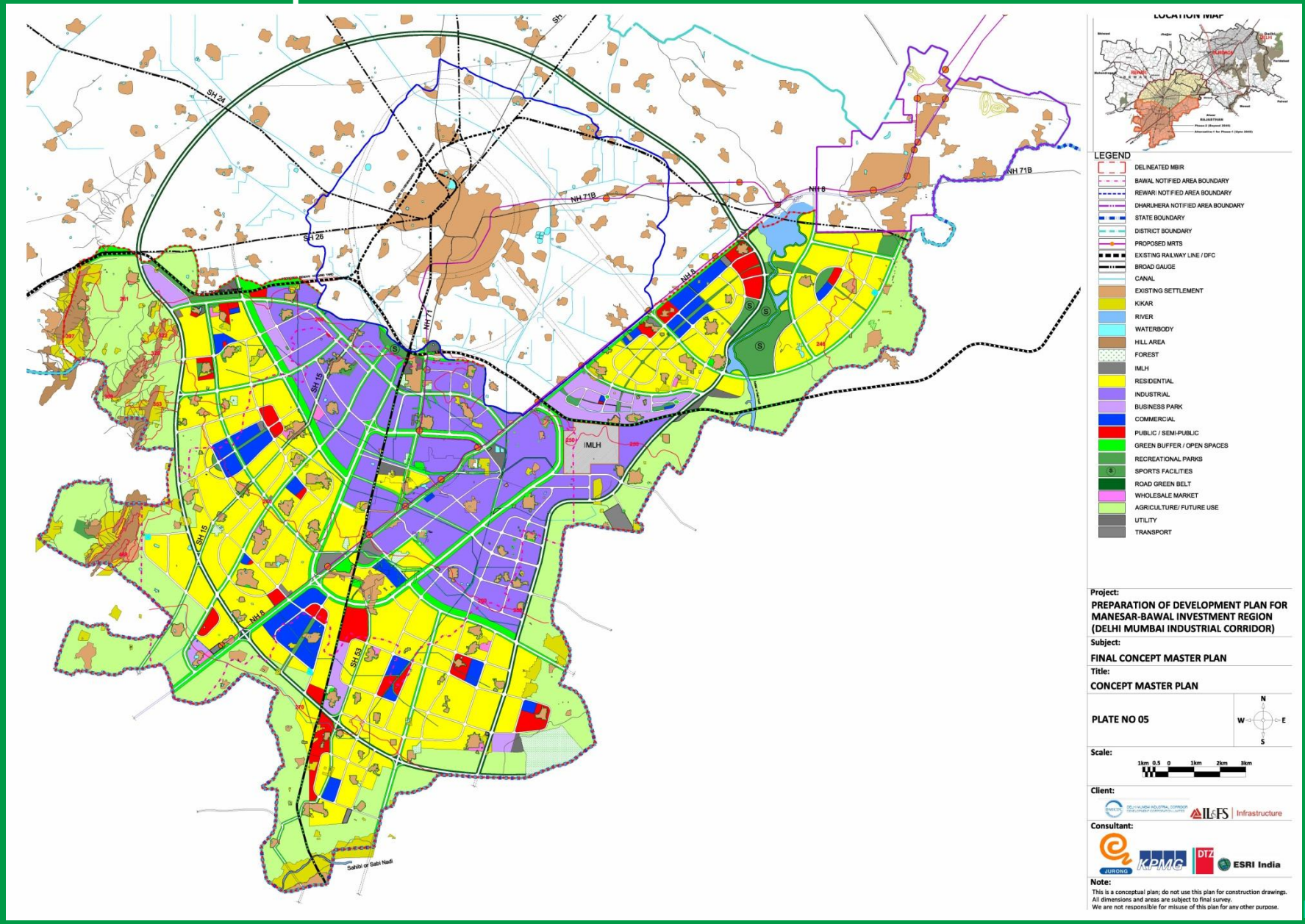
- Early Bird Project
- Site: 50 acres,
- Built up area: ECC : 30,000sqm

- Techno-Economic Feasibility Study completed
- Land is in MIDC's possession.
- Concurrence on Project structure awaited from Urban Development Department, Government of Maharashtra

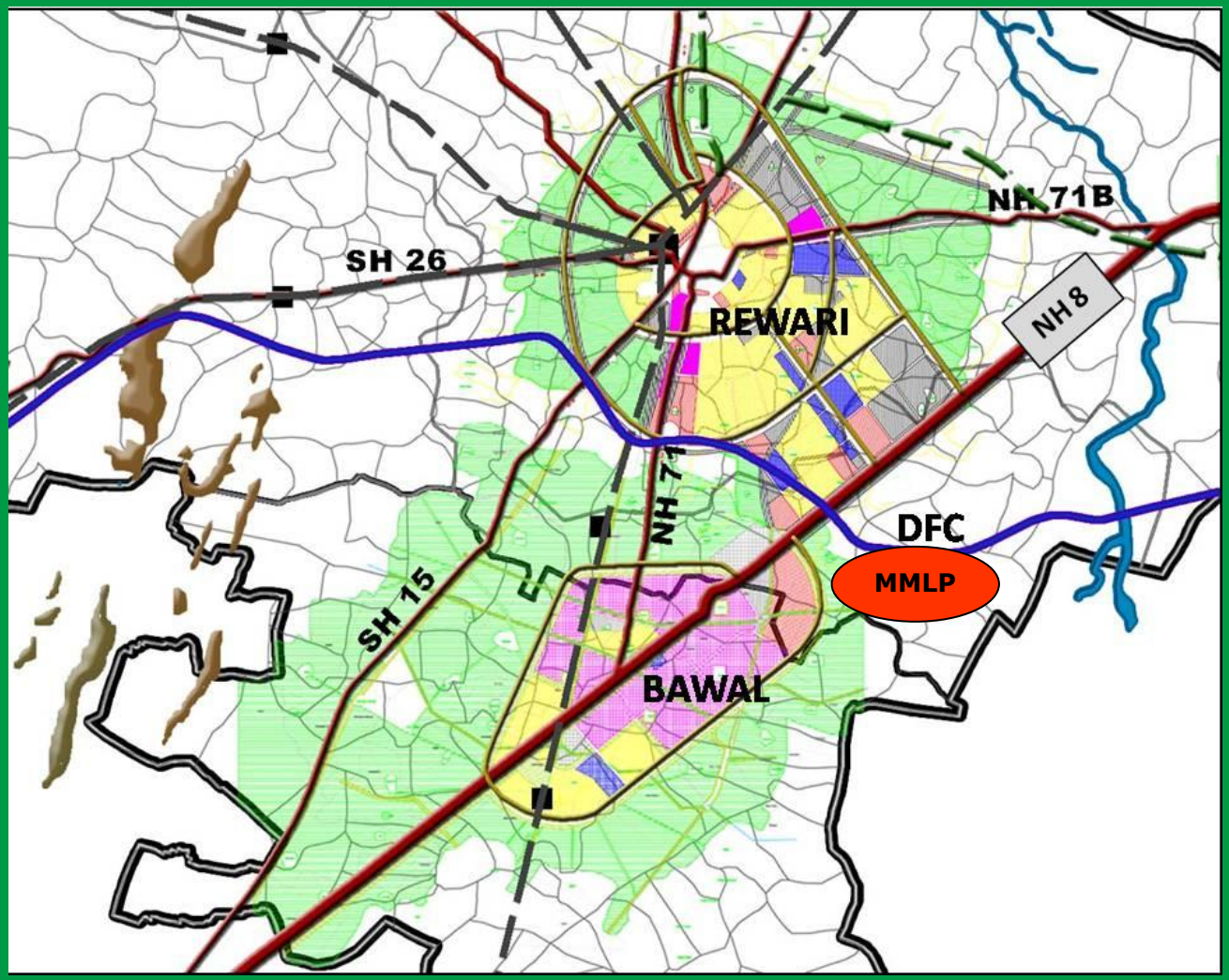
Manesar – Bawal Investment Region



The Concept Master Plan

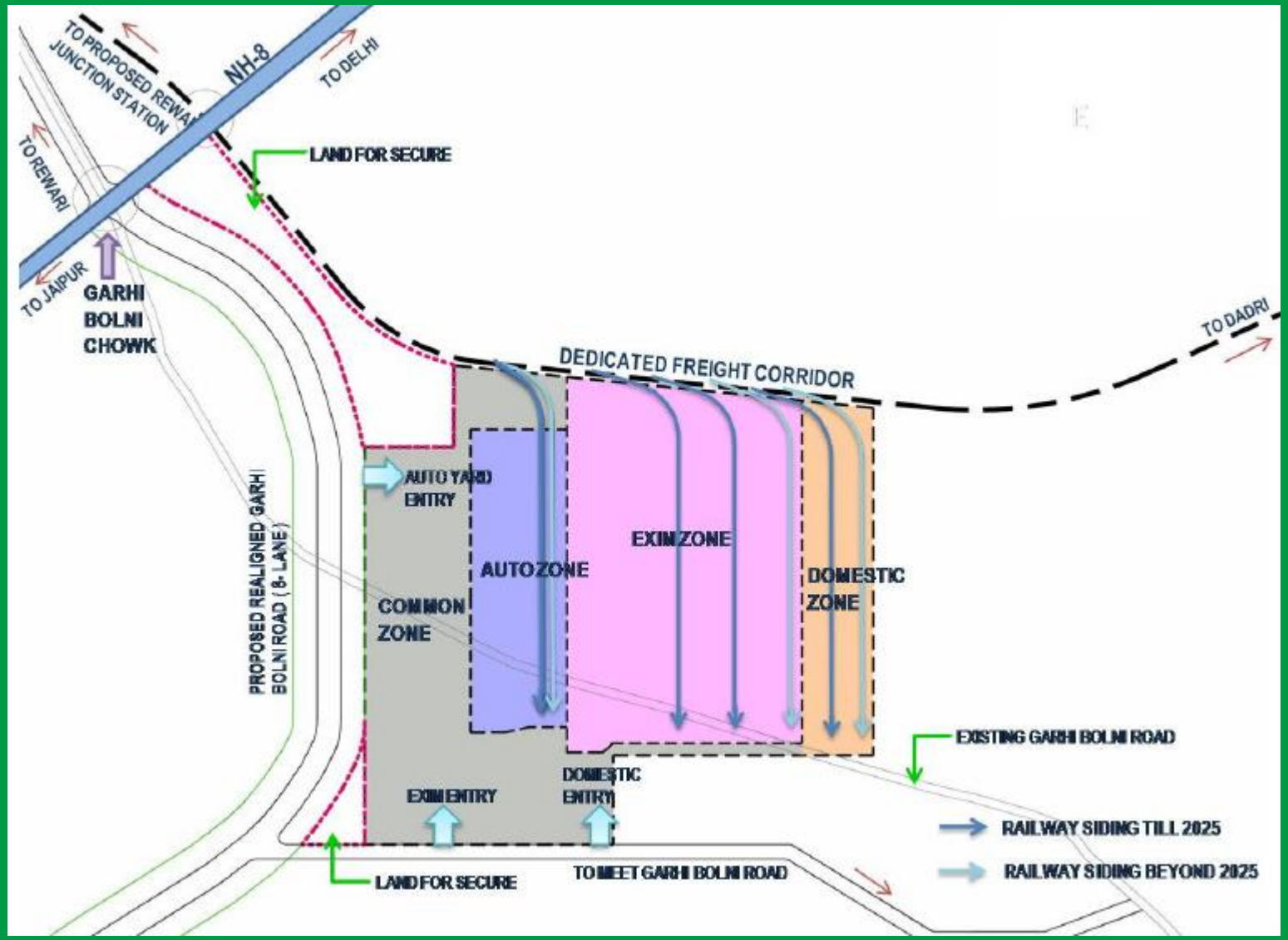


Multi Modal Logistics Park at Rewari



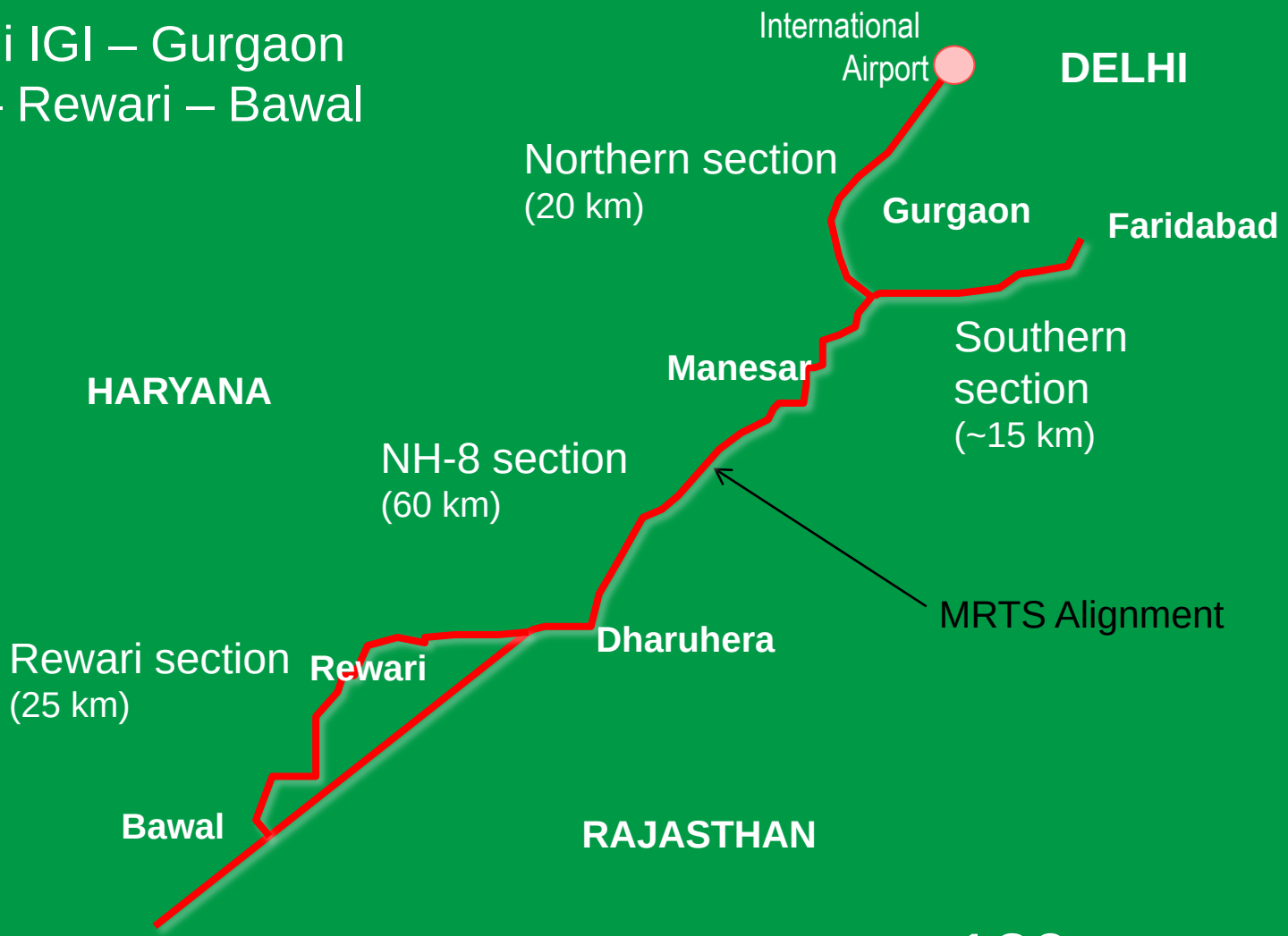
- Strategically located at intersection of National Highway 8 and DFC
- Potential to become a Regional Hub serving NCR, especially Gurgaon, Bhiwadi and DMIC Manesar-Bawal & Neemrana Investment Regions
- Capacity : >1.3mn TEUs per yr plus Automobile traffic
- Site: ~ 900 acres

Proposed Master Plan, MMLP Rewari



MRTS: Delhi IGI – Bawal

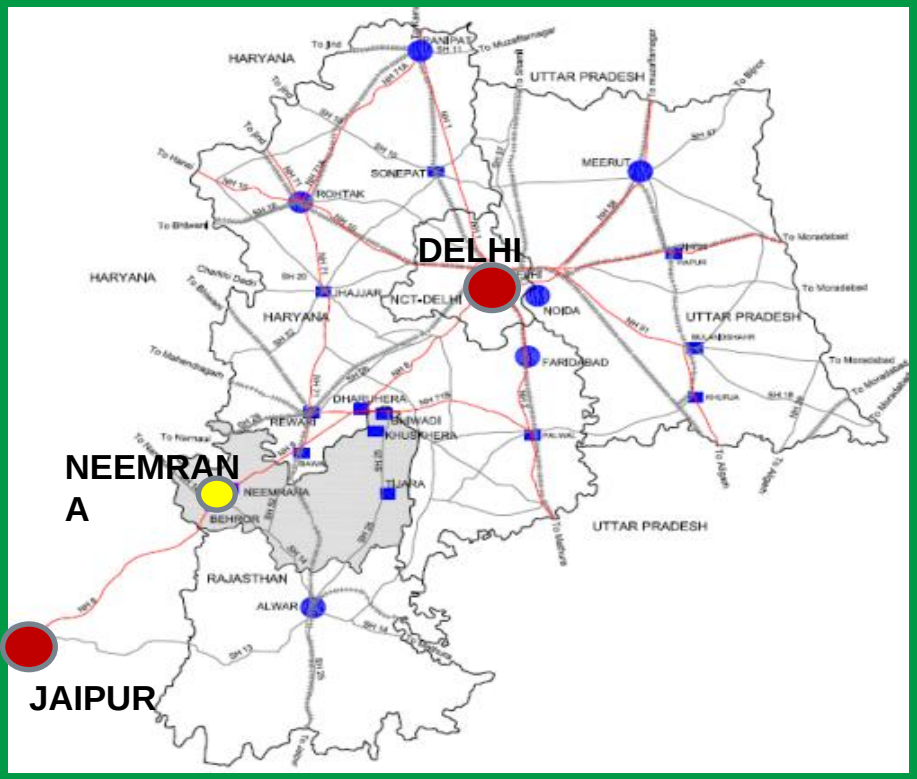
Route : Delhi IGI – Gurgaon – Manesar – Rewari – Bawal

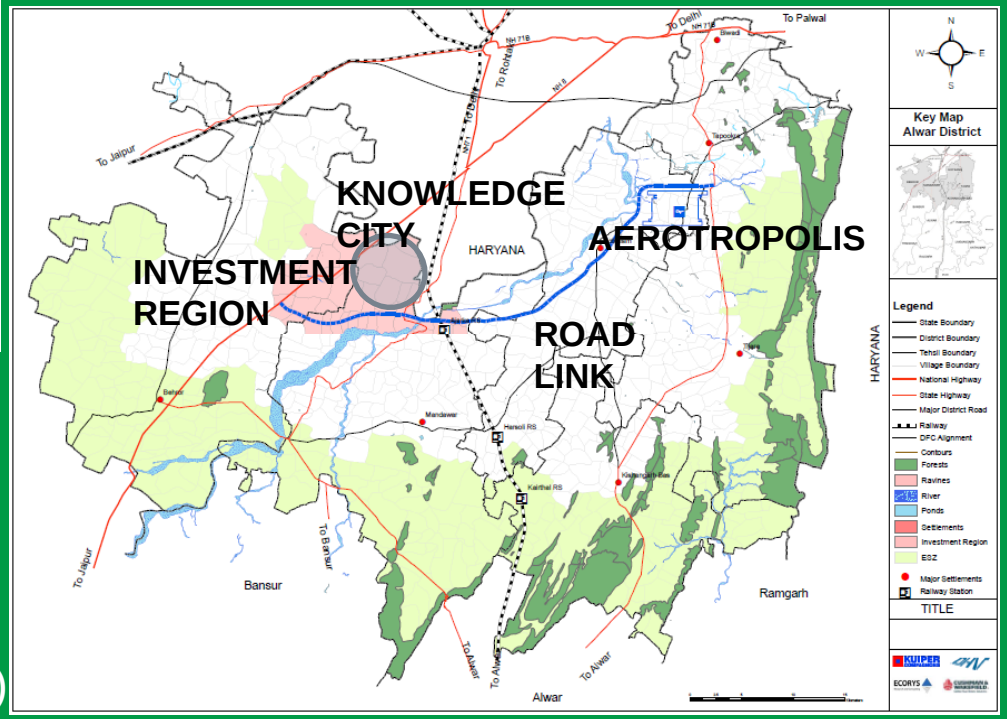


Total route length ~120km

Can be extended upto Neemrana Node in Rajasthan

Khushkhera-Bhiwadi-Neemrana IR





Early Bird Projects:

- Aerotropolis
- Knowledge city
- Neemrana - Bhiwadi Road link (50 km)

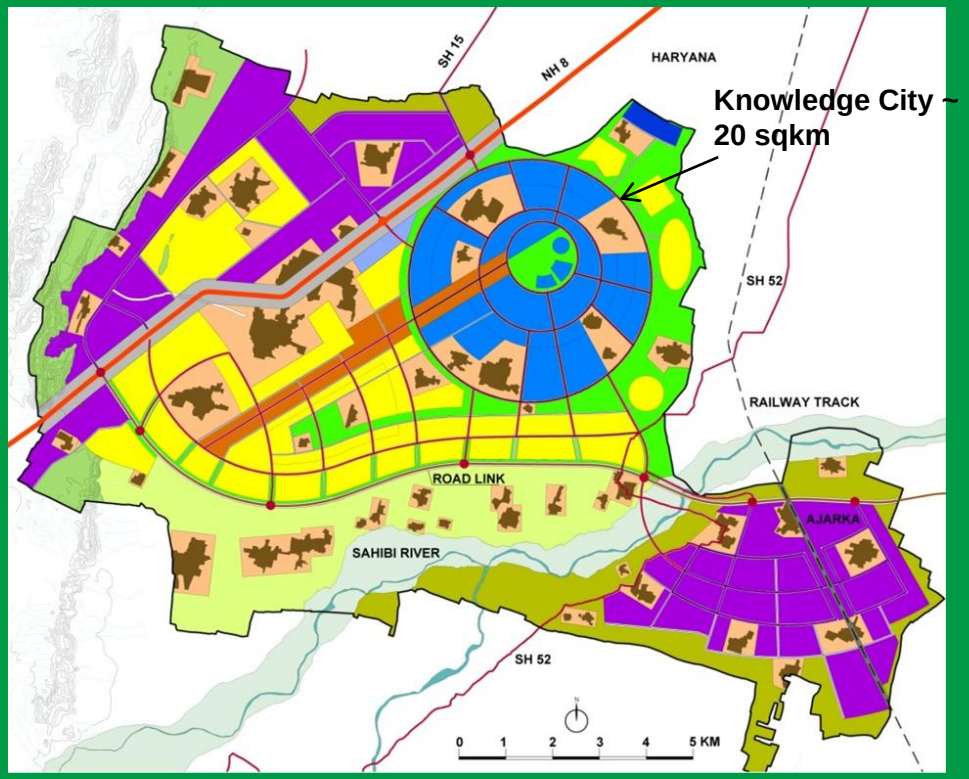
Concept Master Plan for KBN Investment Region

Area: **165**sq km
Urbanisable Area – 101 Sq.Km

Target Population: **1.3**million

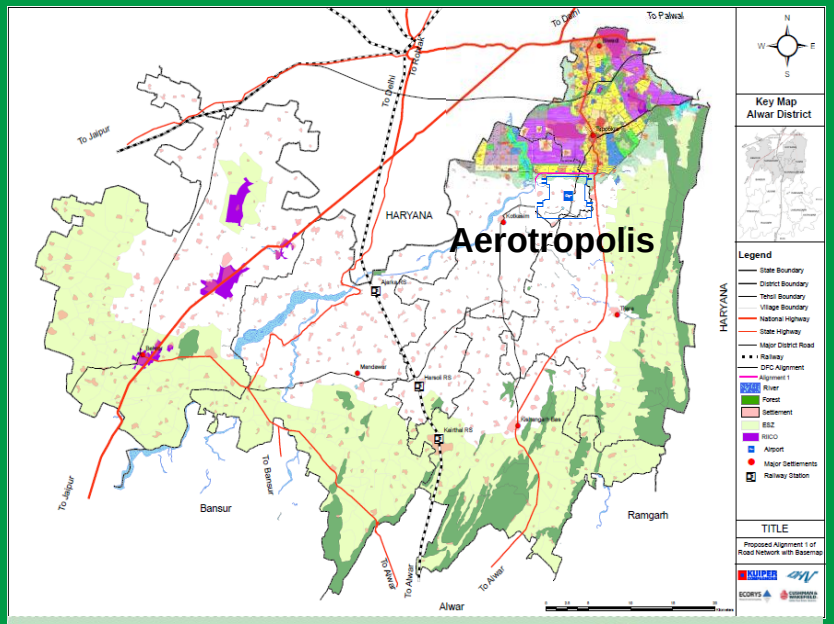
Projected Employment – 0.55mn

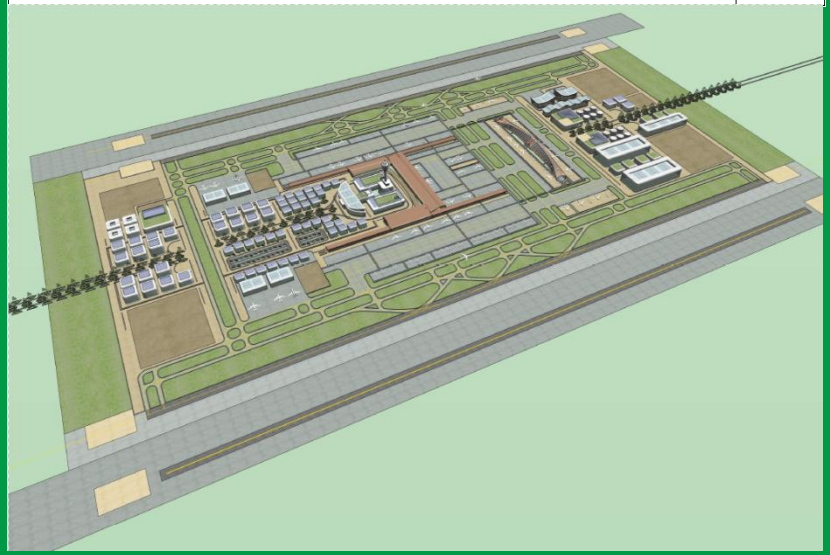
Investment Region target industries - Electronic, Automotive, Pharmaceuticals, Bio- tech and ICT



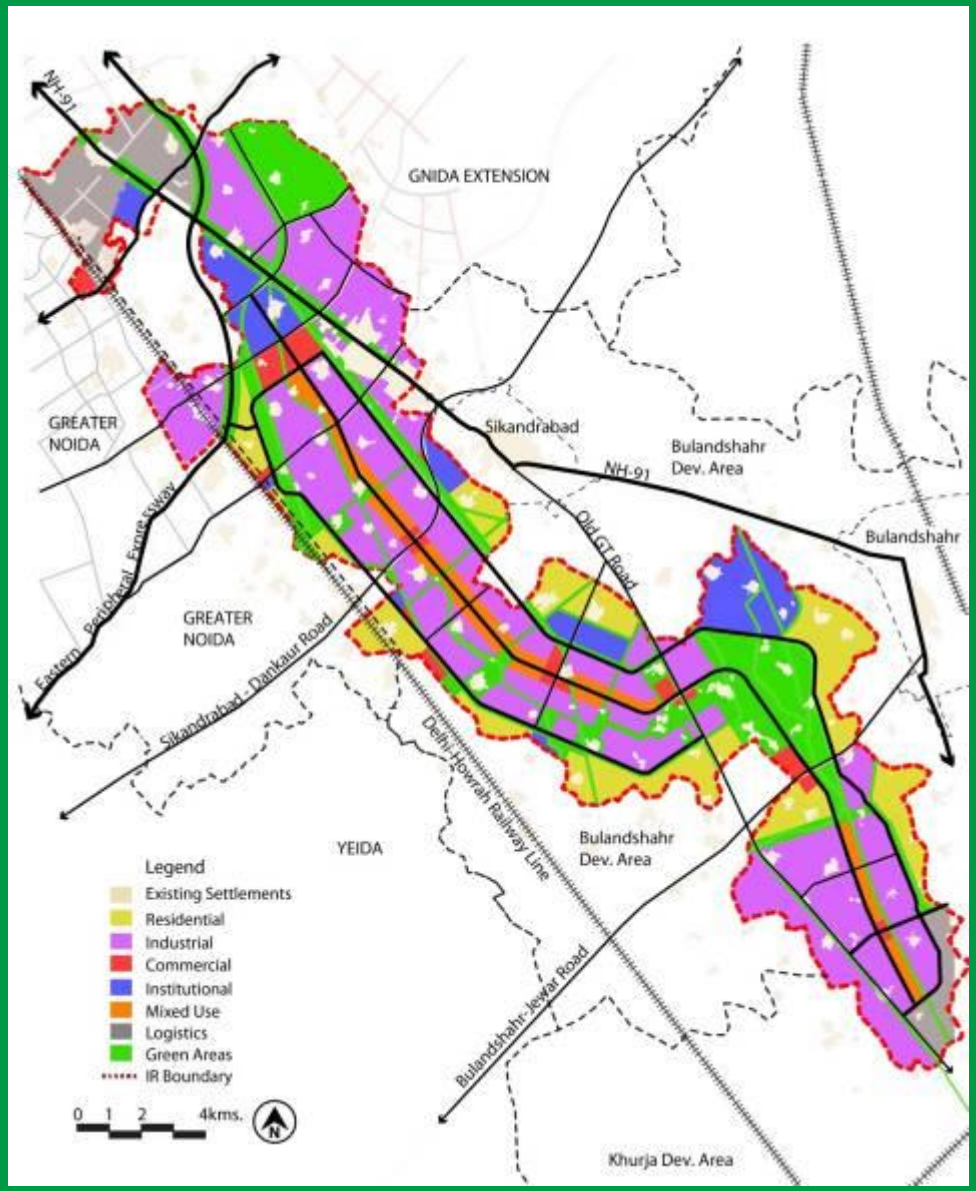
Aerotropolis

- Strategically located between Delhi and Jaipur , south of Bhiwadi Master Plan Area
- Total Area: 24 Sq.km
- Total Cost: Rs. 4000 crores
- Components:
  - Passenger & Cargo traffic handling
  - Non aviation - Business Parks, Hotels, Distribution centers etc.
  - Maintenance Repair Overhaul (MRO)
- Site & Techno-Economic Feasibility Study approved by State Govt
- NOC received from Ministry of Defence
- NOC awaited from Ministry of Civil Aviation



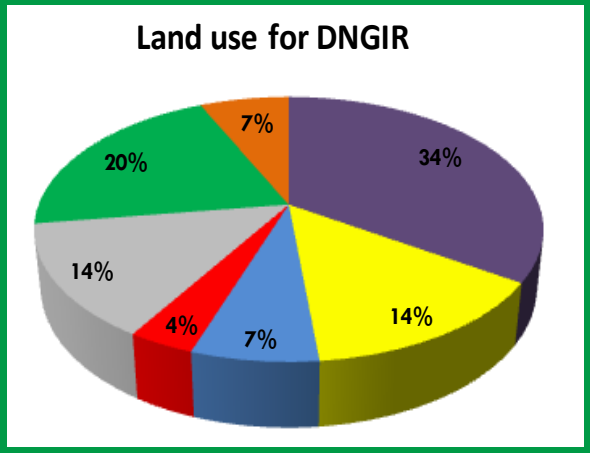


Dadri -Noida – Ghaziabad Investment Region

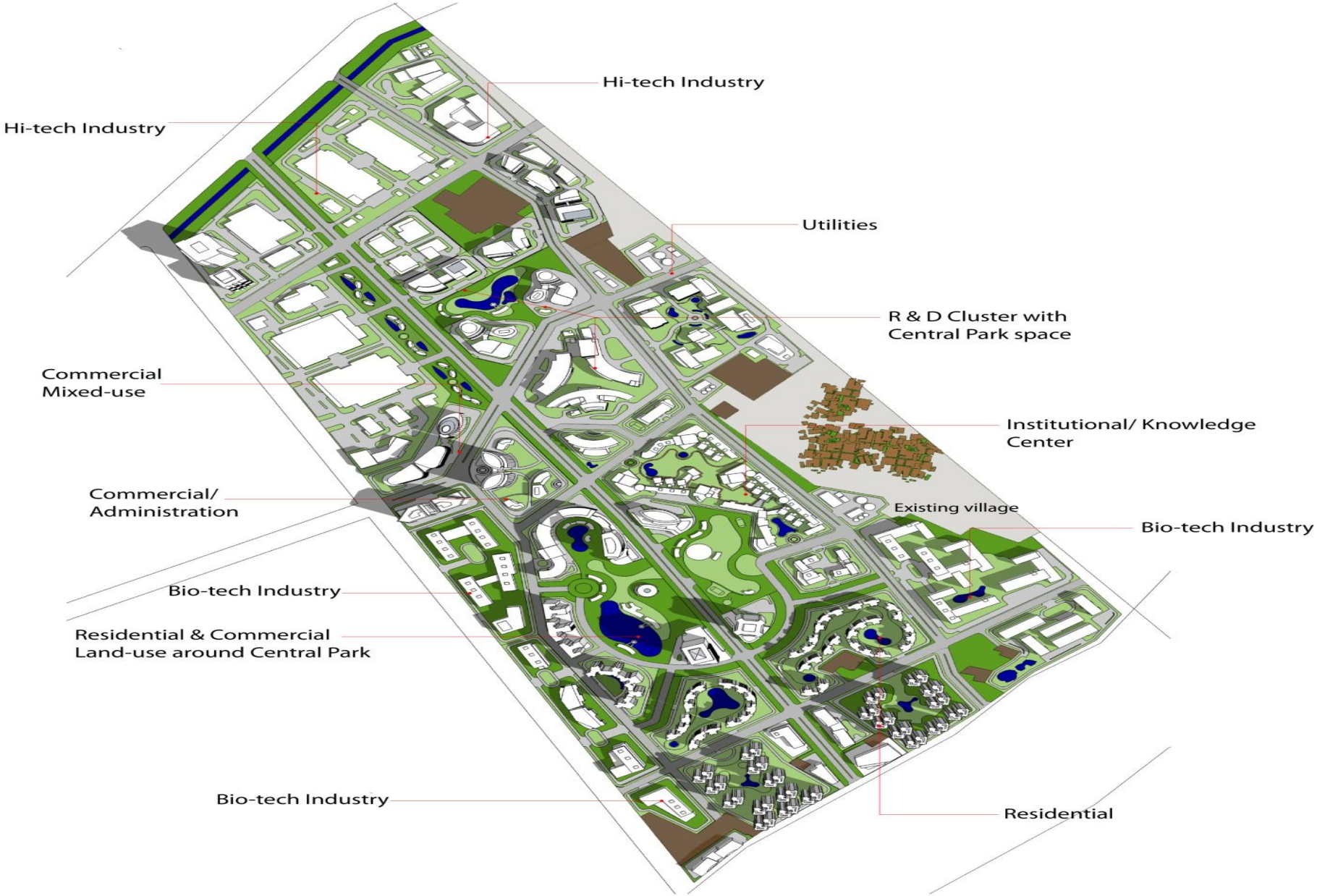


Land use for DNGIR

Sl. No	Land use	Land use achieved	% Share
1	Industrial	74.6	34.3
2	Residential	30.7	14.1
3	Institutional	14.8	6.8
4	Commercial	7.8	3.6
5	Transport	30.3	13.9
6	Greens	44.6	20.5
7	Settlements	14.8	6.8
	Total	217.50	100

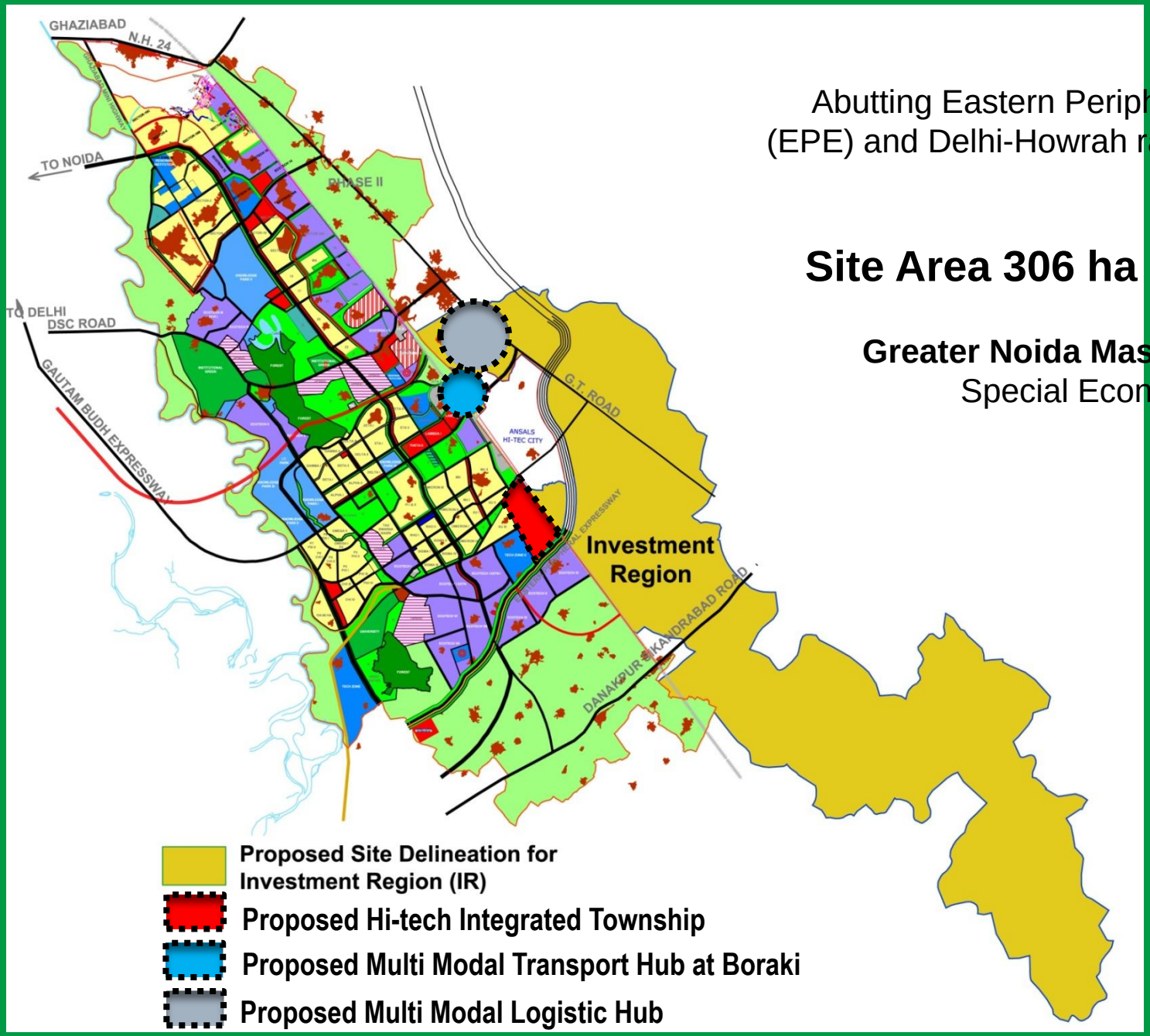


Hi Tech Integrated Industrial Township in Uttar Pradesh – Concept Master Plan



Hi Tech Integrated Industrial Township in Uttar Pradesh – Concept Master Plan

Hi Tech Integrated Industrial Township in UP – Site location



Abutting Eastern Peripheral Expressway (EPE) and Delhi-Howrah railway BG line on two sides

Site Area 306 ha or 755 acres

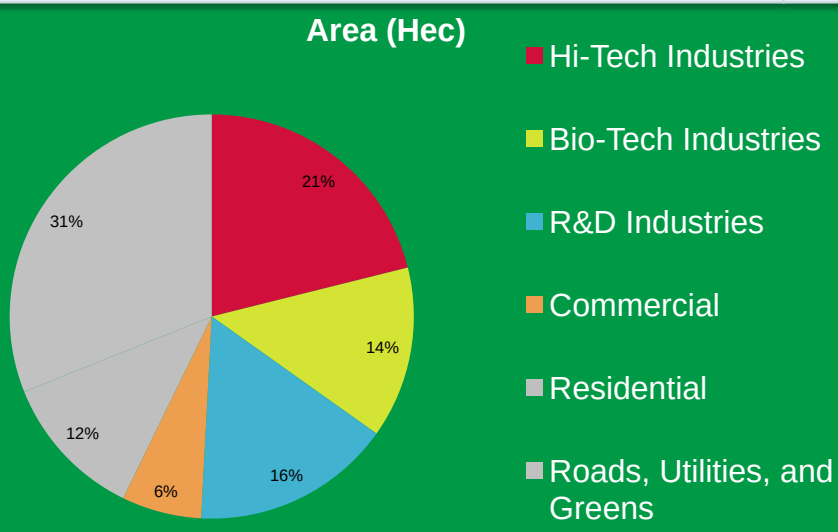
Greater Noida Master Plan sectors
Special Economic Zone (SEZ)
TechZone III
Ecotech XI A

Villages :

1. Rithori,
2. Raipur Bangar,
3. Dhabra,
4. Gohri Bachera
5. Ajaibpur
6. Maycha

Hi Tech Integrated Industrial Township in UP – Land Use Plan

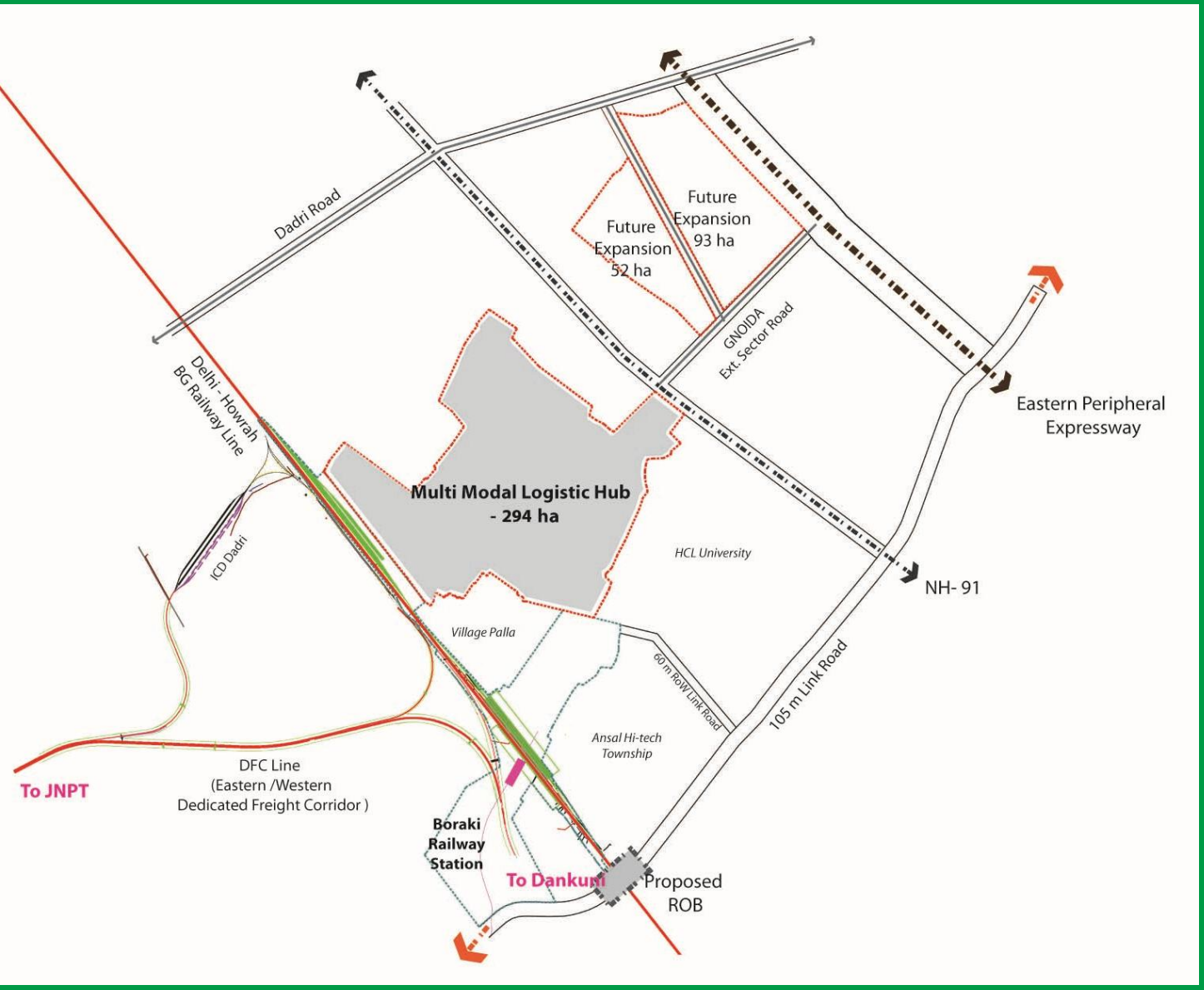
Usage	Area Utilized	Area Utilized
	Hectares	%
Hi-Tech Industries	63.8	21.1
Bio-Tech Industries	41.5	13.7
R&D Industries	48.4	16.0
Commercial	19.3	6.4
Residential	35.4	11.7
Roads, Utilities, and Greens	93.9	31.1
Total	302.4	100.0

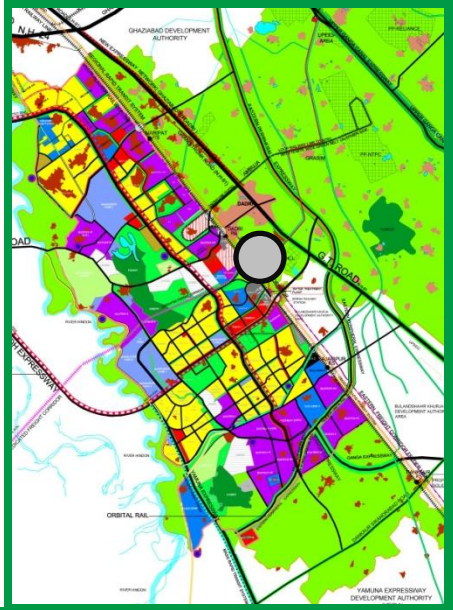


Total Residential Population - 68,000

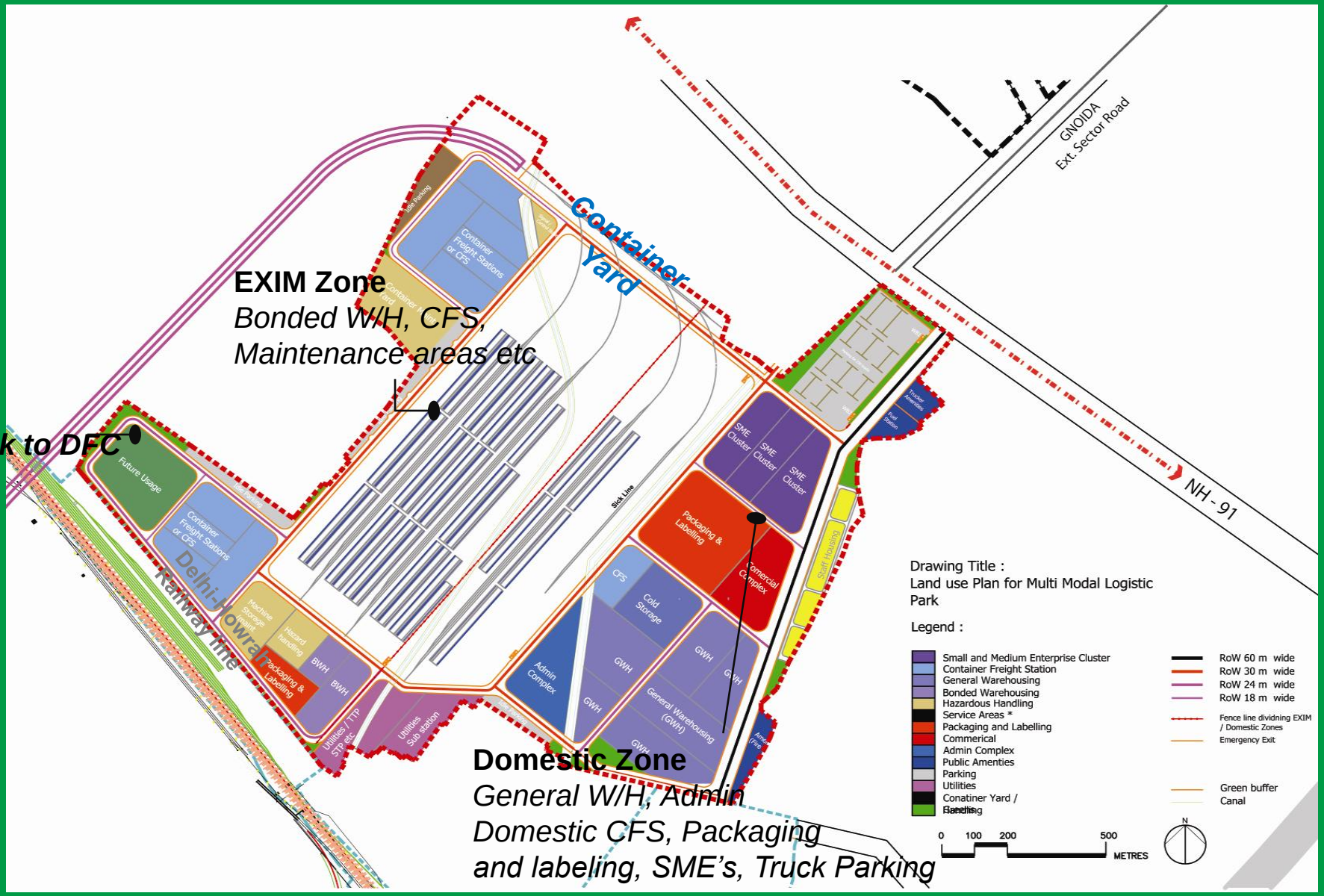
Total Industrial Employment- 58,000

Multi Modal Logistic Hub, Dadri

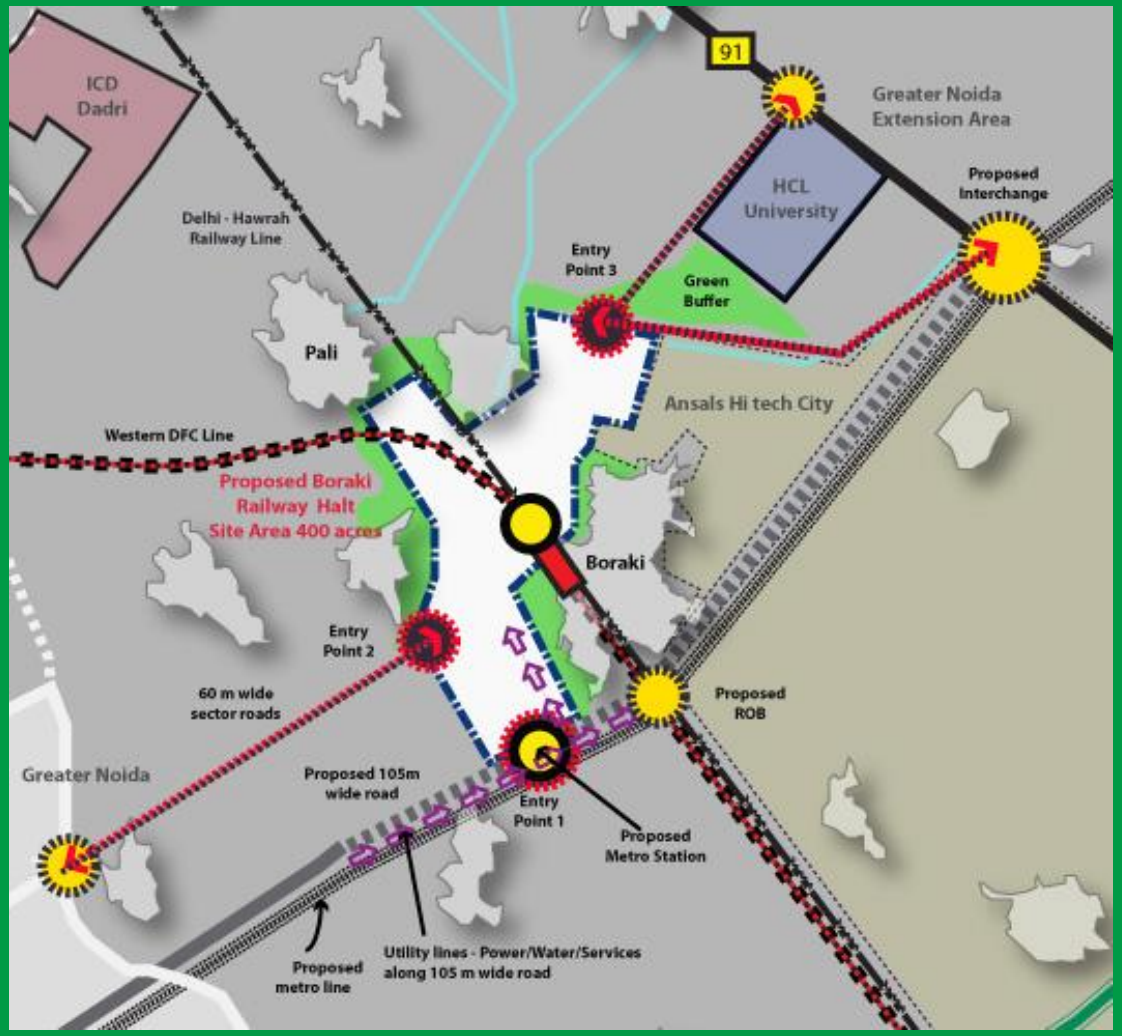




Multi Modal Logistic Hub, Dadri – Concept Plan

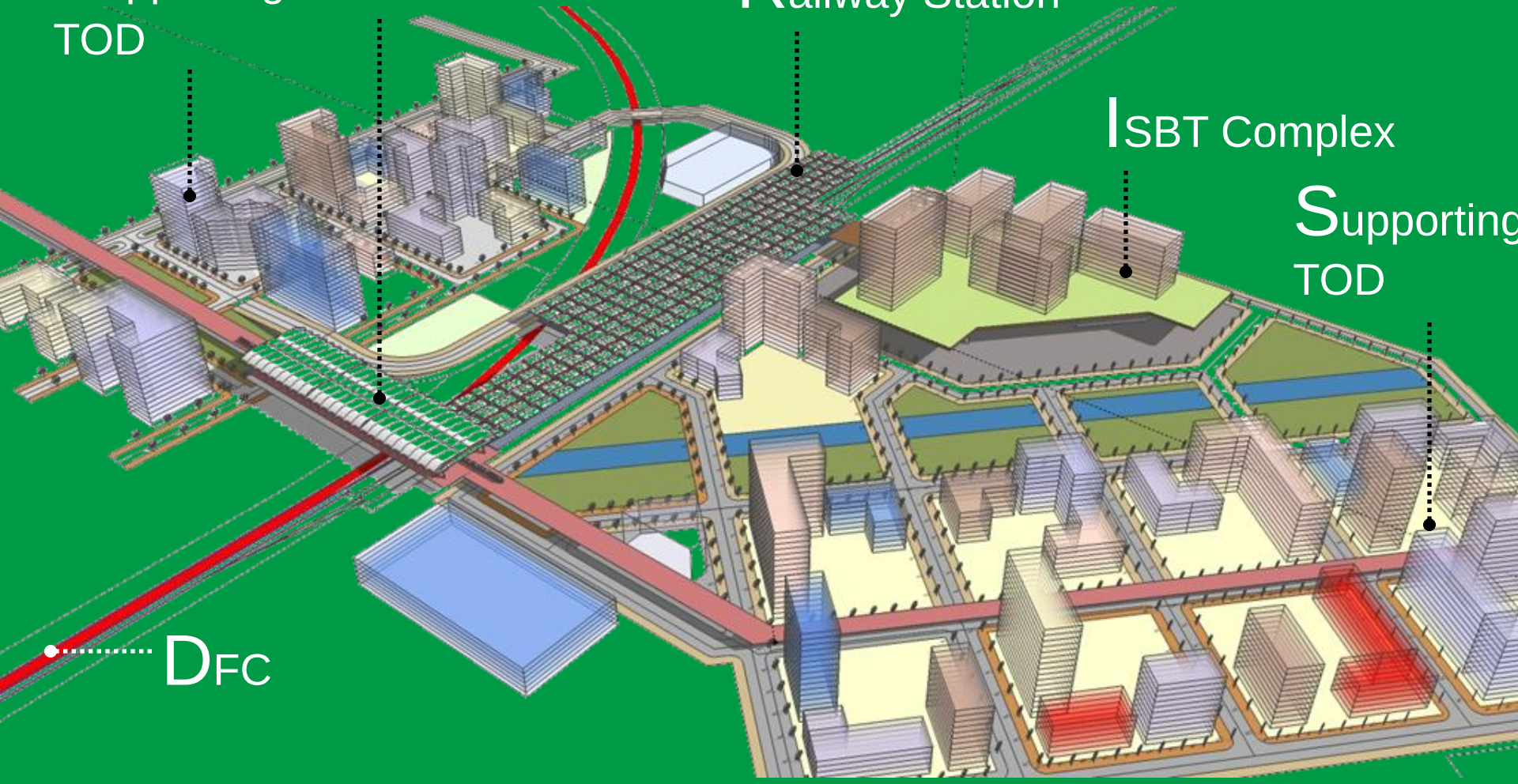


Greater Noida / Boraki Railway Station



- Conceived as a World Class Passenger Hub, integrated with ISBT and Metro
- Site:160 ha site to north and west of Boraki

Multi-Modal Transit Hub, Boraki



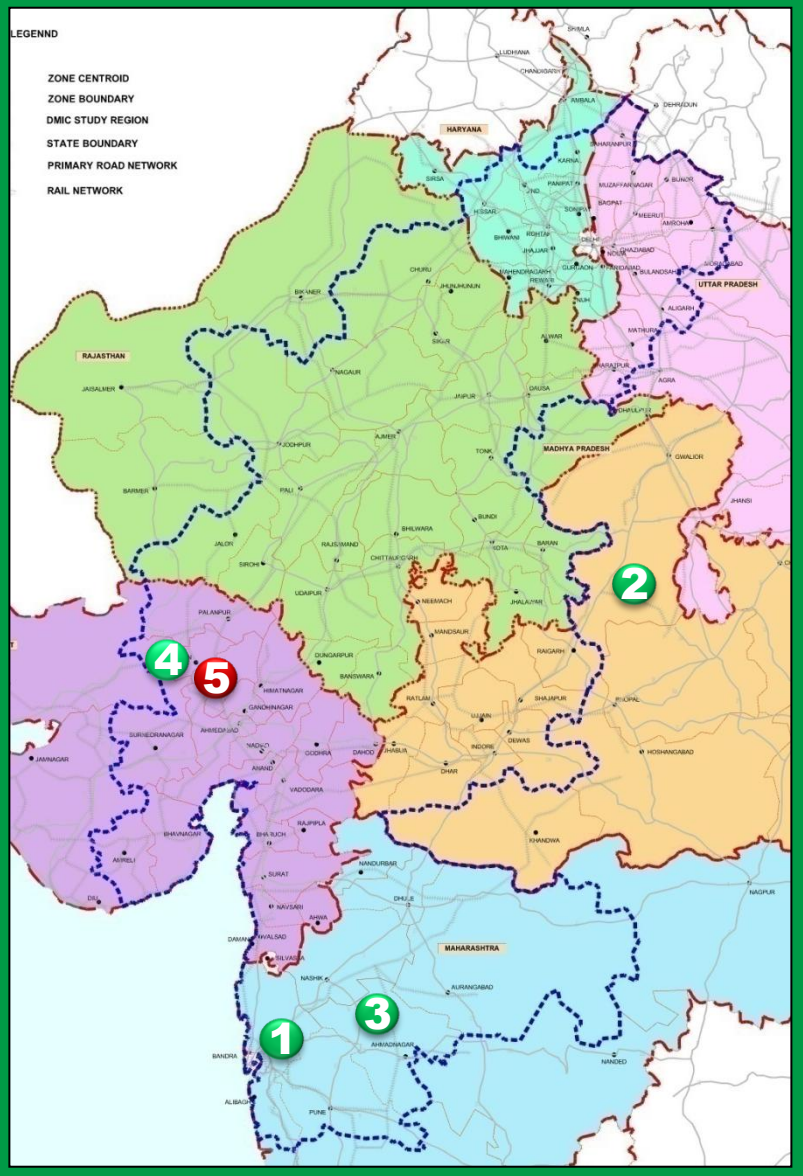
Power Plants

Gas based Power Plants

Capacity: 1000-1200 MW each.

Sites:

1. Ville Bhagad, District Raigad, Maharashtra
2. Chainpura, District Guna, Madhya Pradesh
3. Indapur, District Pune, Maharashtra
4. Vaghel, District Patan, Gujarat
5. Rajpur-Shahpur, District Mehsana, Gujarat



Smart Community Initiatives

Smarter City Solution

City Strategy
Vision, Roadmap, Planning & Innovation

City Operations
Operations, Performance Management and Decission Support

City Public Safety
Emergency Management, Crime Management and Homeland Security

City Infrastructure Services

Transportation
Road user charging, Fare mgmt, Transport info mgmt

Water
Infrastructure mgmt, Resource planning, Predictive analytics

Energy
Smart Grid, Street lighting, Electric vehicles, Renewable energy

Telecom
Broadband expansion

Buildings
Asset/Maintenance mgmt, Property performance mgmt

City Human Services

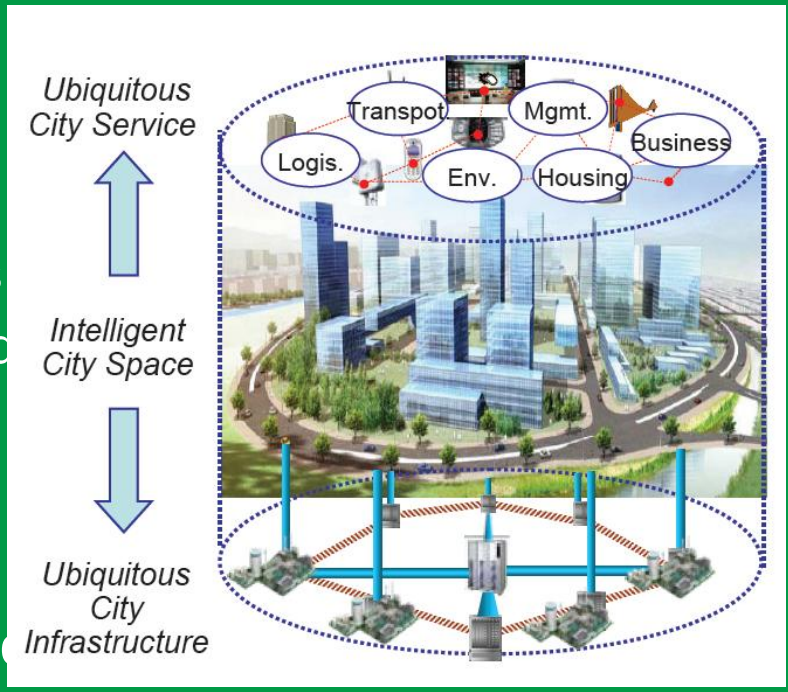
Social & Employment Services
Permits and licenses, Registries, Economic development

Health Services
eHealth, Collaborative care, Public health

Education & Recreation Services
Smarter classroom, Smart administration,
Innovation in research

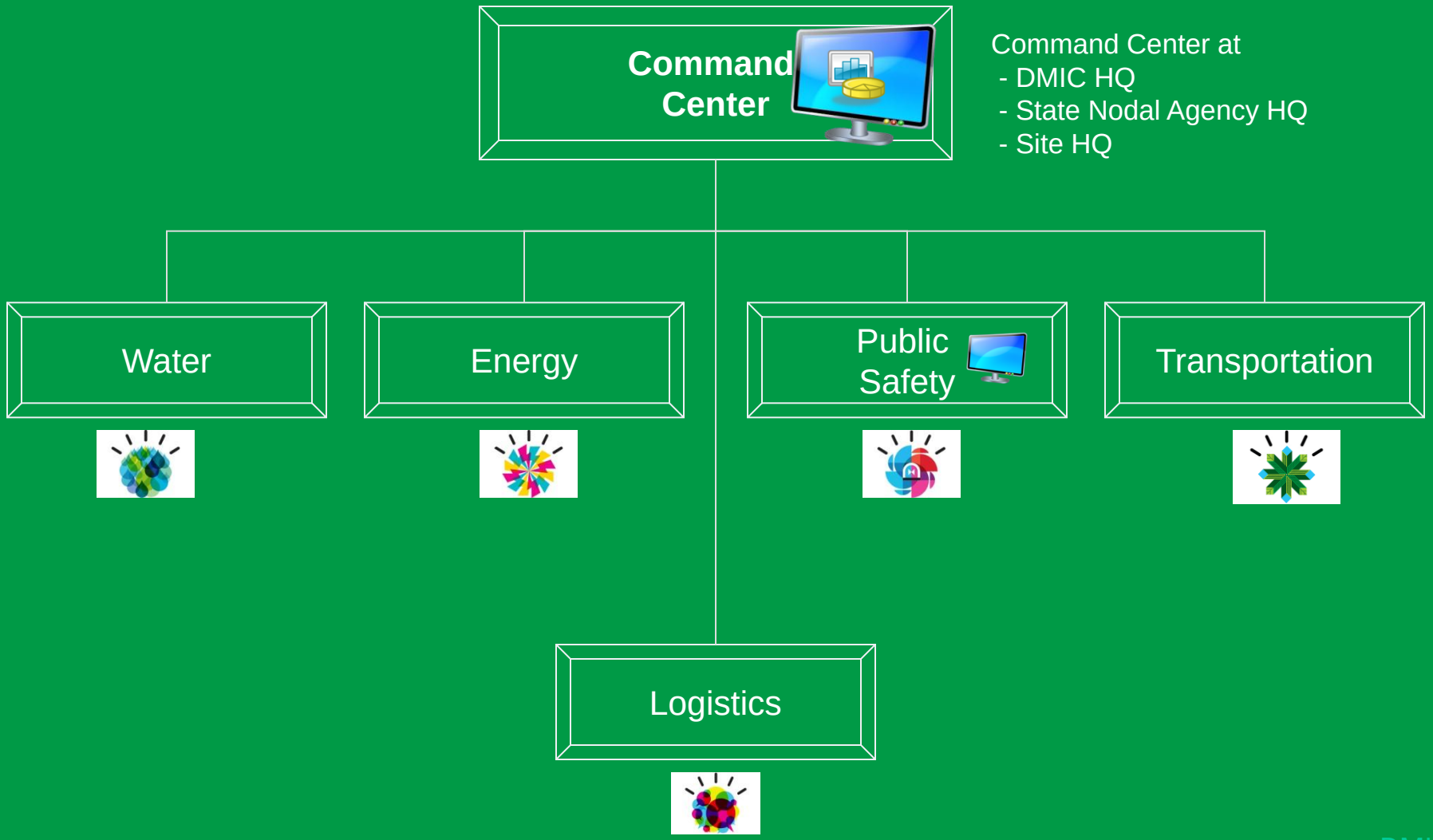
Information & Communication Technology (ICT) Master Plan

- Introducing IT in city Governance and Infrastructure Management
  - Promoting smart grid technology and smart metering
  - Provision for Fiber-to-Home Connections
  - CCTV and access control and centralized monitoring



- ICT Master Planning being undertaken f DMIC Nodes

IT Based City Operations & Governance Platform



Smart Community Projects under DMIC

Rajasthan

✓ **Neemrana**
✓ ***Hitachi***, *Itochu*
✓ Model project for micro-grid system using large-scale PV power generation and related technologies.

② ✓ **Neemrana**
✓ ***Mitsui & Co.***, *KEPCO*
✓ Efficient and stable supply of high-quality electricity in an industrial park.

Haryana

① ✓ **Manesar**
✓ ***Toshiba***
✓ Energy management system with high efficient gas cogeneration systems.

Gujarat

⑥ ✓ **Sanand**
✓ ***Mitsubishi Heavy Industries***, *Mitsubishi Co, others*
✓Smart community platform in industrial parks including water solutions, transportation and so on.

④ ✓ **Dahej**
✓ ***Hitachi***, *Hyflux, others*
✓Water desalination system & grand designing for smart community at industrial park.

⑤ ✓ **Gujarat state**
✓ ***Hitachi***
✓Power system stabilization for renewable energy introduced on a large scale.

Maharashtra

⑦ ✓ **Schendra**
✓ ***JGC corporation***, *Mitsubishi Corp, others*
✓ Smart energy & water service station for industrial & urban development.

③ ✓ **Pune**
✓ ***Mitsubishi Corporation***
✓ Gas-based IPP project with high-efficient combined cycle power producer.

⑧ ✓**DMIC states**
✓ ***NEC***
✓Constructing the smart logistics system(Logistics Data Bank).

Dahej Desalination Project

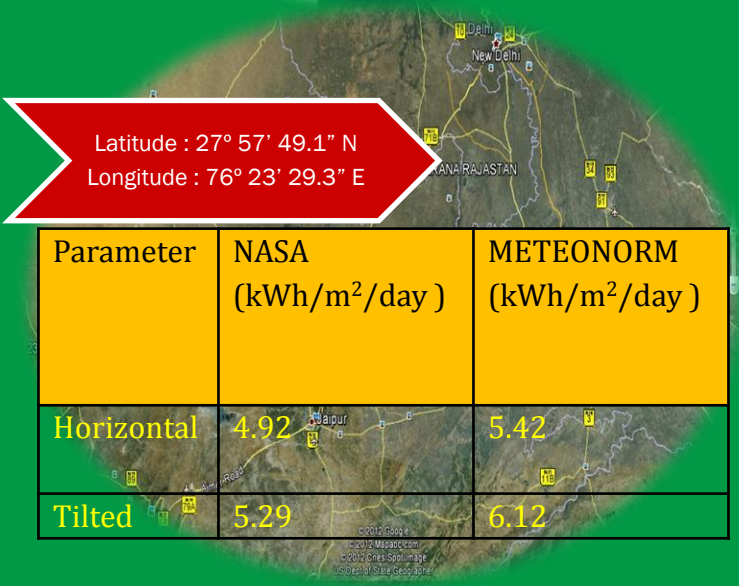
Asia's Largest Desalination Plant with the capacity of 336 MLD

Project	• Construction of a sea water reverse osmosis ("**SWRO**") desalination plant in Dahej, Gujarat.
Sponsors	• Hitachi, Hyflux and Itochu
Production Volume	• 75 million gallons per day ("**MGD**") / 336 MLD
Total Project Cost	• USD [606] Million*
Offtaker	• Dahej Special Economic Zone Ltd. ("**DSL**"), a JV of ONGC Petro Additions Ltd ("**OPaL**") and Gujarat Industrial Development Corporation
Water Purchase Agreement ("WPA")	• [30]-year WPA with DSL on 100% take or pay guarantee backed by GIDC
Tariff	• INR [37]* per cum +6.25%* p.a. Escalation + WPI on the variable costs

Indicative only

Model Solar Project-Neemrana

- MoU : New Energy & Industrial Technology Development Organization (NEDO), Ministry of New & Renewable Energy (MNRE), Ministry of Finance (MoF) and DMICDC dated April 30, 2012
- Location : Neemrana Industrial Park, Japanese Zone, Rajasthan, INDIA
- Project Scheme : 6.00 MWp Solar PV & 1.6 MW DG Power
  - 5.00 MWp Solar Power Project Feeding Power to the Commercial Grid under JNNSM scheme
  - 1.00 MWp Solar Power Project and 1.60 MW Diesel Generator Set integrated with Smart Micro Grid, Feeding Power to Industrial Consumers in Neemrana Industrial Park



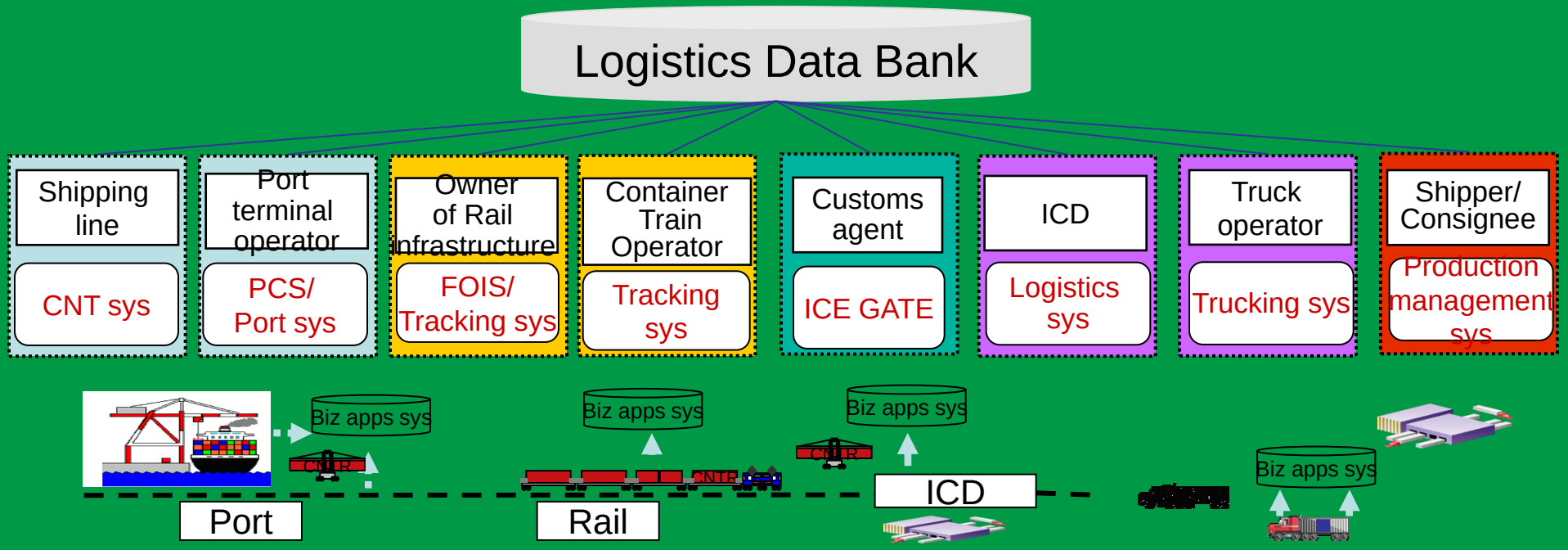
Parameter	NASA ($kWh/m^2/day$)	METEONORM ($kWh/m^2/day$)
Horizontal	4.92	5.42
Tilted	5.29	6.12

DMIC Logistics Data Bank

Aimed at improving competition, reducing transportation lead time and cost by **sharing container movement information on real time basis among all agencies in the Supply Chain using an IT based platform**.

Necessary to create an extensive database at an early stage to generate rapid changes in supply chain.

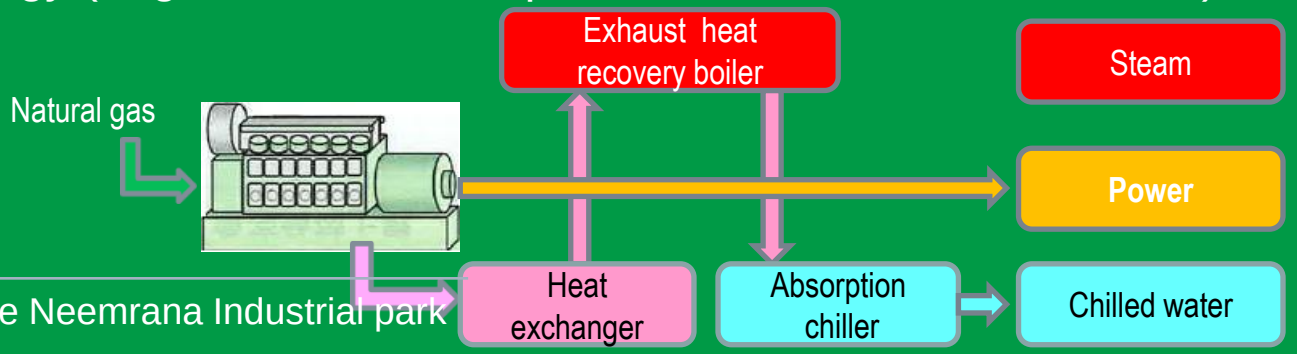
NEC working on the Pilot Project



Neemrana Gas Engine Power Supply Project

Based on advanced Japanese technology in high heat efficiency.

- Gas engine driven power station (Heat efficiency: 49%)
- Reliable supply and maintenance on continuous basis
- Tri-generation technology (to generate Electric power, Steam and Chilled water)



Site for the power plant	Phase 3, the Neemrana Industrial park
Site area	Approx. 20,240 m^2
Power generating method	Water cooling, gas burning, and internal combustion
Output of single unit	7.8 MW (at ISO 25˚C gross)
Output of 4 units	31.2 MW (as above)
Cooling method	Water-cooled/air-cooled radiator
Fuel	Natural gas
Efficiency	49.0% - among the best in the world (Standalone for Power generating.)

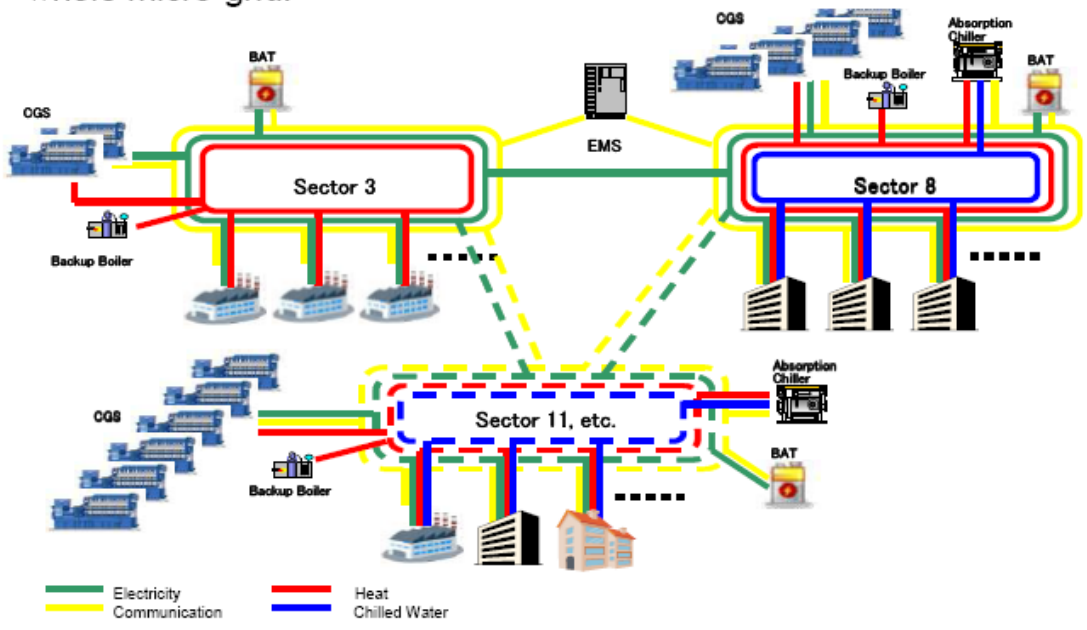
Expected Total efficiency : 81.1%
(In the case of all exhaust heat is collected with chilled water)

Total Energy Network Solution-Manesar Industrial Park

- Utilize high-efficiency Gas-cogeneration to produce electricity and heat while applying EMS and batteries for optimal control of the micro-grid.
- Reduce transmission and distribution losses.

System configuration

✓EMS control and supply the stable electricity and heat to the customers.
✓Heat is dispatched to the near customer from the each Grid.
✓Electricity is optimized and controlled in between clusters and as a whole micro-grid.



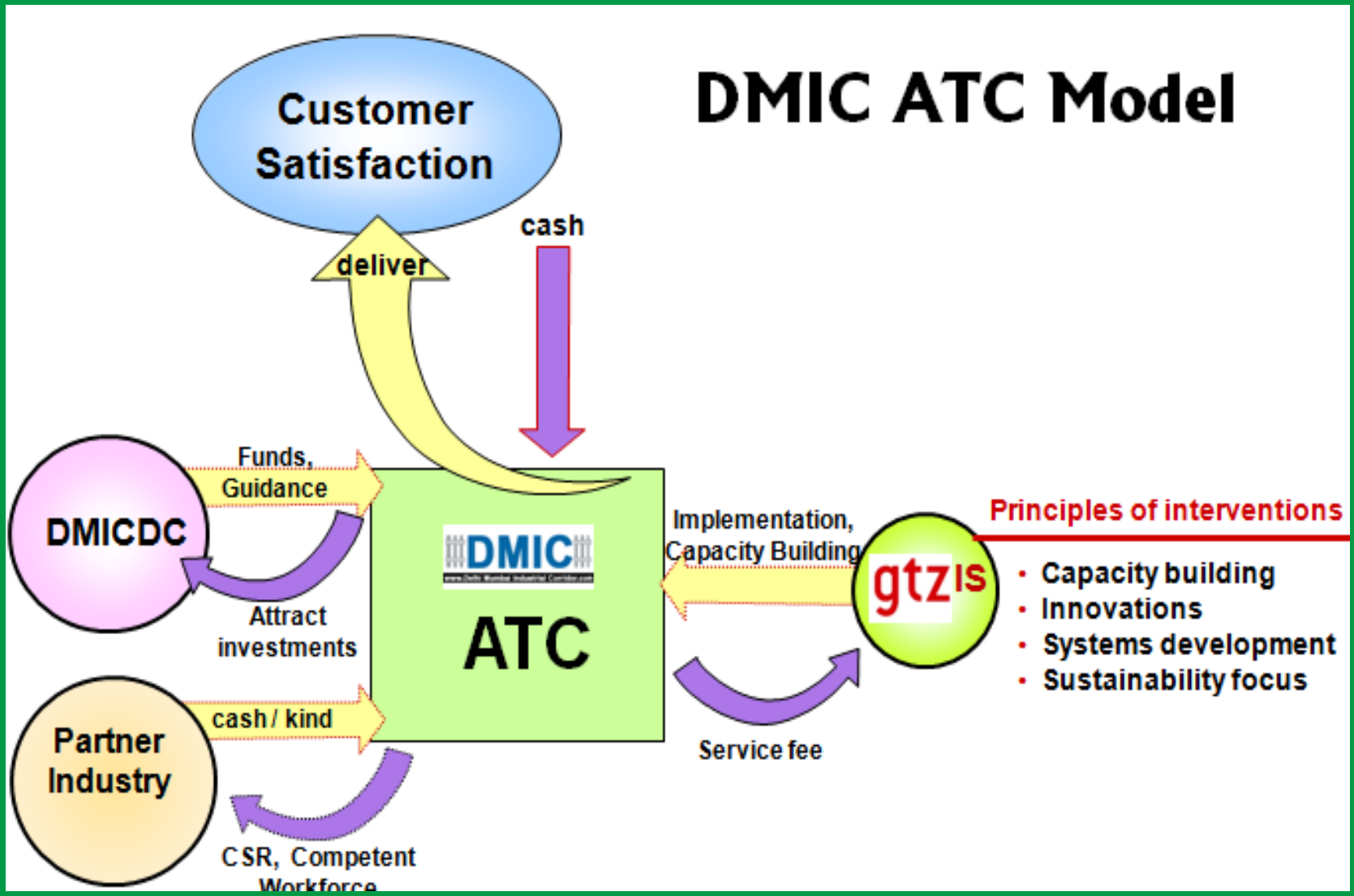
6

Electrical and Gas Demand

• Potential Implementation at IMT Manesar

- 2014: 1x10MW (Pilot): 20million scm/year
- 2015: 5x50MW : 5x100million scm/year
- Pilot by Toshiba Corporation with Tokyo Gas Co. Ltd. and Energy Advance Co. Ltd

Skill Development



Technology (Skill Gap) Matrix

Investment Region Technical Areas	Manesar-Bawal IR	Pithampur-Dhar-Mhow IR	Dholera Special IR	Dadri-Noida-Ghaziabad IR	Khushkhea-Bhiwadi-Neemrana IR	Igatpuri-Nashik-Sinnar IR
Industrial automation & Process Control	√		√	√	√	
Design and Manufacturing	√	√		√	√	√
Automobile mechatronics	√	√		√		√
Hydraulics & pneumatic control	√		√	√	√	√
Electrical & Mechanical Maint.	√	√	√	√	√	√
Networking & Information Technology	√	√			√	√
Infrastructure and construction technology	√	√	√	√	√	√
Welding and fabrication	√	√	√	√	√	√
Garments- design and construction	√	√	√			
Food processing	√	√	√	√	√	√
Chemical and Pharma		√				
Environmental engineering	√		√			
Testing and Calibration	√	√	√	√	√	√
Soft Skills	√	√	√	√	√	√

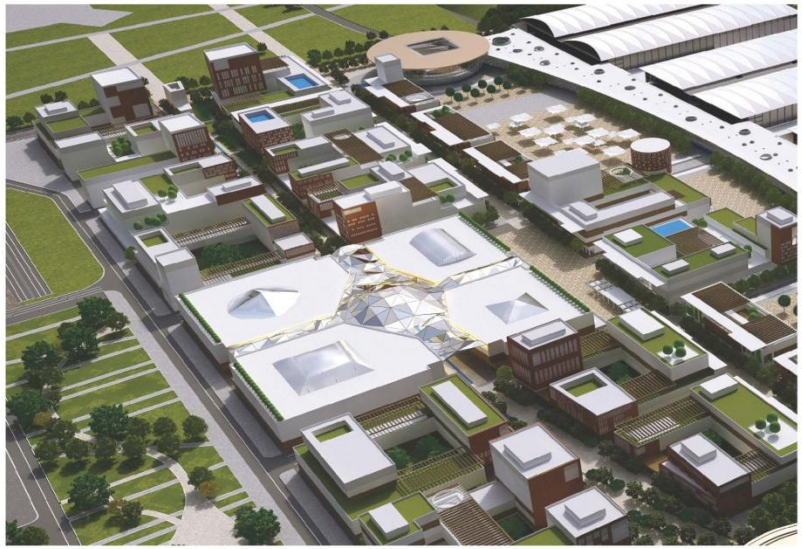
Exhibition cum Convention Centre at Dwarka, New Delhi

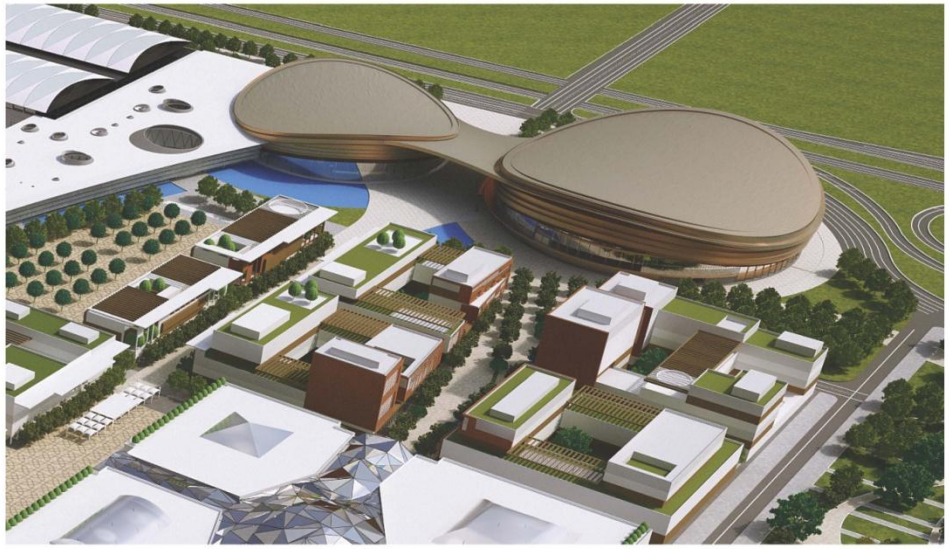
Vision

'A world class place representative of ***Global Innovation*** *and celebrates an* ***Indian Identity'.***

An iconic development for post-Independence India. An exemplar setting for culture, congregation / events, institutions, retail, logistics and leisure.

A Place which is ***Memorable, Flexible and Vibrant***

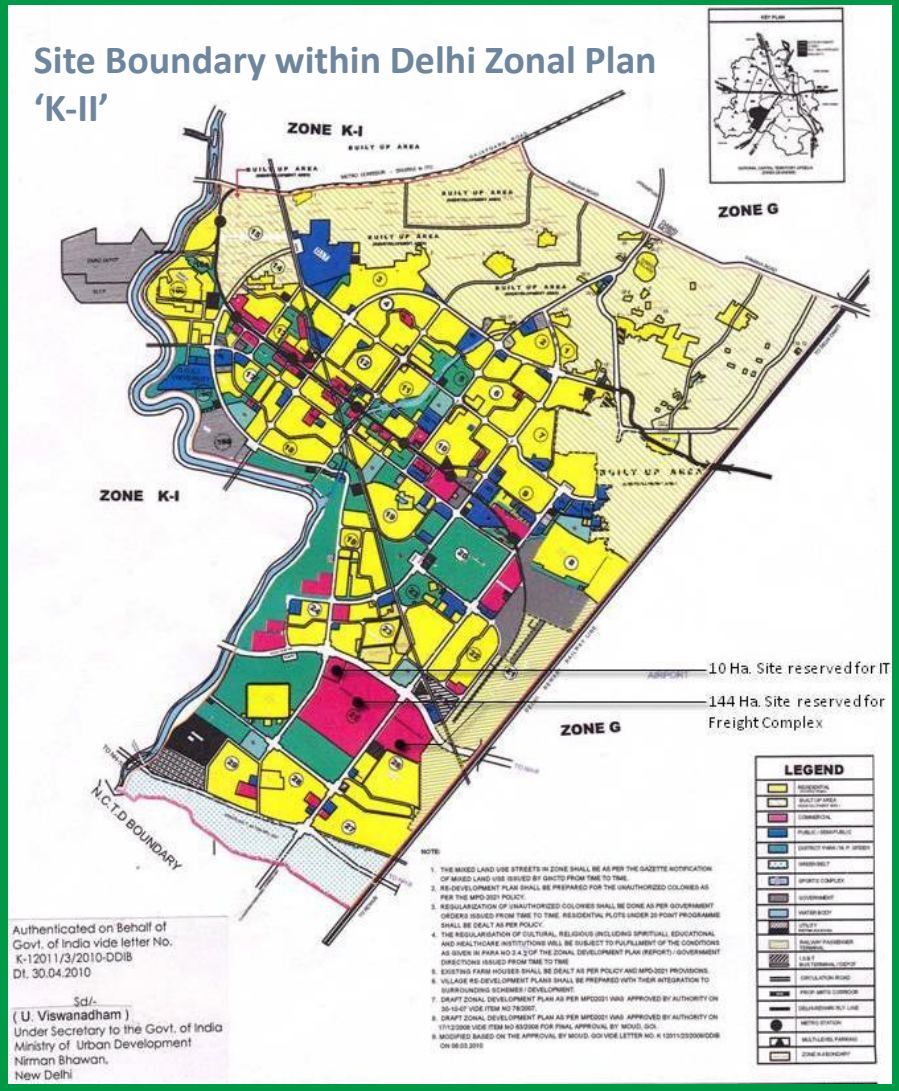




Dwarka ECC

Proposed Site - Sector 25, 26 Dwarka

Site Boundary within Delhi Zonal Plan 'K-II'



Site Boundary as Delhi Zonal Plan 'K-II'

Proposed Landuse (DMP-2021)

Commercial Warehousing (IFC) - Ha	144
Commercial (IT)-	10 Ha.
TOTAL	154 Ha.

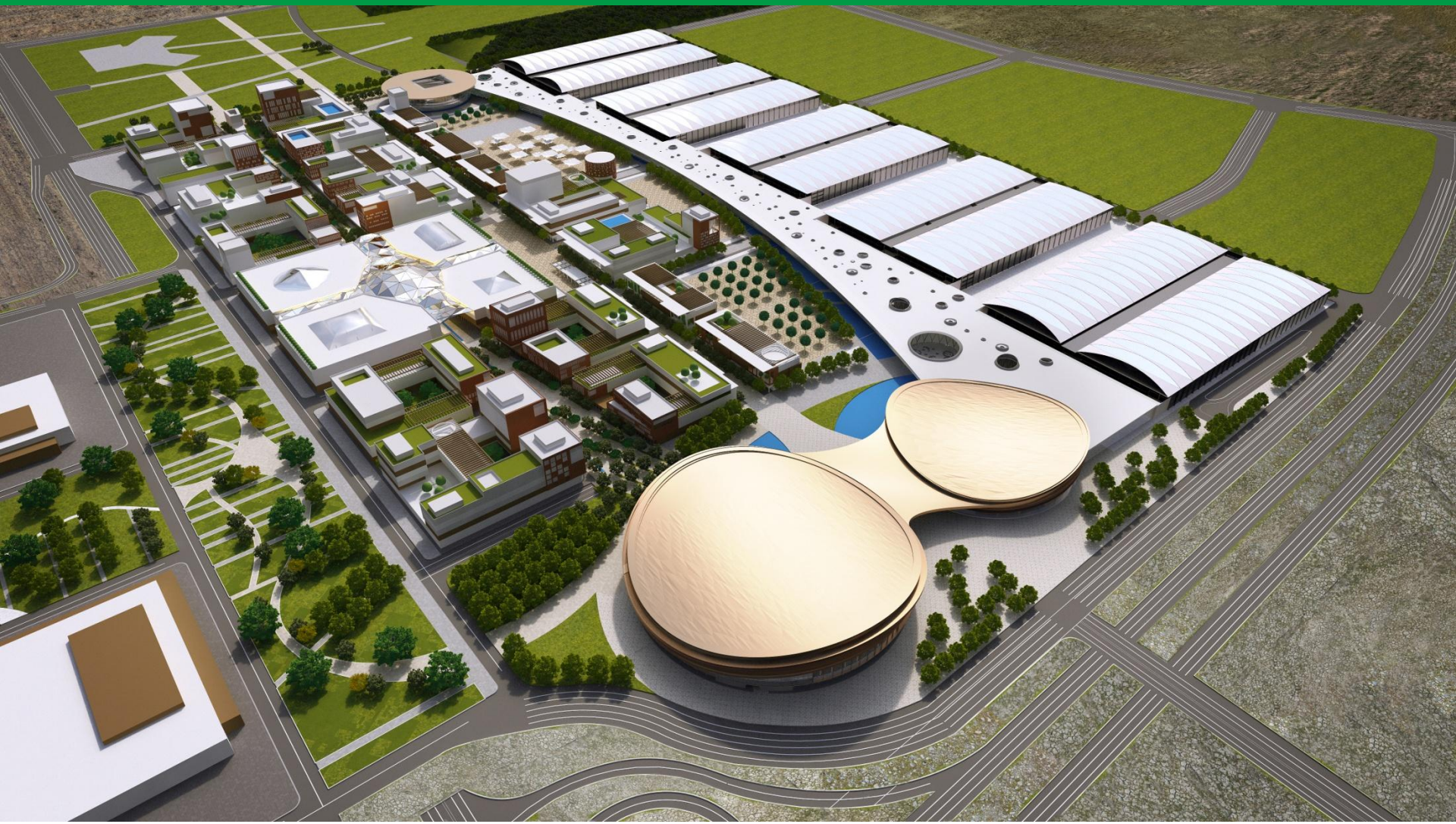
ECC & IFC at Dwarka- Concept Plan

Total Site Area- 154 Ha

- **Exhibition halls** – 2 million square feet
- **Convention centre**- 6000 fixed seating capacity
- **Multi-purpose Arena**- 18,000 capacity
- **3500 hotel keys**- 4-5 star, business hotels, service apartments
- **Commercial office space**
- **Multi-level parking**
- **Green open space**
- **IFC –** to be developed as Air Cargo Complex

Dwarka ECC

Overall View from North-East



Dwarka ECC

Aerial view from North-East

Dwarka ECC

Aerial view from South-East

Dwarka ECC

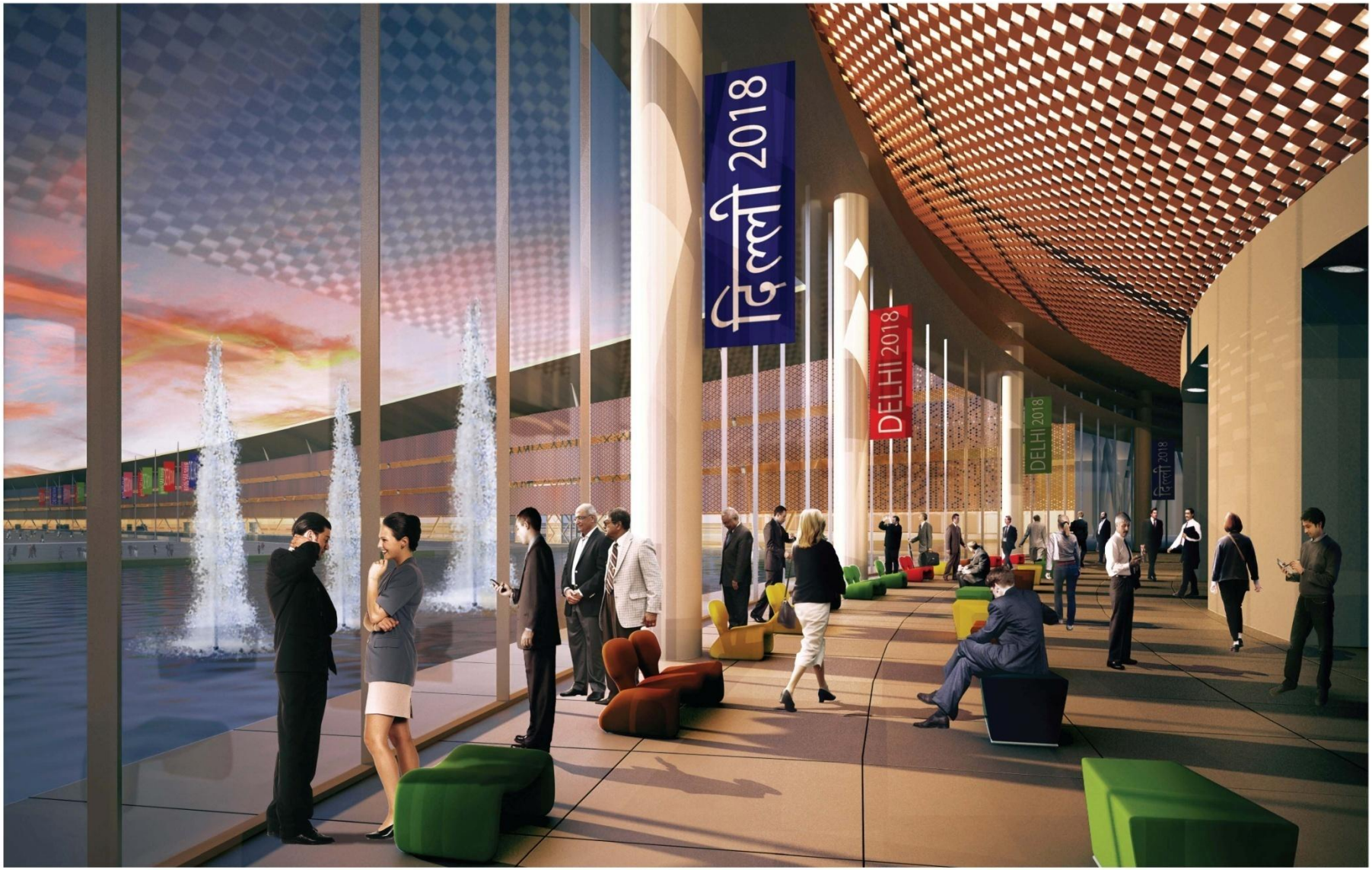
Overall View from South-East

Dwarka ECC

Aerial view from South-East

Dwarka ECC

Grand Foyer: exterior view



Dwarka ECC

Conference Centre Foyer

1 Exhibition 2 Grand Foyer 3 Conference 4 Arena 5 Outside Exhibition 6 Museum 7 Mixed-Use 8 IFC

Dwarka ECC

Concept Masterplan

ECC & IFC at Dwarka

- Integrated complex consisting of
  - Exhibition –cum-Convention Centre,
  - International Freight Complex / Air Cargo Complex
  - 5 star hotels, commercial office & retail space, food & entertainment, multi-level parking, metro/monorail terminal, green open space

- 154 hectares located at Sector 25,26 of Dwarka sub-city
  - 113 hectares for ECC
  - 41 hectares for IFC / ACC

- Maximum permissible built up area of 1.3 million square meters
  - **ECC**-9,70,000 square meters
  - **IFC**- 3,32,000 square meters

PPP able and Non PPPable Infrastructure Projects

External Infrastructure Projects

- Power supply & distribution
- Water supply & distribution
- Railways
- Airports
- Highways
- MRTS
- Logistics Parks

Suitable for implementation through PPP

Internal Infrastructure Projects

- Land improvement
- Road works
- Earthworks
- Sewerage
- Storm water drainage
- Flood management
- Solid waste management

- Landscaping & signage
- Street lighting
- Building works
- Telecommunications
- Gas grid
- Captive power plant
- Renewable energy plant
- Light Rail Transport

Suitable for implementation through PPP

Institutional & Financing Structure approved by the Cabinet

GoI Capital Grant, leveraged through Infra Bonds, Multilaterals

GOI Grant will be Revolving in nature to enable development of more cities

DMIC Apex Authority at GoI (chaired by FM)

State Apex Authority (Chaired by CM)

The Fund will be set up as a Trust, administered by a **Board of Trustees.** It will be chaired by Secretary, DEA and will comprise Secretary, DIPP, FA (DIPP), representatives of Dept. of Expenditure, Planning Commission, and CEO & MD, DMICDC, who will also be the CEO of the Fund/Trust.

DMIC Project Implementation Revolving Fund

State Govt.

Equity

Fund will contribute Debt & Equity to SPVS on a case to case basis after investment proposals submitted by DMICDC are appraised, approved and sanctioned by the Board of Trustees.

DMICDC (Knowledge Partner to the Fund)

Board of Trustees

Land

Debt

DMIC Investment Node Nodal/ City Level SPV

Debt Service

Equity / Debt

Equity / Debt

GOI funding to SPV to be utilised for Non-PPP projects

- **Logistics Holding Co**
  - SPV 1
  - SPV 2
  - SPV 3
- **Power Holding Co.**
  - SPV 1
  - SPV 2
  - SPV 3
- **Water Holding Co.**
  - SPV 1
  - SPV 2
  - SPV 3
- **Transport Holding Co.**
  - SPV 1
  - SPV 2
  - SPV 3

Individual Project SPVs
- Infra SPV
- Infra SPV
- Infra SPV

PPP-able Infra Projects
- Infra Project SPV
- Infra Project SPV
- Infra Project SPV

Non PPPable Projects

Concessions to be granted by the Nodal/ City Level SPV (for internal infra) and State Govt. (for external infra)

Opportunities for various players

Opportunities across the value chain…1/2

PPP

- The policy and regulatory frameworks (concession agreements) are well established
- Substantial scale-up in the last 5 years which has created opportunities for various companies to venture as “Project Developers’”

Contractors/ Consultants

- Business Opportunities from implementing agencies who will sub contract construction
- Skilled manpower and sophisticated construction technology available
- Mega projects like Delhi Metro, Highway, airports, ports projects have already showcased business opportunities for contractors

O&M Operators

- Emerging area of opportunity and has few players
- Going forward, the sectors will require equipments, systems and software

Opportunities across the value chain…2/2

Equipment Suppliers

- Consistent demand of equipment due to mega infrastructure development across sectors
- Huge business potential for overseas players to enter the market

Rolling Stock Suppliers

- Increasing demand for various types of passenger & freight rolling stock
- Current domestic capacity caters half the demand and hence increasing imports
- Attractive opportunity exists for private players

Financing

- Various Financial Institutions and PE firms have already entered into the development area, incl. several Japanese banks
- Attractive opportunity exists for FIs, PE firms, private investors

Thank You