MAHATRANSCO
Maharashtra State Electricity Transmission Co. Ltd.

MSCTCL & MSRDC

Smart city Centric Projects

SMART CITY CONCEPT ELEMENTS

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1. ENERGY –(Renewable energies, Energy grid, Energy storage, New regulations, Business models, Zero carbon, Climate change, Efficiency, Energy management)
2. Technology and Innovation –(Integration, City Platform, Sensors, IOT, Cloud, Bid data, Apps, Visualization, Geo Information)
3. Smart Society and Collaborative City – New Citizen Services, Social innovation, Participation Engagement, Entrepreneurship, Urban regeneration
4. Governance & Economy –PPP, Smart Funding, Open Government, New Governance, Open Data Economic Development
5. Sustainable Built Environment – Livable cities, Smart Growth, Green Building, Waste Management, Product Cycle, Urban redevelopment
6. Mobility – Intelligent Transport systems, Mobility on Demand, sharing services, Alternative Energy Sources
7. City Resilience & Security - Resilience strategies, City rooms, Security & emergencies

SMART CITY CENTRIC PROJECTS

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- Potential impacts of smartness- planning, execution and management of cities
  - Planning for sustainability: Efficient allocation and management of land and resources; Integration and agglomeration of data to create meaningful information; Detection of waste, inefficiency and theft; Securing environment assets and mitigating damages
  - Efficient management of urban system and networks: Optimising land use and spatial planning; Managing energy; Managing traffic and transportation; Managing water supply, sewerage and sanitation
  - Public finance management: Public Accounting and Property Tax collection; Computation and collection of user charges; Easing Property Titling by Computerization of Property Title records; Efficient and timely approvals of sanction; Land use conversion

SMART CITY CENTRIC PROJECTS

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- Potential impacts of smartness- planning, execution and management of cities.
  - Public portfolio management: Built assets management; Efficient operation of installed infrastructure; Creating hubs and hotspots of urban activity to trigger growth; Monetizing the data that is created during the process of urban development and management
  - Efficient delivery of public services: Policing and surveillance of public space for safe cities; Ensuring timely delivery and access for public healthcare; Streamlining logistics operations; Efficient monitoring of public access to services and amenities
  - Disaster management: Command and control centres for smart response to hazards; Provision of emergency services; Automated response systems; Alert, coordination, and evacuation systems
  - Citizen outreach: Linking people with livelihoods; Participative decision-making; E-governance; Transparent management of Public Private Partnerships

SMART CITY CENTRIC PROJECTS

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RECOMMENDATIONS

1. A number of favorable conditions exist for development of smart cities in India. There is wider acceptance of the need to leap frog sustainable urban development in India using smart applications of information and communications technology. The digitization of public archives and records and the generation of live data are progressing rapidly.
2. Indian states and cities need to appoint Technology officers on urgent basis. Madya pradesh has already made provision and have a smart city program supported by DFID
3. NIUA has been approached by one of the companies that was shortlisted for the Innovation award at smart city expo, Zenith City based in Chicago to join Hand to do R&D towards deploying their **'5D Smart City' platform**

SMART CITY CENTRIC PROJECTS

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- NIUA RECOMMENDATIONS
  - Integrating different data bases (Numerical and Geo Spatial)
  - Identifying "Sensing' needs (security and safety) and Technology
  - Measuring the impact and Potential of social media to inform Governance
  - Modelling performance of all networks (utilities, mobility and space)
  - Mapping and analysis of mobility and Travel behaviour in all major cities
  - Modelling Urban land use and combine the analytics with different variable like transport and economic performance of business districts
  - Modelling of urban transactions in labour and housing markets
  - Smart support for decision making (Urban intelligence),participatory planning and Governance.

SMART CITY CENTRIC PROJECTS

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Agencies coordinated efforts for conclusive results

1. In India NIUA work with TIFAC (Technology Information Forecasting and Assessment Council, ISRO and NIC , GOI, state govt respective departments and concerned Local self government body like Local City Govt

2. One of the key aspects is to explore how the PURA model could become a smart approach to peri-urban census towns
3. Modelling for emerging cities at the commencement stage itself, so that it can have long-term and sustained impact

POTENTIAL IMPACTS OF SMARTNESS

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- Achieving sustainability
- Efficient allocation and management of land and resources
- Integration and agglomeration of data to create meaningful information
- Detection of waste, inefficiency and theft
- Connecting citizens and functionaries
- Efficient management of urban systems and networks:
- Optimum Land use and spatial planning
- Energy

POTENTIAL IMPACTS OF SMARTNESS

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- Traffic & Transportation
- Water supply, sewerage and sanitation
- Environment
- Public portfolio management:
- Built assets
- Installed infrastructure
- Hubs and hotspots
- Monetization of Data

POTENTIAL IMPACTS OF SMARTNESS

MAHATRANSCO
Maharashtra State Electricity Transmission Co. Ltd.

- Efficient access, delivery and monitoring of public services:
- Policing and surveillance of public space
- Healthcare
- Logistics and access to public facilities
- Disaster management

POTENTIAL IMPACTS OF SMARTNESS

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- Command and control centers for smart response
- Provision of emergency services
- Automated response systems
- Evacuation and coordination systems
- Citizen services
- Linking people with jobs
- Participative decision-making and E-governance

Smart Reforms:
Reinforcing E-governance

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- **MANDATORY**
  - **Accounting Reform**
  - **Property Tax Reform**
  - **User Charges**
  - **Provision of Basic Services to Urban Poor**
- **OPTIONAL**
  - **Introduction of Property Title Certification System in ULBs**

Smart Reforms:
Reinforcing E-governance

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- Revision of Building Byelaws to streamline the approval process
- Simplification of legal and procedural frameworks for conversion of agricultural land for non-agricultural purposes
- Introduction of Computerized Process of Registration of Land and Property
- Byelaws on Reuse of Recycled Water
- Encouraging Public Private Partnership

SMART CITY CENTRIC PROJECTS

MSETCL – Current Infrastructure

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MSETCL functions as:

- Transmission licensee
- State load dispatch centre (SLDC)
- State transmission utility (STU)

MSETCL's present infrastructure:

(As on 31st December. 2013)

Voltage level	EHV Substation	Transformation Capacity (MVA)	EHV Lines (CKT KM.)
500KV HVDC	2	3582	1504.00
400KV	25	22280	7389.73
220KV	186	43958	14507.36
132KV	275	24493	13137.04
110KV	34	2674	1724.00
100KV	37	2610	697.15
66KV	34	1144	3270.00
TOTAL	593	100741	42229.27

SMART CITY CENTRIC PROJECTS

Substations, Lines and Transformation Capacity Addition

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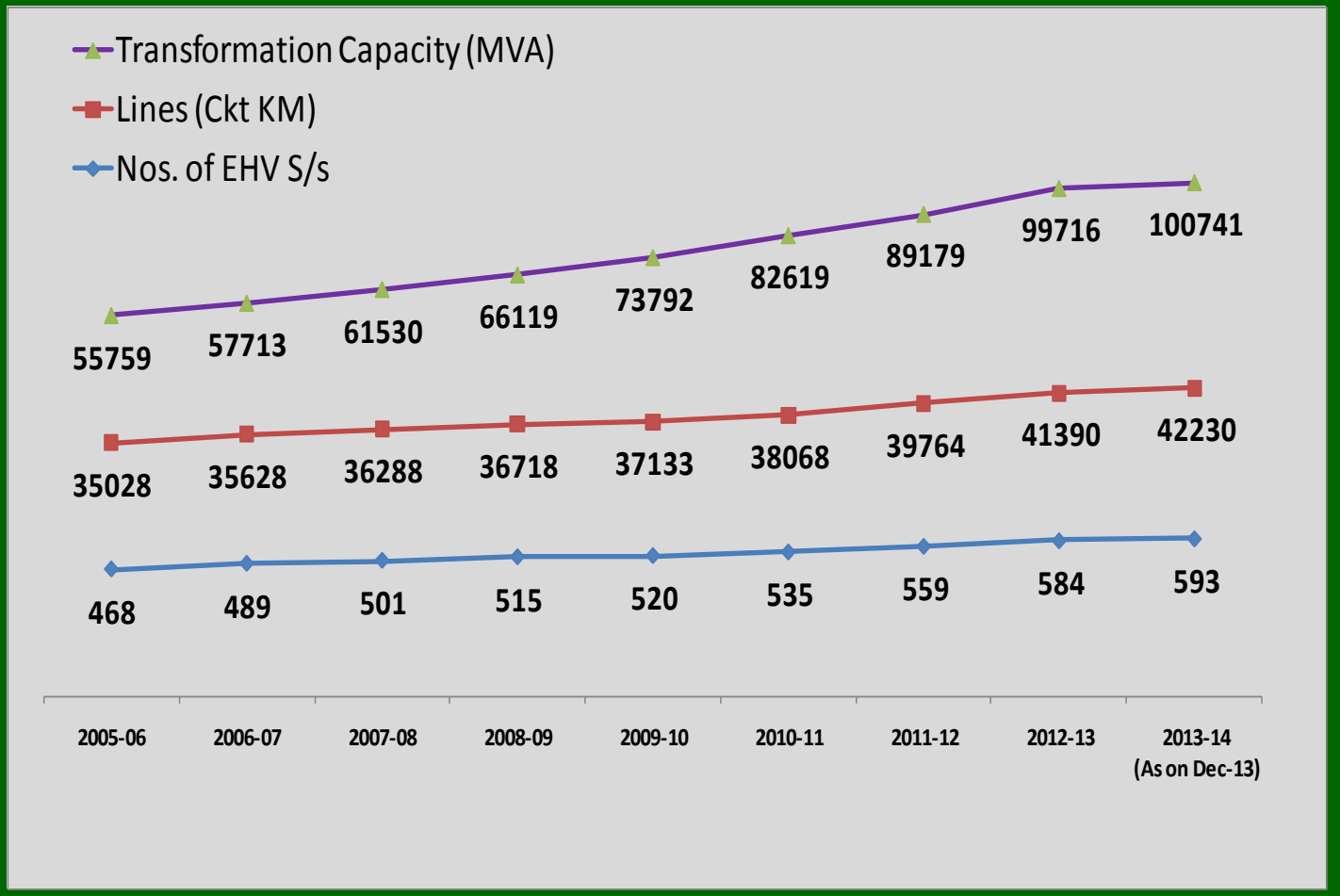

SMART CITY CENTRIC PROJECTS

Capital Expenditure and Capitalization for FY 2005-06 TO 2012-13

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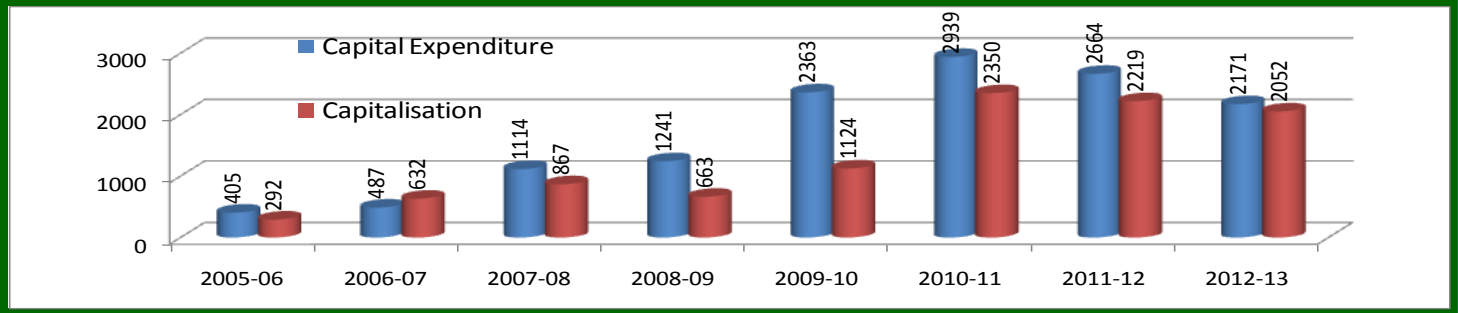
Gross fixed assets as on 31/03/2013 = Rs.18170 Cr.
Net fixed assets as on 31/03/2013 = Rs.11155 Cr. (Depn. Rs.7015 Cr.)

(Rs in Cr.)

Year	Capital Expenditure	Capitalisation
2005-06	405	292
2006-07	487	632
2007-08	1114	867
2008-09	1241	663
2009-10	2363	1124
2010-11	2939	2350
2011-12	2664	2219
2012-13	2171	2052



SMART CITY CENTRIC PROJECTS

MSETCL - Five Year Plan for Transmission Infrastructure (2012-13 to 2016-17)

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Sr. No.	Particulars	2012-13 (Actual)	2013-14 (Proposed)	2014-15 (Proposed)	2015-16 (Proposed)	2016-17 (Proposed)	Total
1	**New Substations (Nos.)**	25	25	32	34	16	**132**
2	**A.** MVA Addition due to New Substations	2225	2400	8900	7780	12580	**33885**
	B. MVA Addition due to Additional Transformers	4935	2525	525	200	475	**8660**
	C. MVA Addition due to Replacement of Transformers	1111	1575	598	235	500	**4019**
	Total MVA Addition (a+b+c)	8271	6500	10023	8215	13555	**46564**
3	**EHV Lines (Ckm)**	1626	1650	4571	4315	6611	**18773**
4	**Capital Expenditure (Rs in Crores)**	2052	2500	4685	3532	3885	**16654**

SMART CITY CENTRIC PROJECTS

MSETCL's Smart Grid Pilot Project

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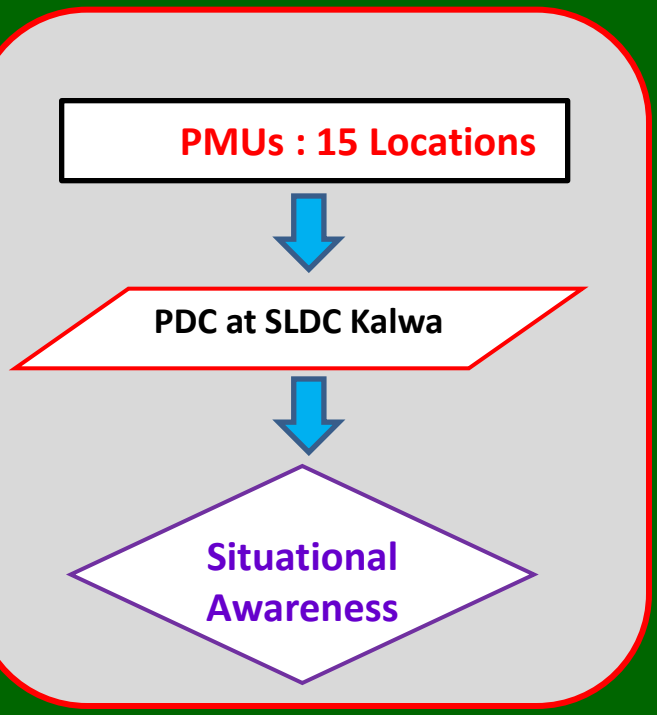
WIDE AREA MEASUREMENT SYSTEMS (WAMS)-

To enhance Operation, Monitoring capability and observability of GRID

WAMS SCOPE

1. PMU Locations: 15
2. GPS Locations :15
3. At SLDC-Kalwa -
   - Phasor Data Concentrator(PDC),
   - Visualisation software,
   - Archiving software and Historian server
   - Situational Awareness

Commissioned on Aug- 2012, installation of Situational Awareness is in progress.



SMART CITY CENTRIC PROJECTS

Comprehensive communication network - OPGW

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- Aim of Project : Establishment of Comprehensive communication Network by laying OPGW over EHV lines of MSETCL through Joint Venture.
- Joint Venture Partner : M/s Sterlite Technologies Ltd.
- Govt. Of Maharashtra approval : 20th March 2012.
- Signing of JV Agreement : 4th May 2012.
- JVCo Registered : 9th August 2012.
- Name of JVCo : Maharashtra Transmission Communication Infrastructure Ltd.
- Project Area : 2801 (Kms)
- OPGW Fiber count : 48 Fibers
- Special Benefit to MSETCL : 8 Fiber along with associated equipments and Mux for MSETCL own use , free of SDH cost.

SMART CITY CENTRIC PROJECTS

I.T. enabled applications in MSETCL

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- ERP–MIS
- e-tendering
- FBSM- ABT metering system and Online view of ABT metering data.
- SCADA/ RTU-DC for SLDC.
- MSETCL Smart Grid pilot.
- Optic Fibre communication of about 2801 Km.
- Substation Monitoring System (SMS) at 26 Locations.
- Video conferencing at 9 locations. (7 Zone + SLDC + C.O.).

SMART CITY CENTRIC PROJECTS

MAHATRANSCO IN NUTSHELL

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- The largest electric power transmission utility in state sector in India.
- Capacity addition in 11th Plan (Actual) - 71 S/stns., 33730 MVA and 4138 ckm. Lines.
- Capacity addition in 12th Plan (Proposed) - 132 S/stns., 46564 MVA and 18773 ckm. Lines.
- Capex- 11th Plan (Actual) - **10321** (Rs. In Cr.)
- Capex- 12th Plan (Proposed) - **16654** (Rs. In Cr.)
- Transmission system capable of handling about **21000 MW** of power.
- Transmitted **115350 MUs**. in the year 2012-13.
- Staff strength of around 13128 employees all across Maharashtra.

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Maharashtra State Road Development Corporation Limited

SMART CITY CENTRIC PROJECTS

MSRDC : Journey so far!

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Projects Completed & Under works

Sr No	MSRDC Funded	BOT And Deposit works
1	Mumbai Pune Express way	Improvement of Nagpur Aurangabad Sinner Ghoti Mumbai
2	50 Flyovers in Mumbai	Bhiwandi- Kalyan Shil Phata
3	Bandra Worli Sea Link	Old NH-4
4	ROB's in Maharashtra	Then Ghod Bunder Road
5	Thane Ghodbunder Road	MBCP
6	PWD Projects	Sales Tax office and Academy
7	IRDP Projects in various Mun Corporations	VBSL
8	MMRDA works – Skywalks	Affordable Housing Scheme at Lodhiwali
9	Four Laning of Satara- Kagal- NH	Food mall and Express way facilities
10	Passenger Water Transport	

SMART CITY CENTRIC PROJECTS

View of Mumbai-Pune Expressway On Completion –Rs.2136 Cr

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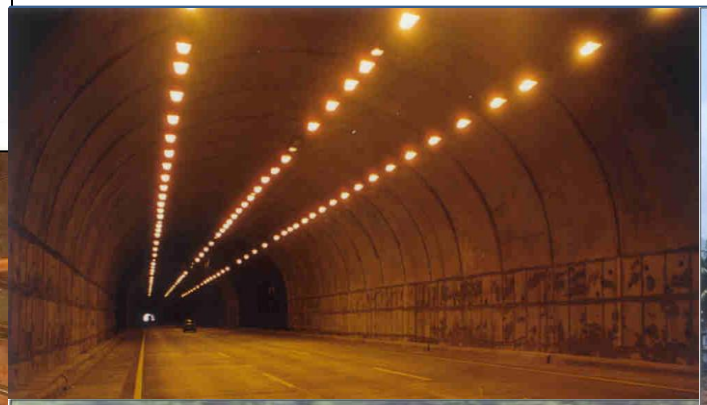

SMART CITY CENTRIC PROJECTS

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Mumbai Flyovers–Rs.1617 Cr

SMART CITY CENTRIC PROJECTS

Bandra- Worli Sea Link– Rs.1617 Cr

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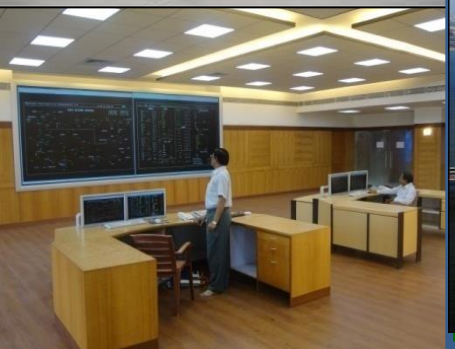

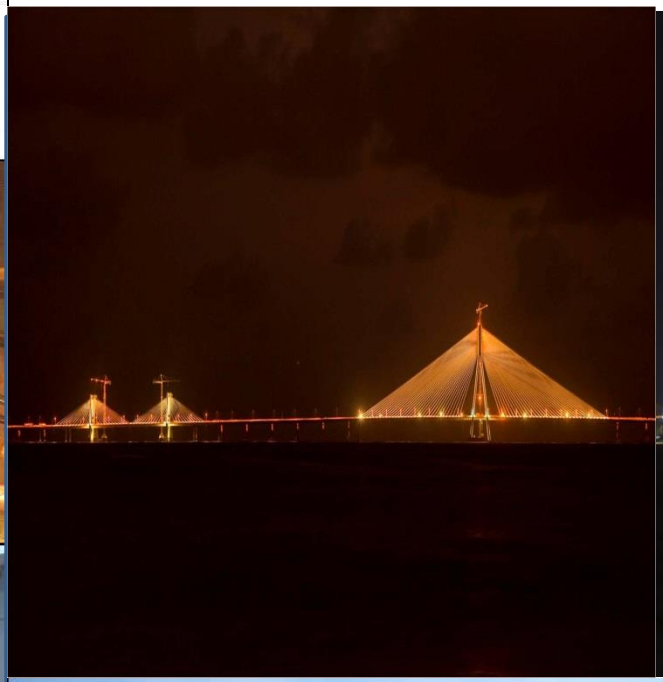

SMART CITY CENTRIC PROJECTS

Satara – Kagal –Rs.750 Cr

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SMART CITY CENTRIC PROJECTS

SantaCruz- Chembur Link Road

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- Cost of the Work – Rs.254 Cr

SMART CITY CENTRIC PROJECTS

Jogeswari -Vikroli Link Road

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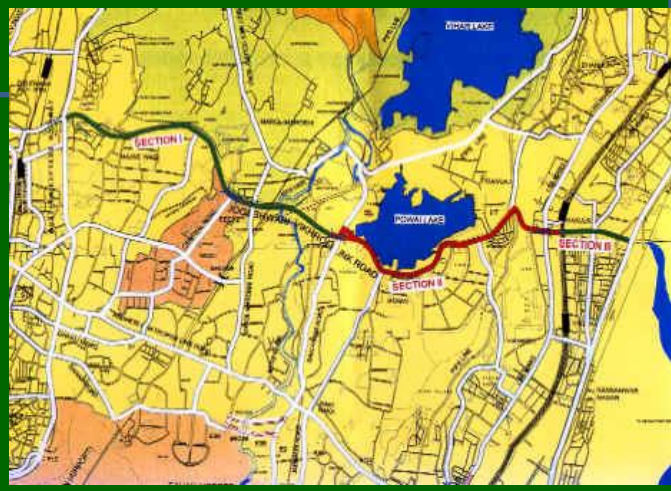

- Cost of the Work – Rs.215 Cr

SMART CITY CENTRIC PROJECTS

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MUIP Flyovers

Cost of the Work – Rs.300 Cr

SMART CITY CENTRIC PROJECTS

Integrated Road Development Project's
Aurangabad & Nagpur

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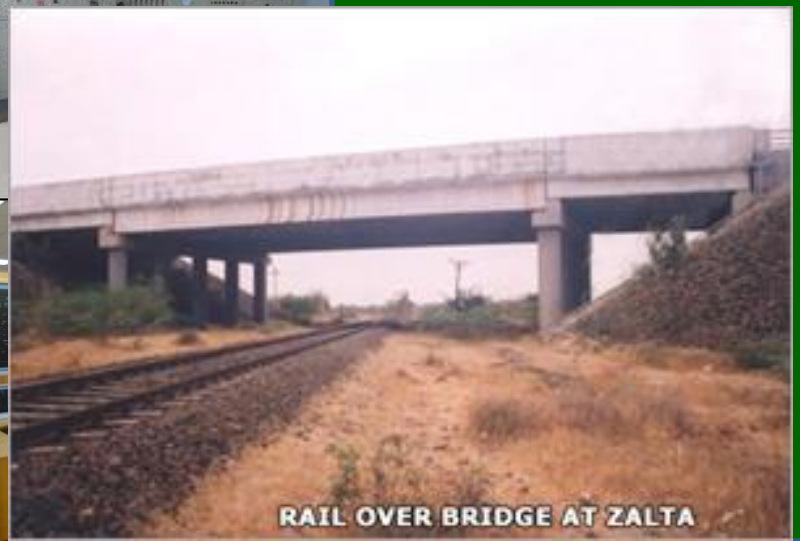

SMART CITY CENTRIC PROJECTS

Integrated Road Development Project's

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Pune – 270 Cr

SMART CITY CENTRIC PROJECTS

Integrated Road Development Project's

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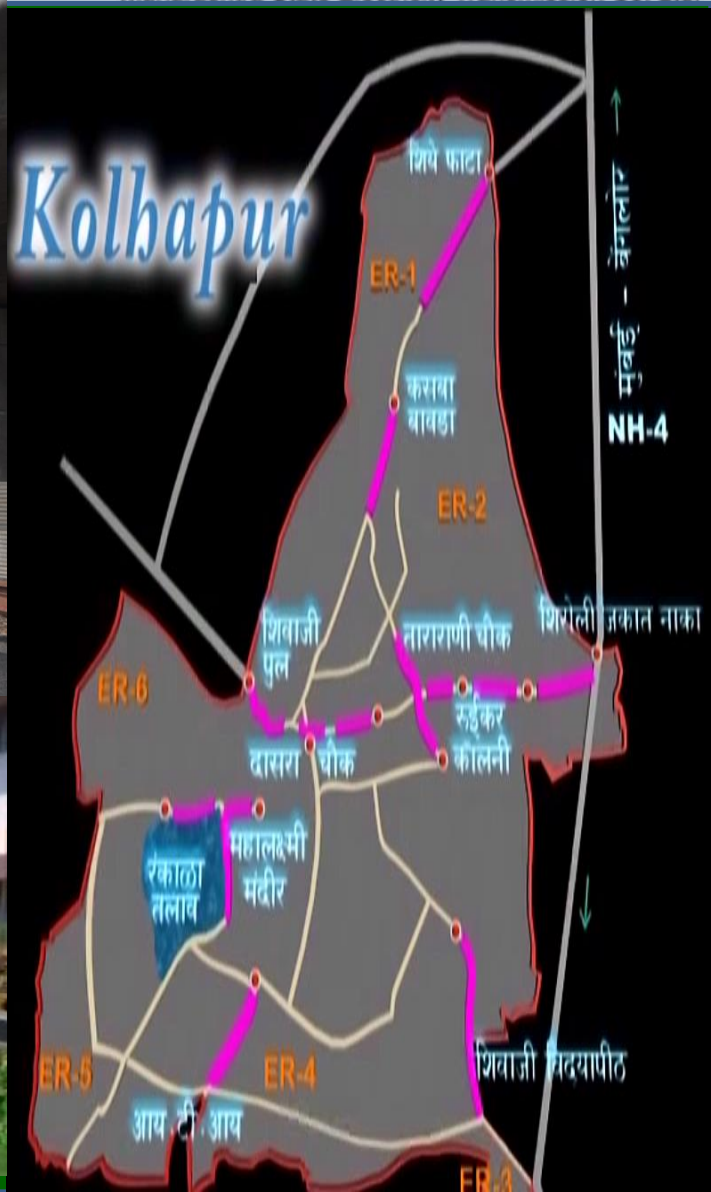
Kolhapur – 400 Cr



SMART CITY CENTRIC PROJECTS

Modernization and Computerization of Integrated Inter state Border Check Posts in the state of Maharashtra -1000 Cr

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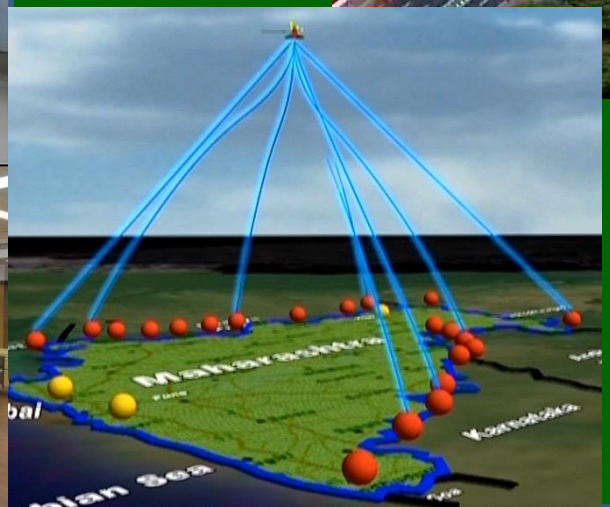

SMART CITY CENTRIC PROJECTS

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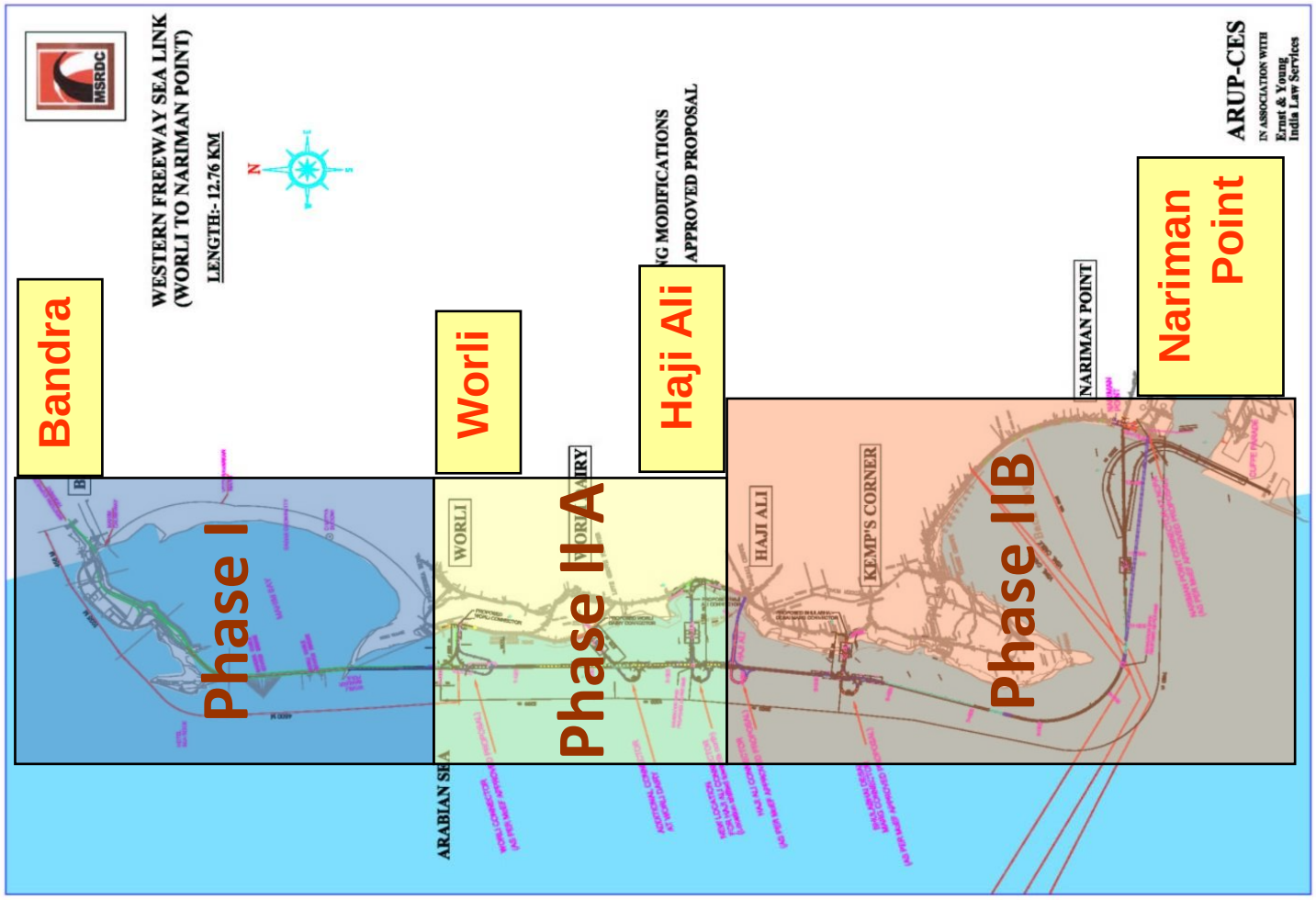
Rajiv Gandhi Sea Link



SMART CITY CENTRIC PROJECTS

Versova Bandra (Rajiv Gandhi) Sea Link Project (VBSLP)

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SMART CITY CENTRIC PROJECTS

Water Transport Project along West Coast of Mumbai

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Terminals to be Developed (Plot Area,/Built up area in sq m)

1. Nariman Point (40000/4000)
2. Bandra (32000 /3000)
3. Juhu (9749/750)
4. Versova (30000 /3000)
5. Marve (10300/3000)
6. Borivali (32482/3000)

SMART CITY CENTRIC PROJECTS

Inland water transport (passenger & ro-ro services)

Along east coast of mumbai

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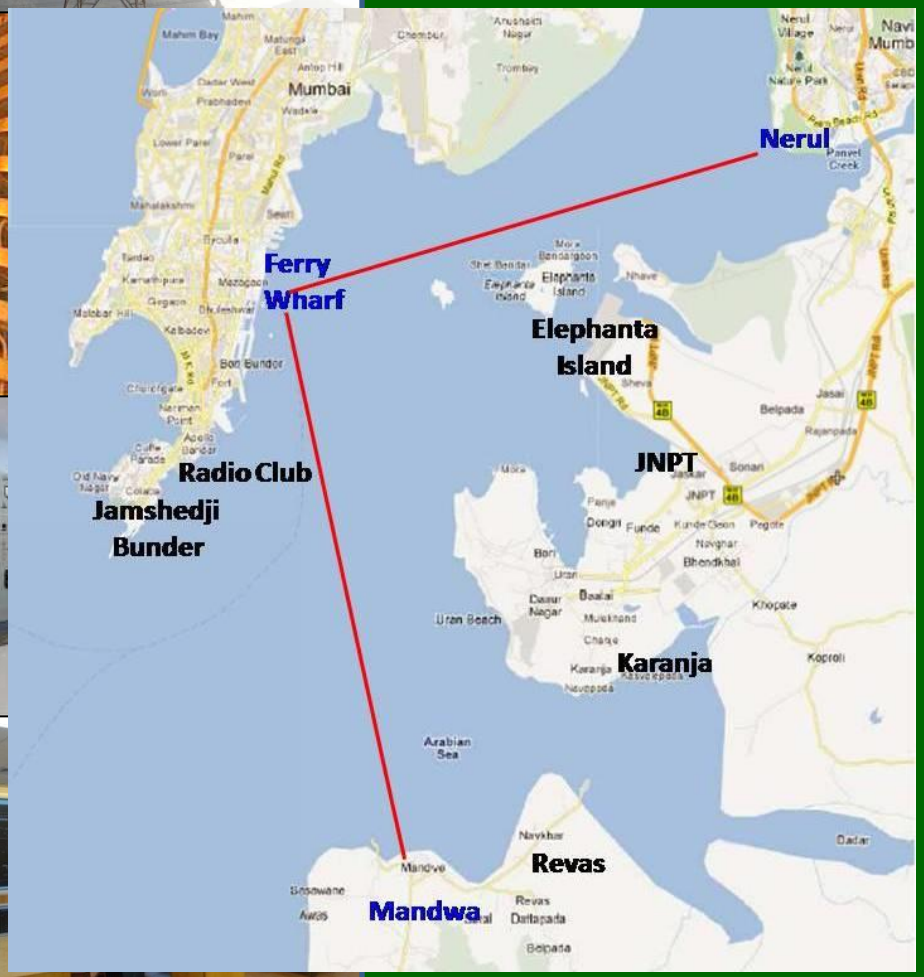
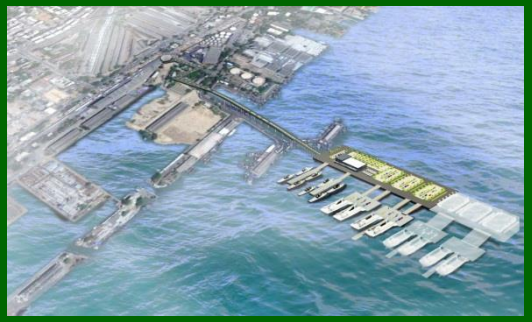
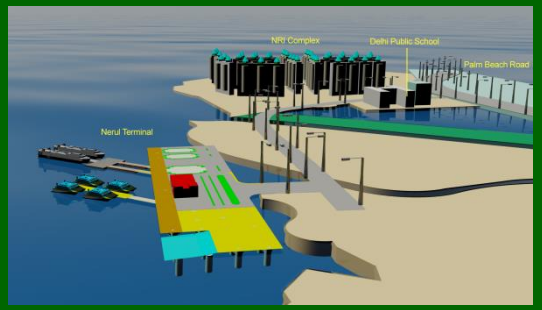




Ferry Wharf (Bhaucha Dhakka)



Nerul

Mandwa

SMART CITY CENTRIC PROJECTS

Mumbai – Pune Expressway Corridor Capacity Augmentation Project

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SMART CITY CENTRIC PROJECTS

Mumbai – Pune Expressway Corridor Capacity Augmentation Project

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Construction of missing link between Khopoli exit and Sinhgad Institute, Kusgaon

8.0 km long 4+4 lane tunnels

1.6 km long elevated road

Construction of 4+4 lane 3.2 km, connectors from Khalapur toll plaza to Khopoli exit

Widening of Kalamboli to Shil Phata(15.6Km)and Dehuroad to Nigadi(6.3 Km) with 7 flyovers or underpasses on N.H.4

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THANK YOU