

SMART CITY PROPOSAL



New Delhi Municipal Council





SMART CITY | Government of India Schemes

SMART CITY: A Key Focus for Gol

100 Cities selected for **Smart City Challenge**

Only 20 Cities to be selected in first phase Funding to be released to the select cities over the **next 5 yrs**.

Developmental Impact on the Nation

Pride for Delhi

Smart Cities are a means for city development

Better governed cities stand a better chance of selection in Round I

Key Convergence Schemes:













Building a Smart City





Key Focus Parameters for Delhi

Citizen Mixed Use Underground **Public Open** Waste Sanitation Education Air Quality Participation Development **Electric Wiring** Management **Spaces** Intelligent Safety and Energy **Identity** and Water Government Housing **Water Supply** Health Efficiency Security Culture Management Services **Waste Water Economy** and **Compact City** Transportation Walkability **Energy Supply Energy Source** IT Connectivity **Employment** Management

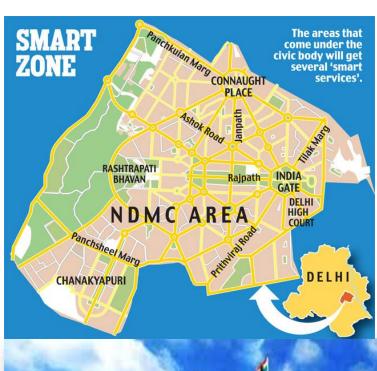
City Profile

The administrative responsibilities of the National Capital Territory of Delhi (NCT) are shared by five governing bodes



- New Delhi Municipal Council (NDMC) is responsible for the NDMC area
- NDMC area covers 43.7 km²
- NDMC is governed by a council that includes the Chief Minister of Delhi
- 48 % green cover against Delhi's 21 %
- The NDMC is also known as Lutyen's Delhi and is historically been the seat of power of Union of India.
- Density of resident population is 7000 persons per sq. km
- Resident population 0.3 Million

Floating population during day time 1.6 Million





City Transformation over the last 3 years

NDMC has undertaken numerous initiatives over the last few years to improve the Livability,

Sustainability and Economic Development of the city

Total Expenditure

INR 845 Cr.

by NDMC in the last 3 years for key project roll-outs & implementations



- Transportation & Mobility
- Water supply & reduction in NRW losses
- Solid Waste Management
- Reduction in energy outages
- Housing shorter building plan approval time, PT collection, alternate housing for JJ clusters etc.
- Administrative efficiency
- Setting up Citizen-Govt communication structures
- Efficient e-Governance & citizen outreach
- Easy access to information by citizen
- Safety & Security







Key Citizen Pain-Points



Access to Healthcare Facilities



Access to Education Facilities



Severe Traffic issues & Road Infrastructure



Access to uninterrupted Power Supply



High Levels of Air Pollution



Access to clean Water Supply



Need for constant upgradation of Skill-sets







Strengths & Opportunities for New Delhi

STRENGTHS

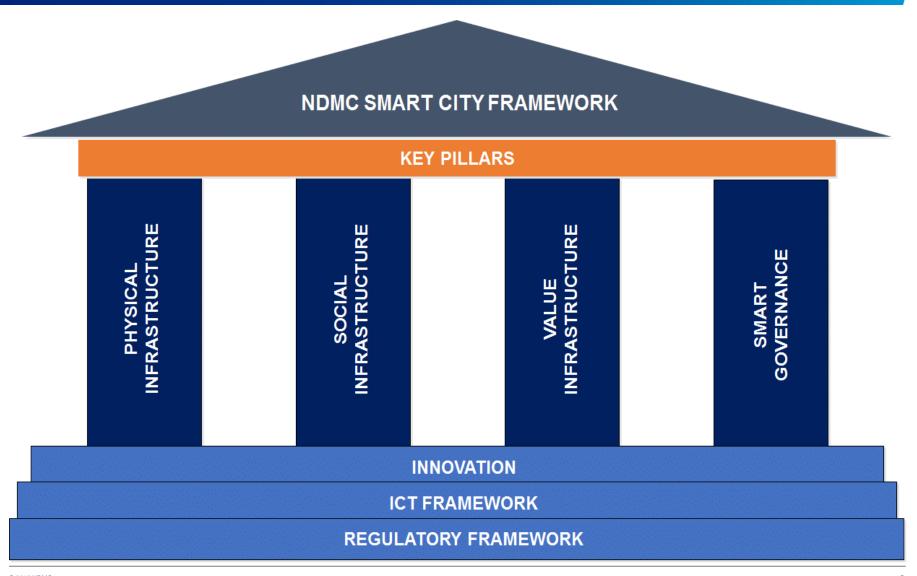
- Strong institutional legacy
- Financial Robustness
- A power and water distribution body
- Robust ICT enabled service delivery mechanism in place
- Continuous energy supply
- Separate grey water distribution system
- Compact & planned city
- High green area cover (over 40% Green)
- Vibrant Central Business District CP area
- Strong Social Infrastructure
- Cosmopolitan Area
- Easy access to key subject matter expert (SME) resources

OPPORTUNITIES

- Country (MoUD, Govt. Of India) commitments for developing Smart Cities
- Higher paying capacity leading to higher PPP
- Last mile connectivity electric vehicles, sensor based parking, cycling tracks etc.
- Willingness of industry to invest / implement their product or services in the capital city for country wide demonstration effect / branding
- Regulatory framework for renewable energy in place to incentivize investments into Smart City
- Availability of significant rooftop area of government buildings for renewable energy
- Mini/micro STPs and rain water harvesting
- High cosmopolitan and young population high acceptance to innovative offerings

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Smart City Framework for Delhi



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City Vision



ISO 37120 Standards and Benchmarks for Delhi

- Economic Standards
- Education
- Energy
- **Environment**
- Finance
- Fire and Emergency
- Governance
- Health
- Recreation
- Safety
- > Shelter
- Solid Waste
- > Telecommunication and Innovation
- > Transportation
- Urban Planning
- Wastewater
- Water and sanitation
- Reporting and Record Maintenance



ISO 37120

Sustainable development of communities

Indicators for city services and quality of life

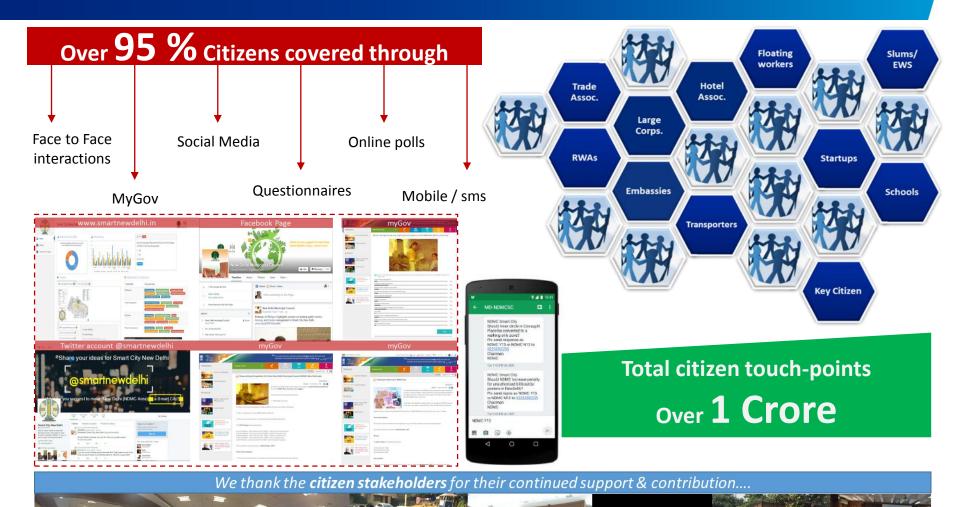
Methodology for Area & Project Selection

Methodology for Projects Selection NDMC Project Selection Area Selection & Prioritization **City Profile** Area Area-Based Area 1 Project 1 Selection **Projects** CITIZEN ENGAGEMENT (NDCC) CITIZEN ENGAGEMENT **Citizen Opinion and Engagement** Area 2 Project 2 RESEARCH **Opinion of the elected representatives** Area 3 Project 3 **ANALYSIS** Discussion with urban planners and sector experts Discussion with suppliers / partners **Pan-City Projects** Area n Project n KPMG's Global City Centre of Excellence Final Citizen Approval for Area & Input gathering for projects **Area & Project Selection Projects STAGE I STAGE II STAGE III**

Citizen Engagement

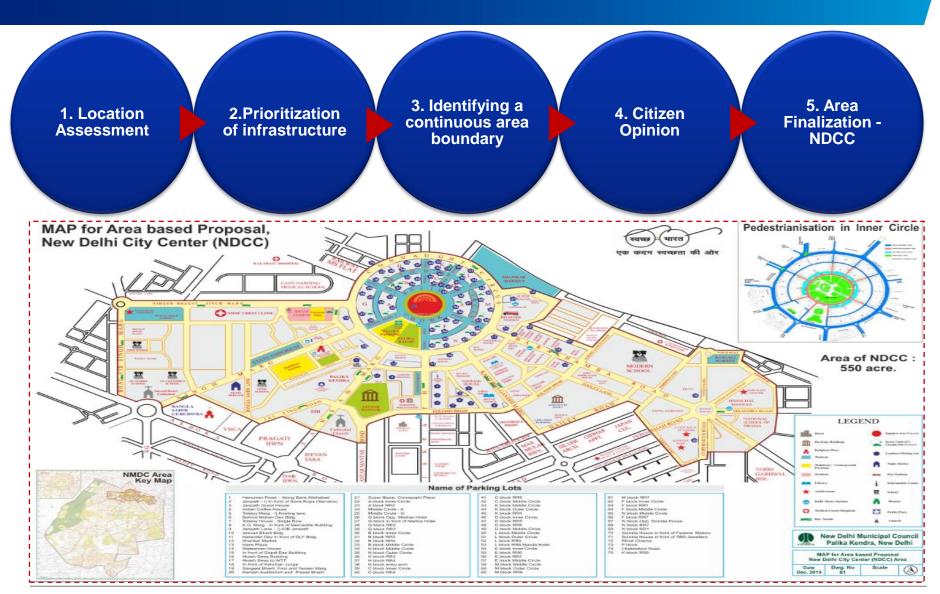


Citizen Stakeholder Consultations



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Area Selection | New Delhi City Centre (NDCC)



Area-Based Projects selected

PHYSICAL INFRASTRUCTURE VALUE INFRASTRUCTURE VALUE INFRASTRUCTURE

- 1. Urban Mobility & Smart Parking
- 2. Sensor based Common Service Utility Duct
- 3. Transformation of electric-Poles into Smart Poles
- 4. Hierarchical Command and Control Centre
- 5. Rooftop Solar Panels
- 6. Happiness area for the cultural and social needs of citizens
- 7. Transforming sub-ways into vibrant spaces
- 8. Signature Giant Smart Digital Screen
- 9. Municipal Solid Waste Management

- Transforming Public Toilets into Smart Public Amenities Centre
- 2. Financial, Identity, Ticketing & Access inclusion
- Introducing signature initiative to the city's Identity and Culture
- 2. Behavioural transformation



Area-Based Projects selected

(A) PHYSICAL INFRASTRUCTURE

- (1) Urban Mobility & Smart Parking: NDMC already has dedicated pedestrian corridors having access for differently-abled
 - Para-transit including pelican crossing (i)
 - Public Electric Vehicles (EV's)
 - First in the world EV charging facility at each parking bay
 - (iv) **Smart Parking systems**
 - Mobile application integrated cycle tracks (v)
 - (vi) Citizen application for car-pooling/cycling/traffic conditions/CCTV videos/air quality/e-challan etc.
 - (vii) e-surveillance for traffic discipline
 - (viii) Parking for Intermediate-Public-Transport (Taxi, Auto etc.)
 - Smart bus-stops-providing interactive bus information system/ATM/Wi-Fi /vending machine
 - (x) Strengthening parking infrastructure
 - Pedestrianization of Inner Circle Connaught Place
- (2) Sensor based Common Service Utility Duct
- (3) Transformation of electric-Poles into Smart Poles with LEDs having incident-driven-controllers; communicationinfrastructure, Wi-Fi access points, air-quality sensors, noise-pollution sensors
- (4) Hierarchical Command and Control Centre for integrated Urban management & Public Safety/Security through **CCTV-Surveillance**
- (5) Rooftop Solar Panels



Area-Based Projects selected

- (6) Happiness area for the cultural and social needs of citizens
- (7) Transforming sub-ways into vibrant spaces with ATM/pet adoption Centre/Advt. etc.
- (8) Signature Giant Smart Digital Screen: Traffic Info/Social Messaging/Alerts/Cricket/Advt.
- (9) Municipal Solid Waste Management
 - (i) Extending door to door MSW for commercial/institutional areas
 - (ii) Green (Horticulture waste) to Gas Smart plant

(B) SOCIAL INFRASTRUCTURE

- Transforming Public Toilets into Smart Public Amenities Centre: Adding ATM's/Pathology Labs/e-Commerce Centre/Rooftop renewable energy
- 2) Financial, Identity, Ticketing & Access inclusion: Single Card access to New Delhi inclusive of Banking / Jan-Dhan Yojana/ Insurance for all based on regular Bank Debit card

(C) VALUE INFRASTRUCTURE

(1) Introducing signature initiative to the city's Identity and Culture

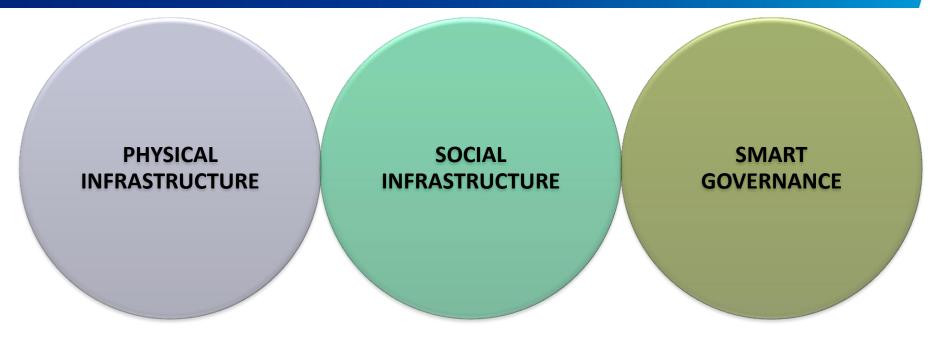
- i. Annual Delhi International Art and Culture Festival
- ii. Awards to Global Capital Cities based on City Benchmarks
- iii. Gateway to the World

(2) Behavioral transformation through

- i. instilling appropriate values through mass & social media,
- ii. (b) children through social messaging in Smart education systems
- iii. (c) Creating volunteer ecosystem



Pan-City Projects selected



- 1. Smart Grid and Energy Management Smart Grid Implementation
- 2. Smart Water and waste Management
- 1. Smart Education
- 2. Smart Health

- 1. E-governance
 - Citizen Feedback
 System



Pan-city projects selected

(A) E-GOVERNANCE

- (1) E-governance: e-governance as a tool for efficient services to citizens, re-engineer internal processes to bring it on a digital platform, improve transparency, accountability & citizen participation
 - a) Application of ICT for delivering municipal services
 - b) Use of smart devices and agents
 - c) Developing web-based/mobile-based services
 - d) Opening up of government data through www.data.gov.in
 - e) Encouraging paperless communication
 - f) Biometric Attendance (ongoing)
 - g) Strengthening ICT Infrastructure
 - h) Virtualization of Licenses (ongoing)

(B) PHYSICAL INFRASTRUCTURE

- (1) Smart Grid and Energy Management (ongoing):
- (2) Smart Grid Implementation:
 - a) SCADA enablement
 - b) Power Management & demand forecasting, peak load management
 - c) Integrated distribution management system and outage management system
 - d) 100% Automated Metering Infrastructure with Automated Demand Response
 - e) Field force automation: sub-station automation
 - f) Billing and Energy Audit system
 - g) Short circuit analysis and relay coordination
 - h) Network for smart meters and grid management



Pan-city selected

- i) Net metering i.e. renewable energy integration
- j) Energy efficiency system i.e. asset monitoring substation
- k) Energy Audit & Certification process for NDMC Building
- I) Solar Power Projects: 40 MW grid connected Solar PV power plant by 2020 (ongoing)
- (3) Smart Water and waste Management including upgradation of existing system through ICT intervention (ongoing):
- a) 24x7 smart water supply SCADA enablement
- b) Automation/Instrumentation
- c) Web GIS software solutions & water billing software solution
- d) Distributed generation & supply of grey water through dual piping systems
- e) Mini smart STP's for waste water management

(C) SOCIAL INFRASTRUCTURE

(4) Smart Education:

- a) eLearning Solution in all NDMC schools
- b) Mentoring program
- c) Centralized Student's health e-records
- d) Skill Development

(5) Smart Health:

- a) Integrate all public medical facilities through Cloud-based e-healthcare system
- b) Centralized Hospitalization facilitation for EWS
- c) Virtual medical service A network of online volunteer doctors, exchange of volunteer blood donors, real time availability of blood in blood banks
- d) Air Quality Monitoring



Key Benefits Delivered to the City



Pedestrianization of Inner Circle CP, free from unauthorized hawkers



Easy access for the differently-abled



Improvement in Air Quality due to EV transport options, car pooling, park & ride etc.



Catering to the demand for power through Solar Energy



Access to better healthcare facilities – especially focused on EWS



24x7 potable water supply



Rain water harvesting and replenishment of water table



Un-interrupted supply of power



Improvement in education levels through Smart Education initiatives

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Robust e-Governance

Making Delhi A Vibrant City

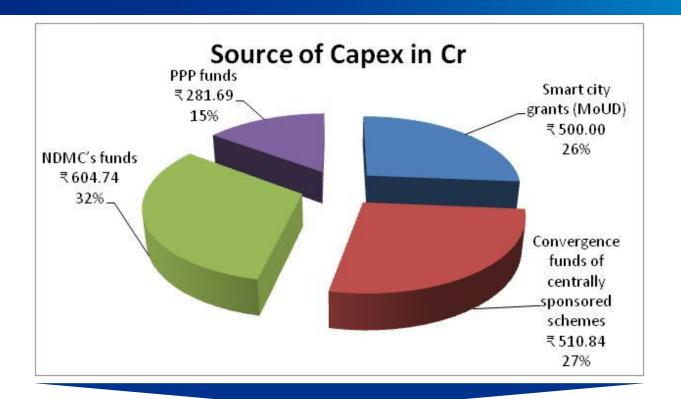
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Project Financing

Total Project Cost = INR 1897.27 Cr.

Summary of the Funds Sources (Rs. in Crores)						
Capital cost / O&M cost for 5 yrs.	Project type	Smart city grants (MoUD)	Convergence funds of centrally sponsored schemes	NDMC's funds	PPP funds	Total
САРЕХ	Area based	164.10	24.84	198.47	281.69	669.10
	Pan city	335.90	486.00	406.27	0	1228.17
TOTAL		500	510.84	604.74	281.69	1897.27
OPEX	Area based	0	0	234.40	173.97	408.37
	Pan city	0	0	402.83	53.50	456.33
TOTAL		0	0	637.23	227.47	864.7
Grand Total		500	510.84	1241.97	509.16	2761.97

CAPEX Funding



32 % of the total CAPEX shall be funded by NDMC Funds

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Revenue Sources

Area Based Projects

- Parking/EV-Charging User Charges
- Advertisements / Kiosk rental from public amenities centres
- Advertisements through Signature Giant Smart Digital
 Screen & Smart Poles
- Advertisements/User charges from Global Capital Cities Awards
- Sponsorship from laser & sound show
- Share of transactions from single card access
- Sale of gas from green to gas plants
- Electricity tariff revenue from solar rooftop





Pan-city Projects

- Cost savings to NDMC due to AT&C loss reduction;
- Water tariff revenue to NDMC
- Saving of water charges to NDMC through usage of grey water using mini STPs
- Selling of power to grid through installation of 40 MW Solar Plants

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Thank You



