PANAJI – SMART CITY DRAFT PROPOSAL
for
Citizen’s Review
Request for Comments
PANAJI SMART CITY PROPOSAL - PLANNING PROCESS

Phase I
CONCEPT PLAN
10th Oct to 25 Oct 2015

Phase II
DRAFT PROPOSAL: PAN CITY AND AREA BASED
26 Oct to 25 Nov 2015

Phase III
FINAL PROPOSAL
DETAILING IMPLEMENTATION AND FINANCING PLAN
25 Nov to 10 Dec 2015

Citizen Engagement
SWOT ANALYSIS
KPIs

Pan – City: IT Enabled municipal Service Delivery
Eco-mobility & Public Transport

Area-Based Proposal
Retrofit – 2 Sq. km

Smart cities Challenge: 15 December 2015
<table>
<thead>
<tr>
<th>Sr.</th>
<th>CITIZEN ENGAGEMENT EVENT</th>
<th>DATE</th>
<th>LOCATION</th>
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<tr>
<td>1</td>
<td>Panaji SCP Launch (Press Conference)</td>
<td>13th Oct</td>
<td>CCP Town Hall</td>
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<td>2</td>
<td>1st Stakeholder Consultation Workshop (Launch Workshop)</td>
<td>14th Oct</td>
<td>Hotel Fidalgo</td>
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<td>3</td>
<td>Municipal Councilors Consultation</td>
<td>17th Oct</td>
<td>Menezes Braganza hall</td>
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<td>4</td>
<td>Cycling rally in support of cycling for Smart City Panaji</td>
<td>17th Oct</td>
<td>Divja Circle - Gasper Dias, Miramar</td>
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<td>5</td>
<td>Bandstand (Musical Performance combined with Smart City Interaction)</td>
<td>18th Oct</td>
<td>Garcia de Orta Garden</td>
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<td>6</td>
<td>City Expert Panel Discussion</td>
<td>18th Oct</td>
<td>Nalanda Hall</td>
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<td>7</td>
<td>Panaji SCP Progress Round 1- (Press conference)</td>
<td>28th Oct</td>
<td>Nalanda hall</td>
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<td>8</td>
<td>Zonal Workshop (public meeting)</td>
<td>28th Oct</td>
<td>Ribandar</td>
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<td>9</td>
<td>Presentation of Proposed Maps (Area based and Pan city)</td>
<td>29th – 3rd Oct</td>
<td>Garcia de Orta Garden</td>
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<td>10</td>
<td>2nd Stakeholder consultation Workshop (Tech Fair(CII))</td>
<td>3rd Nov</td>
<td>Hotel Fidalgo</td>
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<td>11</td>
<td>Climate Core team meeting (city self-Assessment checklist)</td>
<td>6th Nov</td>
<td>Nalanda hall</td>
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<td>12</td>
<td>Prize distribution of Essay competition</td>
<td>6th Nov</td>
<td>Garcia de Orta Garden</td>
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<td>13</td>
<td>FC Goa supporting Smart City Panaji</td>
<td>15th Nov</td>
<td>Garcia de Orta Garden</td>
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<tr>
<td>14</td>
<td>3rd Stakeholder Consultation Workshop (on Panaji Smart City proposed projects)</td>
<td>27th Nov</td>
<td>Hotel Fidalgo</td>
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<tr>
<td>15</td>
<td>State Level High Powered Steering Committee (SLHPSC) (Meeting on Financial Plan of Panaji Smart City Proposal)</td>
<td>27th Nov</td>
<td>Secretariat, Porvorim</td>
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<td>16</td>
<td>Municipal Council Meeting on Panaji Smart City Proposal</td>
<td>1st Dec</td>
<td>CCP Town hall</td>
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DEFINING THE SMART CITY PROPOSAL

- Citizen Feedback
- SWOT Analysis
- Gap Identification & KPIs

Pan-City & Area based plans

Smart City Proposal

Convergence

Smart Solutions
VISION & SUB-GOALS

Transforming the City of Panaji into a world-class, environmentally sustainable and liveable city for all, while preserving its heritage, cultural diversity and ecosystems through innovation and smart solutions.

1. Enhance quality of life for all citizens by providing good quality municipal services in a sustainable manner

2. Promote Heritage and Cultural Diversity for Local Economic Development and Social Progress

3. Develop a productive knowledge society through adoption of participatory governance and smart solutions

4. Adopt environmentally sustainable approaches: eco-mobility & multi-modal transit, biodiversity conservation, renewable energy & a landfill-free city
95% of Stakeholders, agreed to the vision statement of Panaji:
Transforming The City of Panaji into a world-class, environmentally sustainable and liveable city for all, while preserving its heritage, cultural diversity and ecosystem through innovation and smart solutions.
Sub-goals

- **26%**: Enhance quality of life for all citizens
- **48%**: Heritage and cultural diversity
- **13%**: Knowledge society through participatory governance
- **13%**: Environmentally sustainable approaches
### 24 Smart Plan Features

<table>
<thead>
<tr>
<th>Citizen Participation</th>
<th>Identity and Culture</th>
<th>Economy and Employment</th>
<th>Education</th>
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<tr>
<td>Health</td>
<td>Mixed Use</td>
<td>Compactness</td>
<td>Open Spaces</td>
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<tr>
<td>Housing and Inclusiveness</td>
<td>Transportation and Mobility</td>
<td>Walkability</td>
<td>IT Connectivity</td>
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<tr>
<td>Intelligent Govt Services</td>
<td>Energy Source</td>
<td>Energy Supply</td>
<td>Water Supply</td>
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<tr>
<td>Waste Water Management</td>
<td>Water Quality</td>
<td>Air Quality</td>
<td>Energy Efficiency</td>
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<tr>
<td>Underground electric wiring</td>
<td>Sanitation</td>
<td>Waste Management</td>
<td>Safety</td>
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</table>

Selection of top 5 sectors
PANAJI SMART CITY PROPOSAL

Inputs: 83
Posts: 88
Downloads: 100
Smart ideas: 132
Likes: 670
Post & Comments: 196
Panaji Smart City Website: 51 Responses
Polls and Discussions: 175 MYGOV.in

Questionnaires: citizen respondents
Round 1, 2 & 3: 13,775
Residential and non-res area survey: 848
STAKEHOLDER CONSULTATION WORKSHOPS: 866 citizens
College interactions: 794 Students
Focused Group Discussions: 235 citizens
Zonal and mobile van engagements: 104 citizens
Essay Competition: 1522 Entries
Cycle rally: 60 participants
2 Petitions Cycle Rally & FC Goa

Total Direct Engagements: 19619
AREA BASED PROPOSALS
Area Based Solutions

- Upgradation of Conservation zone: 42%
- Redevelopment of urban poor pockets: 30%
- Redevelopment of govt colony St. Inez: 16%
- Greenfield: 12%
Two islands
Bridging the islands

Congestion
Pollution of Creek
Loss of mangroves
Pockets of urban poor: Infrastructure
Pedestrian safety (Church)
Heritage conservation
Environmentally sensitive areas

Church square: Image of city
Building byelaws
Rich in culture and heritage
Water bodies (Creek, Springs, Lake)
Biodiversity and Tourists
Space in Patto
Employment generation potential
Bridging the islands
**SUB GOALS**

**CIVIC AND SOCIAL SERVICES**
Enhance quality of life for all citizens by providing good quality civic and social services in a sustainable manner.

**HERITAGE AND CULTURE**
Preserve and promote heritage and cultural diversity for local Economic development and social progress.

**PARTICIPATORY GOVERNANCE**
Develop a productive knowledge society through adoption of participatory governance and smart solutions.

**SUSTAINABILITY**
Adopt environmentally sustainable approaches: ecomobility and multi-modal transit, biodiversity conservation, renewable energy and a landfill free city.
Interlinking Core City and Patto Area for Citizens and Tourists:
A. Upgradation of Rua de Ourem Creek and Patto Area,
B. Revitalization of Mala Lake

Integrated Urban Water Management

Service Provision for Urban Poor in Mala Heritage Zone

 Provision of Basic Services

Conservation of Heritage and Culture

Biodiversity
## REJUVENATION OF CHURCH SQUARE

- Traffic congestion
- Passenger safety
- (Church)
- Chaos
- Poor condition of walkways
- Air and Noise pollution
- Identity and heritage character of the area gets subdued by traffic
- Shortage of public toilets

### Semi pedestrianization

<table>
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<th>Improvement of front garden</th>
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<td>Pedestrian friendly walkways</td>
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<td>Table top junction in front of the Church</td>
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<td>Pedestrianization of part of 18th June road (in front of Urban health centre)</td>
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### Open street restaurant

- Semi permanent stands for portraying art and culture
- Digital information boards
- Wi fi hotspots
- CCTV
INTERLINKING CORE CITY AND PATTO AREA FOR CITIZENS AND TOURISTS: A. UPGRADE AION OF RUA DE OUREM CREEK AND PATTO AREA

- Isolated pocket
- Wastewater discharge from STP
- Environmentally sensitive area
- Waste management facility
- Patto - vacant during night
- Poor condition of promenade
- Safety
- Lack of public facilities
- Deteriorating condition of bridge
- Lack of vehicular connectivity to core city

UPGRADATION OF STP SHIFTING OUT OF WASTE PLANT

INTEGRATION OF URBAN SPACES ACROSS CREEK

GREEN BELT PROPOSAL LANDSCAPING ALONG JETTY MANGROVES

GOA CENTRE FOR ART, CULTURE AND SKILL DEVELOPMENT ABANDONED KIOSKS CREEK BANK RESTAURANTS

3 PEDESTRIAN LINKS ROAD BRIDGE FOOD AND WINE FESTIVAL

PATTO AREA PARKING

BRINGING THE GAP INTEGRATION
INTERLINKING CORE CITY AND PATTO AREA FOR CITIZENS AND TOURISTS: B. REVITALIZATION OF MALA LAKE

ABANDONED LAKE
SILTATION
POOR INFRASTRUCTURE
POOR ACCESS

LAKE BEAUTIFICATION
PEDESTRIANIZATION ALONG LAKE
ARTIST ZONE ALONG LAKE
NATURE TRAIL
SKILL CENTRE
ARTIST ZONE IN HERITAGE CENTRE
DESILTATION

Graphics by Vanessa and Oriana
NEARLY 40% T&D LOSSES
POOR CONDITION OF SPRINGS
FLOODING AND WATER LOGGING
WASTEWATER DISCHARGE INTO CREEK
POOR CONDITION OF MALA LAKE

INTEGRATED URBAN WATER MANAGEMENT

WATER (Covered under Pan city)
SMART METER
SCADA
GIS

WASTEWATER
UPGRADATION OF PATTO STP
RECYCLING PLAN FOR THE CITY
REJUVINATION OF RUA DE OUREM CREEK
REJUVINATION OF FONT PHOENIX
BOCA DE VACA NATURE TRAIL
5000 TREE INITIATIVE
FLOOD CONTROL IN MALA

STORMWATER

ZERO DISCHARGE IN CREEK BY 2020

CATCHMENT CONSERVATION OF SPRINGS
FAMILY ADOPTION OF TREES

RUA DE OUREM CREEK SPRINGS LAKE

CLOSING THE URBAN WATER LOOP
SERVICE PROVISION FOR URBAN POOR IN MALA HERITAGE ZONE

POCKETS OF URBAN POOR LACKING BASIC INFRASTRUCTURE FACILITIES

EXTENSION OF CHALLENGE FUND INITIATIVE
- BASIC SERVICES
- COMMUNITY AREAS
- COMBINED UTILITY TRENCH
- SURFACE IMPROVEMENT
PROVISION OF BASIC SERVICES

POOR CONDITION OF ROADS
NEARLY 40 YR OLD SEWER LINES
IRREGULAR PLACEMENT OF ELECTRICITY INFRASTRUCTURE
IMPROPER WASTE COLLECTION
INADEQUATE STREETLIGHTING
WATER LOGGING
LACK OF PUBLIC TOILETS

ROAD IMPROVEMENT
UTILITY TRENCH
• WATER
• ELECTRICITY
• TELECOM
• GAS
STORM WATER DRAINAGE
SEWERAGE
LED STREETLIGHTING
IMPROVED OPEN SPACES
PUBLIC TOILETS
CNG AND PNG NETWORK
ROOF TOP SOLAR PV

INFRATESTRUCTURE BUT NOT SMART INFRATESTRUCTURE
CONSERVATION OF HERITAGE AND CULTURE

LACK OF MAINTENANCE DUE TO
• LACK OF INCENTIVES
• LACK OF POLICY
• NEED FOR TRANSPARENCY FOR TDR

CITIZEN CONNECT WITH HERITAGE IS BREAKING
BUILDING BYE LAWS ARE REDUNDANT

HERITAGE CONSERVATION

TRANSPARENCY
• GIS platform
• Can be linked to TDR
• Ward characterization

STRENGTHEN CITIZEN CONNECT
• Crowdsourcing
• Art and Artisan mapping
• Resources needed to sustain / maintain

BUILDING BYE LAWS TO ADDRESS ISSUES RELATED TO PARKING, CONSERVATION, INCENTIVES FOR SUSTAINABLE PRACTICES

DIRECT CSR IN HERITAGE

HERITAGE CELL UNDER CCP

SIGNAGE

Old Secretariat proposed to be developed as museum and art gallery

PROMOTING PANAJI AS A FILMING LOCALE, WITH FOCUS ON HERITAGE, FESTIVALS, CARNIVAL
BIODIVERSITY

LOSS OF SPECIES
MANGROVE DEPLETION

JOGGERS PARK

BAMBOO CORNER

MALA LAKE

BUTTERFLY GARDEN
LAKE RESTORATION
HERBAL GARDEN
NATURE INTERPRETATION CENTRE

RUA DE OUREM CREEK

MANGROVE PLANTATION

FUTURE CONSERVATION LEADERS FOR BIODIVERSITY
PAN CITY PROPOSALS
Sector Prioritization
Pan City

- Transportation: 39%
- Waste Management: 20%
- Health: 13%
- Education: 13%
- E Governance: 15%
PAN-CITY INITIATIVES

ICT ENABLED MUNICIPAL SERVICES
- Solid Waste Management
- E-Governance
- Smart Metering for Water Supply
- Smart Technology for Street Lighting
- Smart Grid

ECO MOBILITY, PUBLIC TRANSPORTATION AND ITS
- Public Transportation - ITES Buses and Ferries
- Non Motorized Transport
- Smart Bike Sharing
- Smart Ticketing
- Pedestrianization
- Smart Parking
- Command and Control Centre for ITS
<table>
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<td>ZONAL WASTE MONITORING SYSTEM</td>
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<td>CENTRAL MONITORING SYSTEM</td>
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<td>E-GOVERNANCE</td>
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<td>E-GOV &amp; MIS SYSTEM FOR CCP</td>
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<td>GIS MAPPING FOR CITY</td>
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<td>ZONAL CITIZEN KIOSKS</td>
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<td>CENTRAL MONITORING SYSTEM</td>
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<td>WATER SUPPLY</td>
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<td>SMART METERING</td>
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<td>SCADA SYSTEM</td>
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<td>LED STREET LIGHTING</td>
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<td>RFID ENABLED FIXTURES ~5500</td>
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<td>MICRO CONTROLLER BASED CENTRALIZED CONTROL &amp; MONITORING SYSTEM</td>
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<td>Smart Grid</td>
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<td>Advance Metering Infrastructure (AMI)</td>
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<td>Other Smart Grid Components</td>
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TRANSPORT

NON MOTORIZED PUBLIC TRANSPORTATION
SMART DOCKS
SMART CARDS
SMART BIKE SHARING SYSTEM

INTELLIGENT TRANSPORT SYSTEM
PASSENGER INFORMATION SYSTEM
AUTOMATIC VEHICLE LOCATION SYSTEM/GPS
AUTOMATED FARE COLLECTION SYSTEM
MIS SOFTWARE FOR CENTRALIZED MONITORING
TRAFFIC SIGNAL PRIORITY SYSTEM

SMART SYSTEMS FOR FERRY SYSTEM
COMMAND AND CONTROL SYSTEM

SMART PARKING
SMART PARKING MOBILE APPLICATION

PEDESTRIANIZATION
PEDESTRIANIZATION ALONG IMPORTANT LOCATIONS/CORE CITY AREA

MIS SOFTWARE FOR CENTRALIZED MONITORING
AUTOMATED PARKING FARE COLLECTION & PARKING INFORMATION DISPLAY SYSTEM

CRAFT LOCATION SYSTEM AND INTEGRATION WITH SMART CARD SYSTEM
SWM – SMART SOLUTIONS
E-GOVERNANCE

- Payment of Property Tax
- Utility Management
- Building Approvals
- Procurement & Monitoring
- Health & Sanitation Licenses
- Personnel Management
- Utility Bills, Complaint Redressal: Linked to a Citizen App (Online & Mobile Based App)
- 3 Zonal Citizen Service Kiosks
PUBLIC BIKE SHARING
A flexible public transport service involving creation of a dense network of cycle rental stations with ease of renting and returning cycles to and from any station in the system.
• Fully automated PBS System
• Stations spread across the 8.12sqkm area of the city with at least one station every 250m in the city
• Higher Station density in the Central Business District (Central Panjim), Panjim Market and St.Inez area than the rest of the city
• Details of the PBS system proposed:
  • No of Cycles : 1044 Cycles
  • No. of cycle stations : 66 stations (with 1560 Docks)
• Smart components of PBS will be implemented under Smart City Proposal
PUBLIC BIKE SHARE SYSTEM – SMART ELEMENT

SMART DOCKING SYSTEM:
• Docks themselves are designed to lock and unlock each cycle, rather than the terminal handling this function
• Card holders able to check out cycles at docks without use of terminals
• Indicates Bicycle availability for use and if properly locked when returned (It is recommended that the Panaji PBS system use Individual Docking units at all stations except for the large stations where Cycle Parking areas are recommended)

CONTROL CENTRE:
• Real time monitoring, enabling the operator to track the availability of cycles at every station
• Data gathered can also be used to make long term planning decisions

SOFTWARE SYSTEM:
• Software to support station monitoring, redistribution of bicycles, defect and maintenance issues, billing, and customer data
• Authorisation device on the docking station connected to the central control room through the IT system

SMART CARDS
• Equipped with RFID technology, making it easy for the system to track the exact user
• The docking stations/ parking areas are equipped with smart card readers which lets the user unlock the cycle using the card (It is recommended that the operator and CCP in Panaji ensure that the payment system can handle not just card transactions but also cash transactions)

WEBSITE + MOBILE PHONE APP:
• Enabling software to manage the interactions of the system with its users.
PUBLIC BIKE SHARE SYSTEM – SMART ELEMENT

Smart Docks

Smart Payment

Real time data monitoring - Control Centre
BUS TRANSPORT – SMART ELEMENTS

- Automatic Vehicle Location System (AVLS)/ GPS on buses
- Passenger Information system (PIS)
- Smart Signals
- Automated Fare collection system
PUBLIC TRANSPORT - SMART ELEMENTS

AUTOMATIC VEHICLE LOCATION SYSTEM (AVLS)/ GPS ON BUSES
• Carried out through installation of GPS, transmits the location of the vehicle to central control room
• Enable development of Real Time Passenger Information services

PASSENGER INFORMATION SYSTEM (PIS) FOR BUS STOPS
• Use of technologies to track the locations of buses in real time
• The information is used to generate predictions of bus arrivals at stops along the route
• Information is disseminated to passengers by wired or wireless media

SMART SIGNALS
• Technique to speed up bus public transport services at intersections (or junctions) with traffic signals
• Buses normally signal their impending arrival (via radio systems, for example) and on their arrival at the intersection receive a green light

AUTOMATED FARE COLLECTION SYSTEM
• Integrated hand held ticketing machine with GPRS system
PROPOSALS – FERRY SYSTEM

- Ferry line- 1: Panaji- Betim
- Ferry line- 2: Between both borders of the Mandovi Bridge. It was used when the Old Mandovi Bridge collapsed, now it is in disuse.
- Ferry line-3: Ribandar- Chorao Island
- Ferry line-4: Ribandar- Divar Island
- Ferry line-5: Old Goa- Divar Island
- Boat line from Dona Paula to Vasco
- Boat line from Panaji to Baga
- Boat line from Panaji to Old Goa
- New Ferry line from Reis Magos to Kala Academy
- Betim– Panaji Ferry line should be maintained
Parking with display system and automatic collection system with mobile application development

Smart Parking Application

Display system and automatic collection
Thank You!