GIFT - A Smart City
A Global Financial Hub

Geo-Enabling Digital India

esri India

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Gujarat International Finance Tec – City
A Global Financial Hub
Smart City Concept

• The SMART CITY Concept is emerging in the quest for sustainable growth and smart economic, technological and socio-cultural development and intelligent urban governance.

• SMART CITY is envisioned as the intelligent and innovative, healthy and wealthy, livable and efficient, moral and fair, smart and sustainable CITY.
Key Parameters to Define a Smart City

**Smart Infrastructure:**
Digital Management of Infrastructure
- Sensor Networks
- Digital Water and Waste Management

**Smart Technology:**
Seamless Connectivity
- Broadband penetration rate of over 80%
- Location Based Services, Augmented Reality, GPS enabled devices/phones

**Smart Buildings:**
Automated Intelligent Buildings
- Building Automation
- Intelligent Buildings: Advanced HVAC, Lighting Equipment

**Smart Energy:**
Digital Management of Energy
- Smart Grids
- Smart Meters
- Intelligent Energy Storage

**Smart Mobility:**
Intelligent Mobility
- Low-emission Mobility
- Integrated Mobility Solutions
- Multimodal Transport

**Smart Healthcare:**
Intelligent Healthcare Technology
- Use of ehealth and mhealth systems
- Intelligent and connected medical devices

**Smart Governance:**
Government-on-the-Go
- e-Government
- e-Education
- Disaster Management Solutions

**Smart Citizen:**
Civic Digital Natives
- Use of Green Mobility Options
- Smart Lifestyle Choices
- Energy conscious

Source: Frost & Sullivan analysis.
Collaboration to make it All happen

Global players

- Design & Engineering
- Technology providers
- Construction & Implementation
- Operations

Local players

- Governments
- Planners & Developers
- Finance & Investment
- Utilities
- NGO’s & associations

Local community & government

- NGOs & associations
- Utilities
- Finance & Investment
- Planners & Developers
- Governments

Planners & Developers

Governments

Finance & Investment

Utilities

NGO’s & associations
Information is Key

• Geographic Information is a key component in any development, through data collection by use of sensor technologies, data handling through spatial data infrastructure and spatial decision support through advanced geospatial modelling and geo visualisation.

• A smart City needs spatial data to sustain their efforts in improving living standards.
Smart GIFT City

“To develop a global financial hub for international & domestic financial services which will serve as a paradigm for Next Class Development in terms of Quality of Life, Infrastructure and Ambience, utilizing Land as a precious resource”

GIFT City effectively delivers city services to people, businesses and its Users in an integrated and resource efficient way while enabling innovative collaborations to improve quality of life and grow the local and national economy.
GIFT: An Integrated Smart City  Global Financial Hub

- Globally benchmarked International Finance Centre
- Strategically located
- Central business hub
  0.5 Mn direct & 0.5 Mn indirect jobs
- Targeting Financial Services & IT/ITeS sectors
- First of its kind development in scale, scope and quality
- State-of-the-art infrastructure
Smart GIFT - Strategic Location

- Centrally located in the state of Gujarat in Gandhinagar
- 12km From Ahmedabad International Airport
- On the bank of River Sabarmati
Smart GIFT - Integrated Smart Development

High Rise Business District:
• Benchmark office, high-rise district to be created with landmark buildings

Residential Housing Projects:
• Well-planned residential housing projects
• Walk-to-work layouts

Social Infrastructure:
• Educational Institutes to be established
• International schools for primary education
• Privatised hospitals with infrastructure to be established

Overall Connectivity/Transport:
• External Connectivity includes MRTS / BRTS/ Roads
• Public-Private Modal Split 90:10

Retail Cum Entertainment Hubs:
• High quality entertainment malls to be set up
• Over 60% of the space is planned to be green

Technology:
• Broadband FTTP
• WiFi / Wimax
• Shared IT Services
• Global Connectivity

Basic Infrastructure:
• Uninterrupted and highly reliable power supply (99.999%)
• Next generation water & waste management, district cooling

BEST PRACTICES IN URBAN GOVERNANCE
Smart GIFT Development Structure

GIFT Area is focused on developing a global financial hub for international and domestic financial services.

- Multi Service SEZ with IFSC
- Domestic Finance Centre/ Corporate Office/ Trade Centre
- Associated Infrastructure, Housing and Social Facilities
Smart GIFT Master Plan

- 250 acres of Multi Services SEZ with provision for development of IFSC
- Planned mixed use development with predominant Commercial Use.

**Built-up Area Distribution**
- Commercial: 67%
- Residential: 22%
- Social: 11%

**Key Details**
- Total Land Area: 3.6 sq km
- Total BUA: 62 mn sq ft.
- Additional 22 Million to be developed after removal of height restriction by AAI
GIFT Smart Infrastructure

- Integrated infrastructure for better diversity
- Smart Technology ensuring energy conservation
- All utilities/services coordinated through single agency

**INFRASTRUCTURE FACILITIES/ SERVICES**

- Roads and Transportation
- Water Supply and Distribution
- Sewerage and Waste Water Treatment
- ICT Services
- Power Supply
- District Cooling System
- Waste Management Systems
- Domestic Gas Distribution
- Intelligent Building Management System
- City level Fire water supply System
- Utility Infrastructure Areas
- Landscaping
External Transportation

- Grid of six Arterial Roads (Connecting to various areas of Ahmedabad and Gandhinagar)
- Metro Rail Transport System (MRTS) to GIFT
- Bus Rapid Transit System (BRTS) to GIFT
GIFT- A Transit Oriented Development

Walkability through travellators

500 mtrs

Major Roads
Arterial Road
Sub-Arterial Roads
MRTS corridor

Elevated Walkways
Smart Transportation

Interactive road maps
Automatic vehicle location and tracking
Transit Node Management
Road condition system
Real Time Travel Response
Parking Management

Ridership analysis
Accident reporting
Vehicle emission monitoring
Safety management
Asset Management

Gujarat International Finance Tec-City Company Limited (GIFTCL)
Multi Level Car Parking (MLPs)
Smart Power

- Underground cabling for power distribution within GIFT
- Substation and Distribution Automation
- Indoor Substation
  1. Gas Insulated Switchgears (GIS) substation for sub-transmission and distribution within GIFT
  2. Compact substation (CSS) in building
- Total Power Requirement- 750 MVA (from dual source)
- Emergency Power generation (Gas Based) - 150 MW
- Green Power

Reliability – 99.999% which means outage of 5.3 minutes/annum
Gujarat International Finance Tec-City Company Limited (GIFTCL)

- Quality Water - can be drunk from any tap
- Storage of surface run-off & rain water
- Approach towards making the project water neutral

Smart Water Infrastructure

- Raw Water from Narmada Canal
- Reservoir
- WTP
- STP
- WTP
- Domestic Uses
- RO Plant
- Softening Plant
- Cooling Tower
- Flushing Tower
- Horticulture
- Makeup for Water Bodies
- Utility Monitoring
- Metering
- Leak Detection
- Controllers
## Smart District Cooling System

<table>
<thead>
<tr>
<th>Total Cooling Load - 2,70,000 TR</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Efficiency through economies of scale</td>
</tr>
<tr>
<td>• Reduces energy costs</td>
</tr>
<tr>
<td>• Reduces maintenance costs</td>
</tr>
<tr>
<td>• Improves air quality and temperature control</td>
</tr>
<tr>
<td>• Reduces noise and vibration</td>
</tr>
<tr>
<td>• Conventional AC System not required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DCS Control Centre - Smart Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Monitoring District Cooling Plant System</td>
</tr>
<tr>
<td>• Simulation of cooling/energy requirements</td>
</tr>
<tr>
<td>• Analyze interface with distribution/usage for both the supply and return elements</td>
</tr>
<tr>
<td>• Evaluation of extensive economic scenarios</td>
</tr>
<tr>
<td>• Safety Management, Emergency response</td>
</tr>
</tbody>
</table>

Gujarat International Finance Tec-City Company Limited (GIFTCL)
Smart Solid Waste Management

- Maximise resource recovery / minimal emissions
- Minimise impact on environment, human intervention, space requirement, impact on health hazard
- No waste visibility
- Power neutral

Automatic Collection, Transportation and Segregation System

1. The waste is thrown into a disposal chute
2. Computer controlled access
3. Waste sucked through pipes at a speed of 90 km/hr
4. Treatment through plasma gasification

- Monitoring E-Waste; Biomedical, Hazardous Waste handling system
- Monitoring Central Waste Handling Facility
- Monitoring Residual Waste handling, rejects
- Safety Management, Emergency response
Smart Services through Smart Utility Tunnel
Intelligent Building Management System

Single IP Network vs. Multiple Proprietary Networks

- Fire/Life Safety
  - Interface Annunciation
  - View Functionality Only

- Security
  - Intrusion Detection

- Access/Video
  - Building, Doors, Garage
  - Elevator
  - Occupied Suites
  - Asset & Personnel Tracking

- Elevators
  - Elevator Retrieval on Demand
  - Traffic Performance and Maintenance

- Lighting
  - Schedules
  - Scenes
  - Shades
  - Light-Level Sensing
  - Occupancy Sensing

- Energy Management
  - Utility Monitoring
    - (Electric/Water/Gas/Oil)
    - Utility Purchasing
    - Back-Up Generation

- 24/7 Monitoring
  - Alarming & Notifications
  - Plant Management
  - Condition Monitoring
  - Parking Garage Utilization

- HVAC
  - Air-Handling Units
  - VAV & CV Boxes
  - Exhaust Fans
  - Chilled Water Plant
  - Hot Water Plant
  - Energy Control
  - CO Monitoring
  - Air Quality

- Communications
  - Voice/Video/Data

Gujarat International Finance Tec-City Company Limited (GIFTCL)
Samrudhi Sarovar

- Samrudhi Sarovar (Master Balancing Reservoir)
- Food courts: Restaurants, Eateries, Dining
- Gathering spaces for concerts and events, Promenades
- Water sport activities
- Retail Facilities
- Walkers paradise: jogging track, viewing points
- Light and Sound show, Fountains, Water Shows
GIFT City Infrastructure Connected to Central Facility

- **Smart Urban Infrastructure**
  - Water Systems
  - Power
  - ICT System
  - District Cooling
  - Domestic Gas
  - Waste Management
  - Fire Fighting
  - Utility Tunnel

- **Smart Buildings**
  - Offices
  - Home
  - Hotel
  - School
  - Hospital

- **Smart Transport**
  - Traffic Mgmt
  - Parking
  - Area Traffic Control
  - Road Condition System
  - Real Time Travel Response

- **Smart Streets**
  - Digital Signage
  - Streetscape

- **Smart Landscape**
  - Irrigation System

- **Smart Desks**
  - City Information
  - Facilitation Centers

City Command and Control Centre (C4)
Smart Landscape
Application of GIS in Smart GIFT

- GIFTCL collects, updates data, information in GIS framework to collaborate and conduct analysis for more efficient and informed about the development, resources, infrastructure, utilities and the activities that are affecting GIFT City.

- GIFTCL integrates the Master Plan, Infrastructure Plan, Utility Plan Landscape Plan, to analyse and measures the impact of change in virtual world.

- GIFCL Uses GIS in different functions and stages including
  - Analysis of existing situations
  - Modelling and projection
  - Development of planning options
  - Selection of planning options
  - Plan implementation
  - Operation & Maintenance
Application of GIS in Smart GIFT

- Better information management
- Higher quality analysis
- Ability to carry out “what if” scenarios
- Improve project efficiency
- Better Information and Analysis tools for decision making and communicating;
- Same information to everyone - not different versions, dates;
- Public access to information (future - web access);
- Record retained of changes over time;
- Dynamic resource - information increasing;
- Data + Mapping - production of custom maps;
- City Security / surveillance
Development at GIFT

- Roads & Street Lights
- 66 kV Power Receiving Station
- Water Treatment Plant
- District Cooling System
Development at GIFT

Automated Waste Collection System

Utility Tunnel

Gujarat International Finance Tec-City Company Limited (GIFTCL)
<table>
<thead>
<tr>
<th>Utility</th>
<th>Details of Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Supply</td>
<td>Security Deposit (Interest Free): 4 months Consumption Charges as applicable for the contracted water supply.</td>
</tr>
<tr>
<td></td>
<td>Usage Charges (per month): Rs. 40 / 1000 Liter</td>
</tr>
<tr>
<td></td>
<td>Minimum Fixed Charges: 50 % of the contracted demand</td>
</tr>
<tr>
<td>Sewage Facility</td>
<td>Security Deposit (Interest Free): 4 months total sewage charges</td>
</tr>
<tr>
<td></td>
<td>Usage Charges (per month): 20 % of Water Bill</td>
</tr>
<tr>
<td>Solid Waste Collection</td>
<td>Security Deposit (Interest Free): 4 months collection charges, as applicable</td>
</tr>
<tr>
<td></td>
<td>Usage Charges (per month): Rs. 0.2 / Sq. Ft of BUA</td>
</tr>
<tr>
<td>Power</td>
<td>Security Deposit: 2 months contracted demand</td>
</tr>
<tr>
<td></td>
<td>Usage Charges (per month): As per the Tariff approved by Gujarat Energy Regulatory Commission (GERC) as applicable for Uttar Gujarat Vij Company Limited (UGVCL), excluding Electricity Duty</td>
</tr>
<tr>
<td>District Cooling System</td>
<td>Security Deposit: 2 months contracted demand</td>
</tr>
<tr>
<td></td>
<td>Usage Charges (per month): Rs. 7.20 per TR/Hr</td>
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