



ROLTA

INSIGHTS. INNOVATION. IMPACT

# Rolta Smart City Platforms

BLEND OF TECHNOLOGY & EXPERTISE



BEST RANGE OF  
SMART CITY SOLUTIONS

# Smart City – Rolta's Approach

Rolta is uniquely positioned to bring significant value to Smart and Safe Cities with its indigenous solutions that are not only proven globally, but also designed to suit specific needs of the country.

Rolta envisions "Smart & Safe City" solutions as scalable platforms which are developed and configured to:

- Internally, build efficiency and integration between systems
- Externally, build an ability for citizens to engage the city through services, and provide transparency to internal policies and processes

Rolta's innovative technology is the key to providing capabilities which establish a flexible, robust and solid foundation for information visualization, exchange, interaction, and decision making in the government. By utilizing these solutions, the level of service to citizens increases fundamentally and the ability to make timely decisions based on current information will be boosted drastically.

By utilizing our solutions, the level of service to citizens increases and the ability to make timely decisions based on current information will be boosted dramatically.

Rolta with its domain and technology expertise helps city Governments to:

- Plan (consulting services)
- Prepare (data services)
- Build (enterprise solutions for smart initiatives)
- Optimize (Analytics)



# IP Lead Platforms for Smart Solutions



Rolta's rich IP-driven solutions brings significant value to the Smart City program which is built combining deep domain expertise with innovative technology.

Rolta's safety solutions, which include Rolta GeoCAD™, Rolta Command and Control™ and Rolta Crime Analytics™, have been recognized for the significant value they bring to the "Safe and Smart Security" program.

Rolta Geospatial Fusion™, Rolta OneView™, Rolta IT-OT Fusion™ and Rolta iPerspective™ achieve smarter city initiatives involving real time geospatial enabled analytics, transactional and analytical capabilities across IT-OT systems.

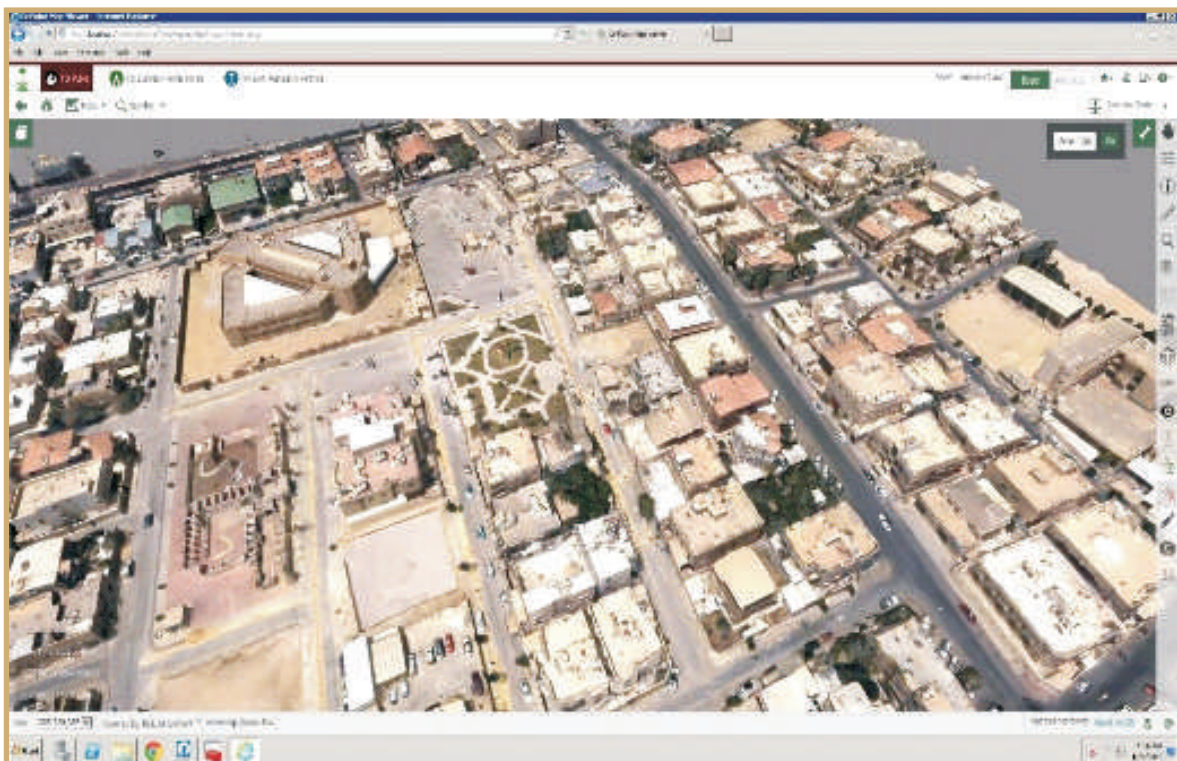


# Urban Planning

Maps are the most common way a person interacts with information about his or her city. Successful Smart City initiatives will bring the power of maps and geospatial information even closer to citizens through applications. Detailed geospatial data about a city will empower town planners and government bodies to provide services that are truly groundbreaking as well as of practical utility to citizens. As citizens interact with such geospatial-enriched applications, massive amounts of data will be generated as well as collected, which needs to be collated, processed, and analyzed to deliver better services to citizens. It is clear that

both geospatial technologies and Big Data will play a pivotal role in Smart City initiatives, and the seamless integration and processing of traditional data with geospatial data will deliver much-needed services to citizens.

Rolta has always focused on developing solutions that contribute towards responsible and effective use of organizations' geospatial resources. This is the foundation for intelligent Smart City initiatives. It enables authorities to make better city planning decisions, prepare for disaster response & mitigation, protect their critical assets and monitor their carbon foot print.



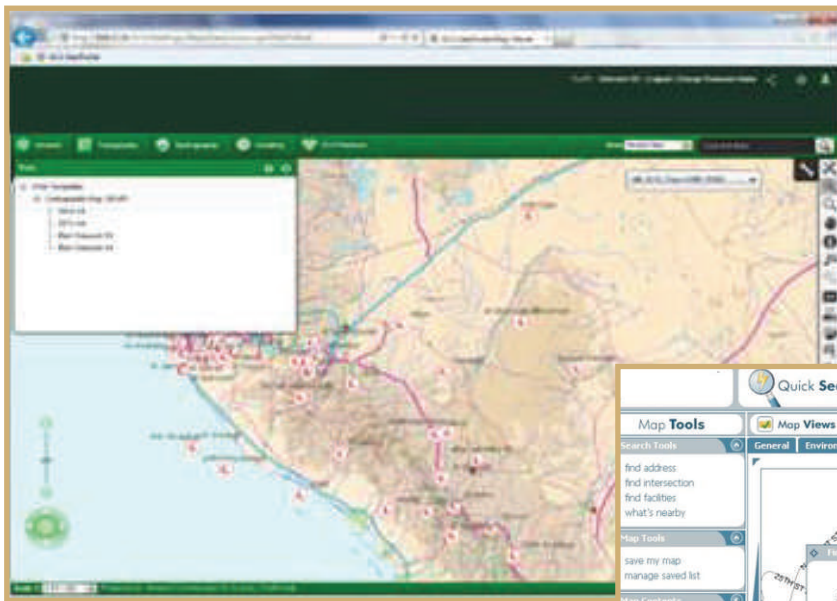
**3D Spatial City Model**

- 3D city models - topology of buildings and terrain
- Integration of 3D Mapping and visualization capabilities
- Local asset & land databases
- Demographic datasets
- Intelligent information model for
- Planning
- Safety
- Disaster management

Foundation for intelligent Smart City initiatives which integrates data in an organized manner

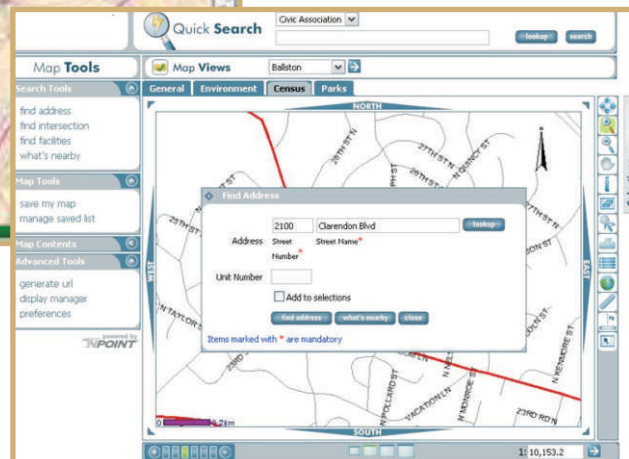
# Urban Planning

- GeoCollaboration portal for dissemination of Spatial and non-spatial data
- Geoportal for property search



## Urban Data Services Portal

- Automate management of land records process e.g. create subdivision, split/merge parcels
- Facilitate registration and maintenance of real estate and property transactions
- Allow citizens to search for land parcel titles, status on building permits and inspections



## Property Search



## Land Management & Building Plan Portal

Platform to support macro level planning, facilitating interoperability across various departments

# Economic Development

Rolta's Economic Development solution enables organizations to visualize demographics, infrastructure and land to select the suitable location for a business, as well as strategize how to bring new investments into the city.

- Information portal for economic development (Sales CRM)
- Demographic and economic reports
- Industry cluster information
- Site comparison reports
- Site level reports from state, municipal on taxation, incentives, social & physical infrastructure
- Ability to give virtual walkthroughs to customers

The image displays two screenshots of the Rolta Economic Development solution interface. The top screenshot shows a 'SITE COMPARISON REPORT' comparing three industrial properties. The bottom screenshot shows an 'Investors Portal' with a map and a list of properties.

Reference Number: TRBC1836812	Reference Number: TRBN1842013	Reference Number: TRBN1836894
19 Exander Dr Toronto, ON M2G0G6	2380 Warden Rd Oakville, ON L6L5B8	220 Industrial Pkwy S Aurora, ON L4G3V8
<b>General Property Characteristics:</b>	<b>General Property Characteristics:</b>	<b>General Property Characteristics:</b>
Transaction Type: For Sale Only	Transaction Type: For Sale Only	Transaction Type: For Sale Only
Property Type: Industrial	Property Type: Industrial	Property Type: Industrial
Property Size: 5 or Less	Property Size: 5 or Less	Property Size: 5 or Less
Lot Size: 75.33 72.98 Metres	Lot Size: 0.0 Acres	Lot Size: 0.0 Feet
Price: CDN \$188,500.00	Price: CDN \$188,250.00	Price: CDN \$189,900.00
Age: Resale	Age: Resale	Age: Resale
<b>Listing Firm:</b>	<b>Listing Firm:</b>	<b>Listing Firm:</b>
JOHN ROBB, Salesperson Phone: 416-481-6137 E-mail: jrobb@rebelnet.com	ELLIOT GOLDSPINK, Salesperson Phone: 905-315-3981 E-mail: elliot.goldspink@cbre.com	SARAH OLGA, Salesperson Phone: 905-889-8330 E-mail: saraolga@rebelnet.com
<b>Industrial Property Details:</b>	<b>Industrial Property Details:</b>	<b>Industrial Property Details:</b>
Sub Type: Ind. Comm	Sub Type: Ind. Comm	Sub Type: Ind. Comm
Building size (sq ft): 600	Building size (sq ft): 1,188	Building size (sq ft): 867
Min Ceiling Height (ft): 0.0	Min Ceiling Height (ft): 0.0	Min Ceiling Height (ft): 0.0
Max Ceiling Height (ft): 11.0	Max Ceiling Height (ft): 15.0	Max Ceiling Height (ft): 15.0
Water Supply Type: Municipal	Water Supply Type: Municipal	Water Supply Type: Municipal
Sewer Type: Sanitary/Storm	Sewer Type: Sanitary/Storm	Sewer Type: Sanitary/Storm
Heat Type: Office: N/A	Heat Type: Office: N/A	Heat Type: Office: N/A
Heat Type Non-Office: Other	Heat Type Non-Office: Other	Heat Type Non-Office: Other
Fire Protection: Full Sprinkler System	Fire Protection: Full Sprinkler System	Fire Protection: Full Sprinkler System
Fuel Type: Natural Gas	Fuel Type: Natural Gas	Fuel Type: Natural Gas
Power: N/A	Power: N/A	Power: N/A
Loading: 0	Loading: 0	Loading: 0

The bottom screenshot shows an 'Investors Portal' with a map of Toronto and a list of properties. The list includes details such as Reference Number, Property Size, Lot Size, Price, and Listing Firm.

Industrial Site Comparison

Investors Portal

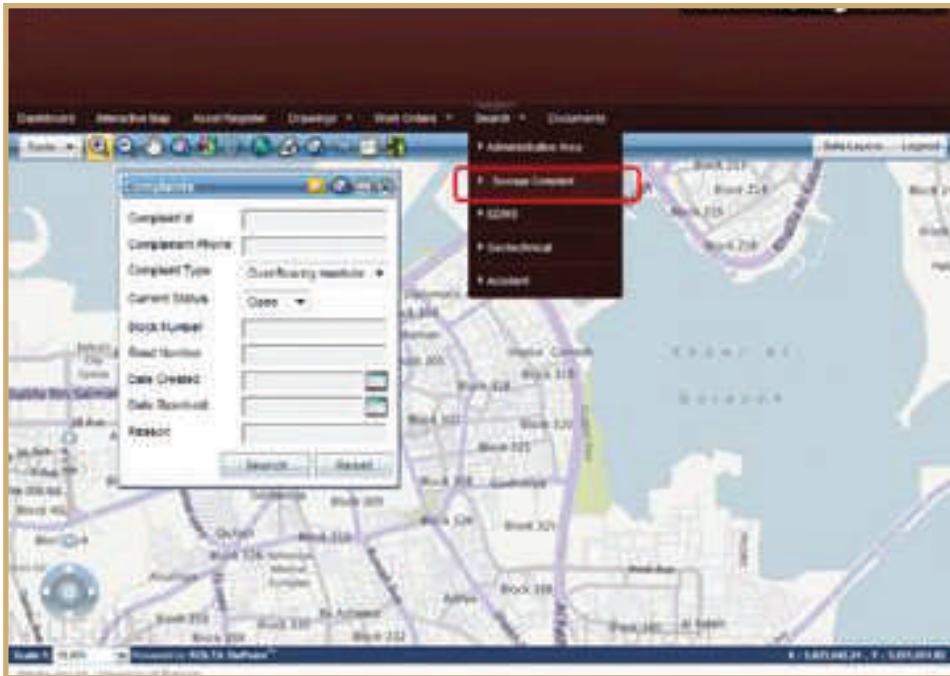
Geospatial centric approach supporting industrial growth, expanding investments and creating job opportunities



# Public Works

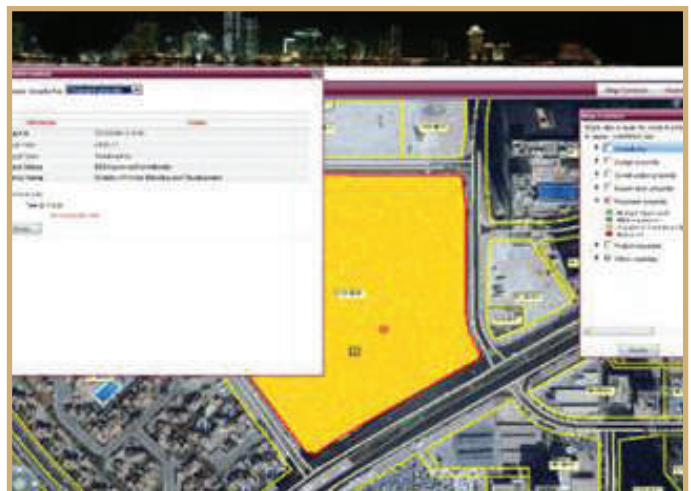
Rolta's solution portfolio for public works covers enterprise asset management, capital project management, performance dashboards with immediate and real-time access to critical metrics and key performance indicators

- Geocentric asset management solution across asset lifecycle
- Synchronizes management across the asset register, external systems, GIS, document management system



**Asset Management Portal**

- Public portal depicting information of approved and funded projects with construction stage/ milestones met, etc.
- Internal portal for project approval management and tracking
- Executive dashboards for projects
- Linkage of project progress with geographical data for better insights and work schedule



**Capital Project Information Portal**

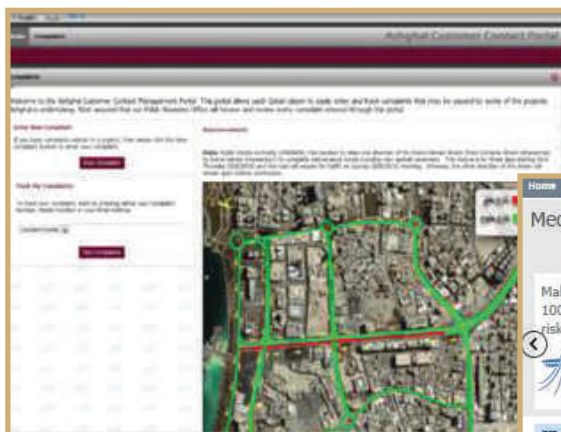
Geo-enabled asset management, capital project management and workforce management

# Governance

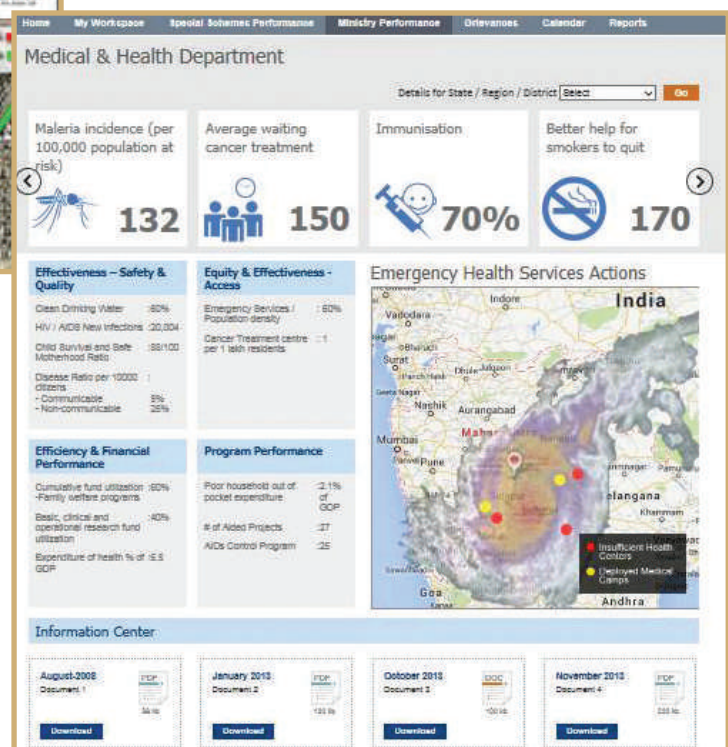
Rohta's mobile enabled smart Governance solution enhances two way communication between the government and citizens. Rohta GRP offers an SOA based eService platform. The platform is built separately and is seamlessly integrated with backend business and administrative operations. Rohta GRP Platform accelerates eMaturity via a robust backend administration and provides a business process platform for city governments. These are seamlessly integrated with smart citizen centric applications. This service oriented platform

caters to all information and transactional services. It follows standards and guidelines defined by Government IT departments assurance local compliance.

- Platform to effectively communicate with the citizens and keep them abreast of various activities and plans of the city
- Inform citizens proactively during emergency situations including text messaging
- Allows citizens to submit complaints.



**Government Performance Monitoring Portal**



**Citizen's Portal**

Brings transparency in city & citizen Services

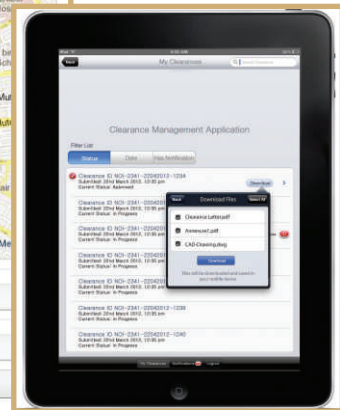


- | Work Location                                 |  |
|---|--|
| <b>Community Name:</b>                        | Shaeikh Zayed Rd                                   |
| <b>Plot ID:</b>                               | ABC-11   |
| <b>Road Number (1):</b>                       |  |
| <b>Road Name (1):</b>                         |  |
| <b>Road Number (2):</b>                       |  |
| <b>Road Name (2):</b>                         |  |
| <b>Site Office Location:</b>                  | King Abdul Aziz Road                               |
| <b>Site Office Telephone:</b>                 | +971 - 44556677                                    |
| <b>Impacted Communities:</b>                  | Al Barsha First, Al Barsha Second, Al Barsha Third |
| <b>Point 1:</b> x: 25.26975672 y: 55.30954556 |  |
| <b>Point 2:</b> x: 25.26944672 y: 55.30874556 |  |
| <b>Point 3:</b> x: 25.26345672 y: 55.30954556 |  |
| <b>Point 4:</b> x: 25.23475672 y: 55.30922556 |  |
| <b>Contact Details</b>                        |  |
| <b>Technical Information</b>                  |  |
| <b>Comments</b>                               |  |
| To Customer                                   | Internal   |
| Planning Department 11/04/2013   10:20 AM     |  |

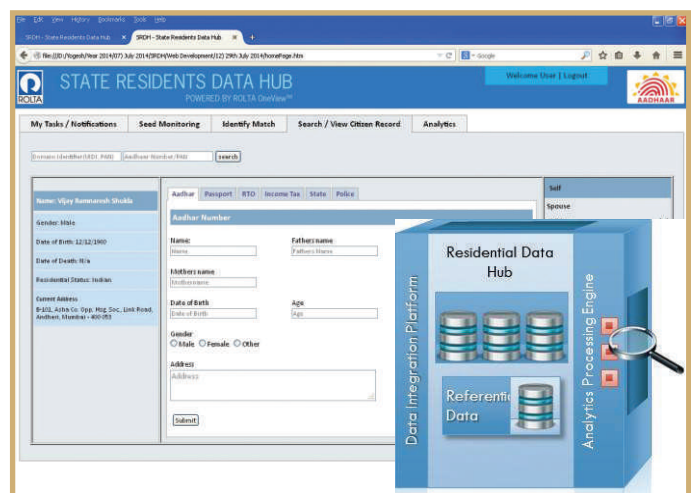
The map shows a section of Dubai, United Arab Emirates. A red rectangle highlights a specific area labeled 'Naif'. The map includes various landmarks such as the Hyatt Regency Dubai, Hues Boutique Hotel, Al Barsha, Marina Mall, and several metro stations like Deira Old Souq Metro Station and Union Green Line Metro Station 1. Roads shown include Sheikh Zayed Road and Al Khayma Road.

Supporting Documents		
Status		
Department	Date	Status
Eisalat	11/03/2013	Approved <input type="checkbox"/>
DU	11/03/2013	Supporting Documents Received <input type="checkbox"/>
Public Parks and Horticulture	11/03/2013	In Processing <input type="checkbox"/>
Roads Maintenance Section	11/03/2013	Supporting Documents Received <input type="checkbox"/>



## Single Window Services

- Citizen's information repository
- Integrated with city services data
- Improved monitoring of services and its reach to the right beneficiaries



## Citizen Data Hub



Improve operational effectiveness of services to citizens

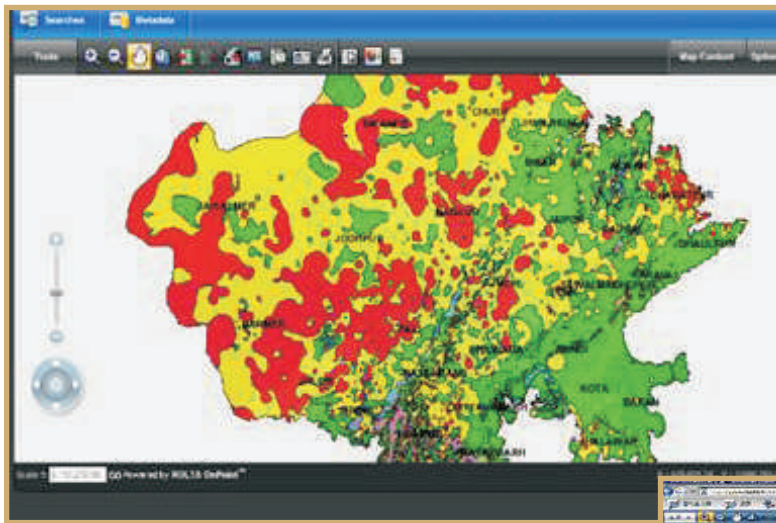


# Environment

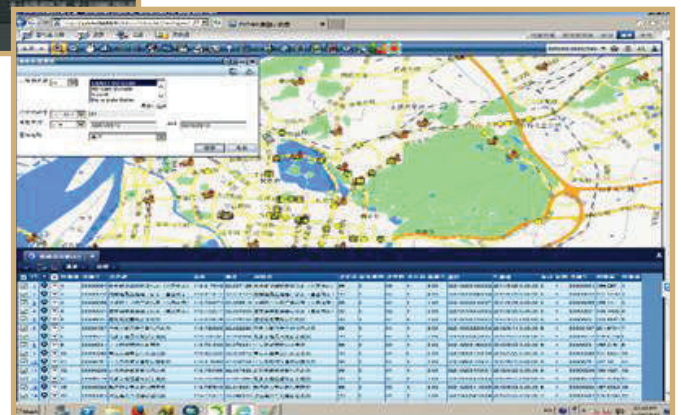
While concerns regarding exponential population growth within cities, soil degradation and food supply may have eased over the past years, issues related to surface & groundwater quality, vehicular and industry pollutions, impairment remain of great concern for any city.

Rolta's solutions provide a platform to organize, analyze and present accurate information about natural resources as well as environmental impact data within and around cities, which helps authorities to meet compliance and operating targets.

- Ground Water Management
- Hydrologic modeling
- Watershed delineation
- Hydrologic and water quality data assessment
- Water resource decision support systems
- Forest Management
- Forest mapping
- Forest resource assessment and management
- Analytics framework for air quality, and travel time optimization using road congestion analytics



## Natural Resource (Ground Water) Management



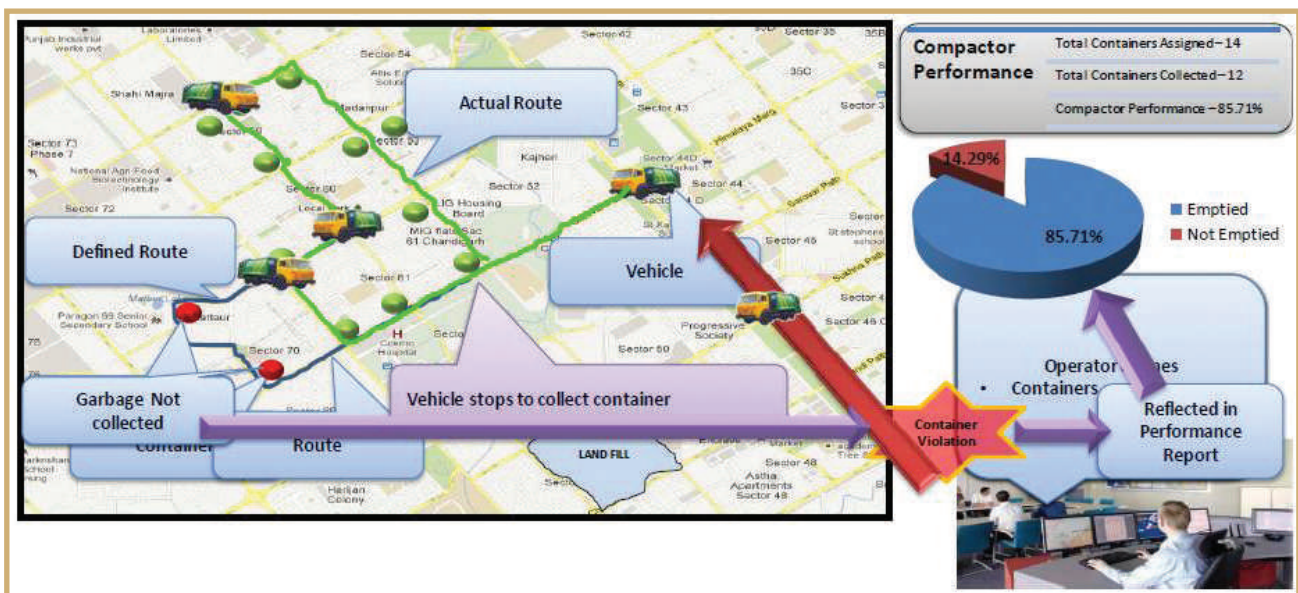
## Vehicular Pollution Dashboard

Helps authorities organize, analyze and present accurate information about natural resources



Waste management & sewerage operations are the biggest challenges in highly urbanized cities and are in need for smart solutions to improve efficiency. Rolta provides a spatial enabled platform to monitor solid waste data and the

environmental impact of waste disposal. It also provides a solution for fleet management for garbage collection as well as a platform for sewerage assets management.



## Garbage Bin Management

- Vehicle (garbage collector, street sweeping vehicles) tracking and monitoring
- Vehicle diagnostics, speed management and safety management
- Accurate information in real time to improve the fleet's operational performance
- Platform to manage redundancy while maintaining assets in public works department and synchronized single source to monitor critical KPIs
- Outage monitoring
- Integrated grievance management



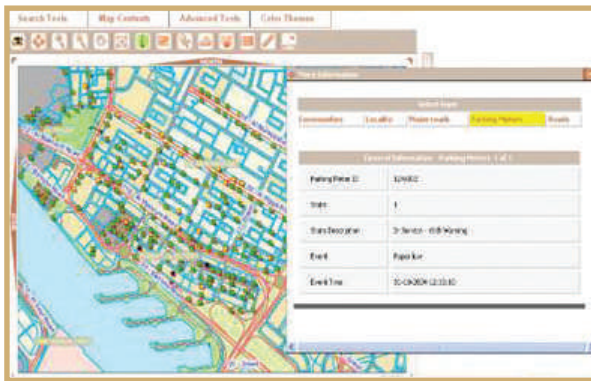
## Outage Management – Sewerage Operations

Spatial enabled integrated enterprise solution platforms improving efficiency

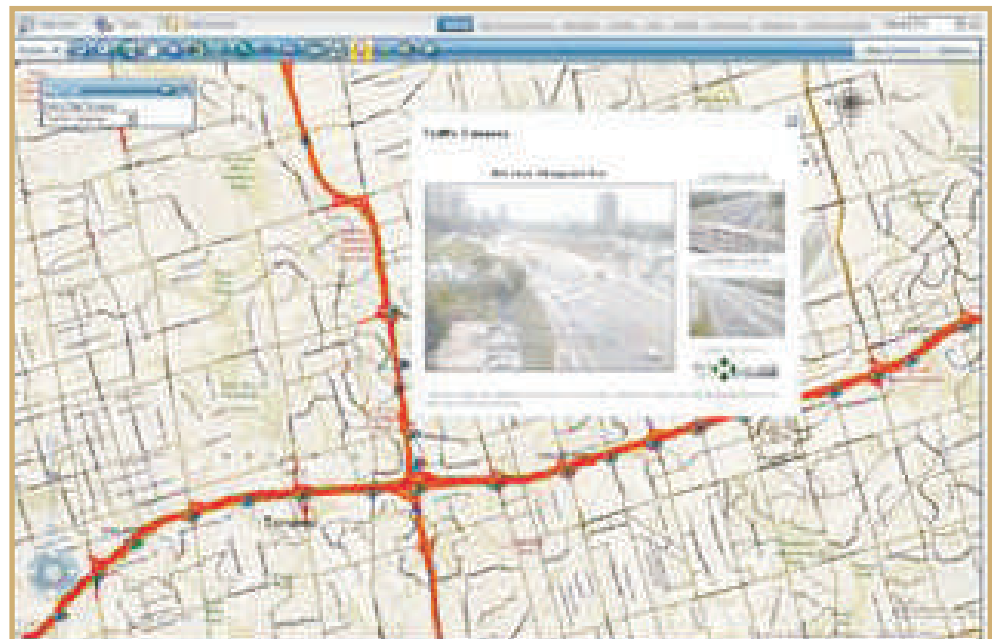
# Transportation

Rohta's smart transportation platform provides a complete and comprehensive set of capabilities that address the urban transportation needs of smart cities covering traffic safety, parking solutions, infrastructure, congestion monitoring and management, emissions monitoring, predictive congestion analytics, automatic computer-aided dispatch systems, and more.

- Visualization framework for near real time monitoring of road networks with camera display feeds for traffic management
- Single, map based system interface providing actionable insights
- IT-OT Fusion - Integration of the parking spaces sensor's data with the centralized application
- Geo-enabled solution - simplifying visualization for end users
- Generic frame work for management of parking space, parking meter, etc.



**Parking Management**



**Traffic Analysis**

Attaining insights through integration of transportation enterprises for effective traffic management

# Utilities

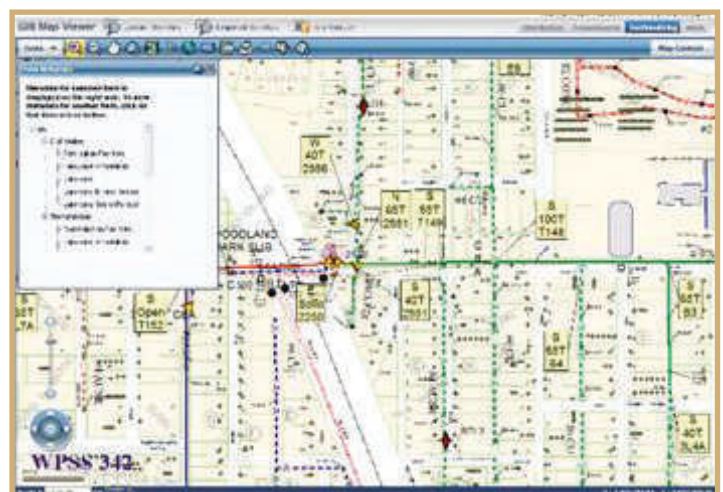
Majority of smart city initiatives are oriented towards enabling smart utilities in the area of water and power. In the areas of utility operations data, information and people / workforce needs to be constantly in motion behind the scenes to keep

utility networks functioning at the highest performance possible. Rolta offers advanced Big Data analytics intelligent solutions that are, by design, integrated within the larger flow of the business information of utility.



**Rolta OneView™ for Water Utilities**

- Helps deliver predictions based on weather forecasts as well as geospatial-enabled network data models.
- Analytics includes improved customer satisfaction tracking, better monitor distribution performance, asset failure scenario analysis, etc.
- Enables powerful analytics for fraud detection
- Compliance auditing
- Computation of standard indices



**Rolta OneView™ for Power Utilities**

Intelligent solutions that are, by design, integrated within the larger flow of the business information of utility operations



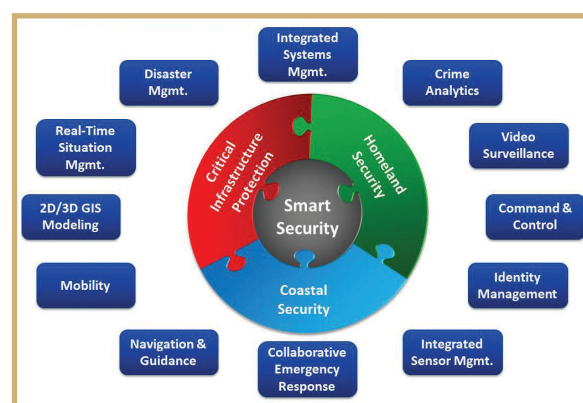
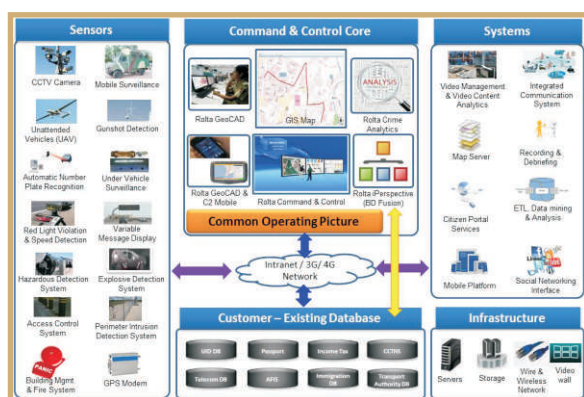
# Smart Security

"Rolta Smart security" solutions are built around "Rolta Command & Control", "Rolta GeoCAD", and "Rolta OnPoint" solutions, building an enterprise platform for:

- Real-time communication to help emergency services to intervene promptly
- Collaboration between agencies in a reliable and secure way
- Gathering and analyzing heterogeneous sensors and incidents information in real time
- Command and Control in collaboration with incident response teams and first responders
- Enabling municipalities and their emergency services to enhance safety and security for citizens, businesses, assets and infrastructure

Rolta's Smart Security framework provides advanced sensor's and systems integration, data fusion, analytics and 2D/3D GIS based visualization capabilities. It does so by integrating various disparate security systems which otherwise operate in silo's. These include camera based surveillance, mobile surveillance vehicles, license plate recognition, fire alarm, access control and perimeter intrusion detection systems etc. It can also interface with:

- Unified communication systems and voice loggers
- Distress alert mobile applications for citizens
- Land as well as coastal control room solution
- CCTV for city surveillance and traffic management
- Crime and Criminal Tracking Networks and Systems (CCTNS)
- Mobile devices to provide solution for field forces & senior authorities



Smart Security Value map

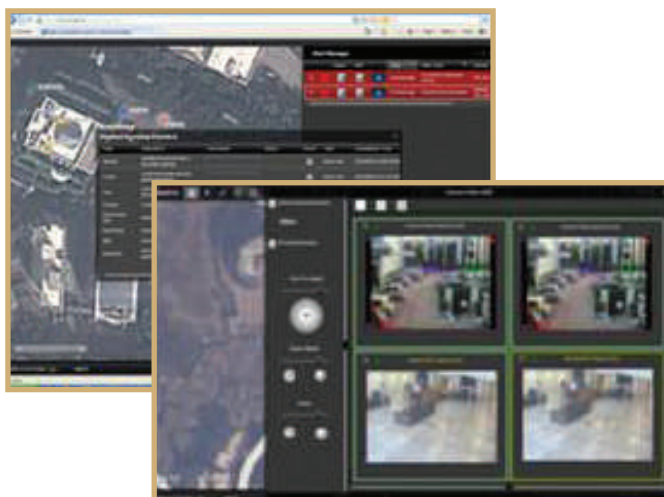
Platform to provide insights for managing the safety and security of a nation/city

# Safe City

Rolta safe city solutions facilitate secure urban environments with innovative crime prevention, traffic management, video surveillance and environmental control capabilities. Rolta's solution provides decision-makers with the data needed for confrontation, response, management and analysis of a wide variety of emergencies and threats, including natural disasters, terrorist attacks, crimes & criminal cases

- Common operating picture of marine as well as homeland security operations to operators & responders

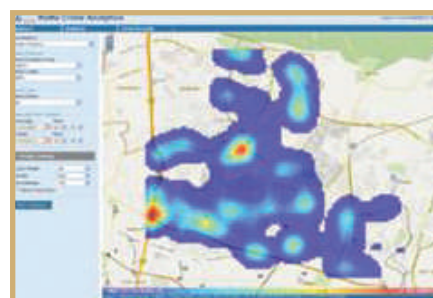
- Interoperability, decision support & unified communications for multi agency collaboration
- Integrated intelligent distress call response management
- Real-time capability to quickly visualize multiple sensors data and activity patterns
- Multi-layered geospatial context of emergency situations
- Multi-lingual display capability for localization support
- GIS based crime analytics



**City Surveillance Platform**



**Mobility**



**Crime Analytics**

# Disaster Management

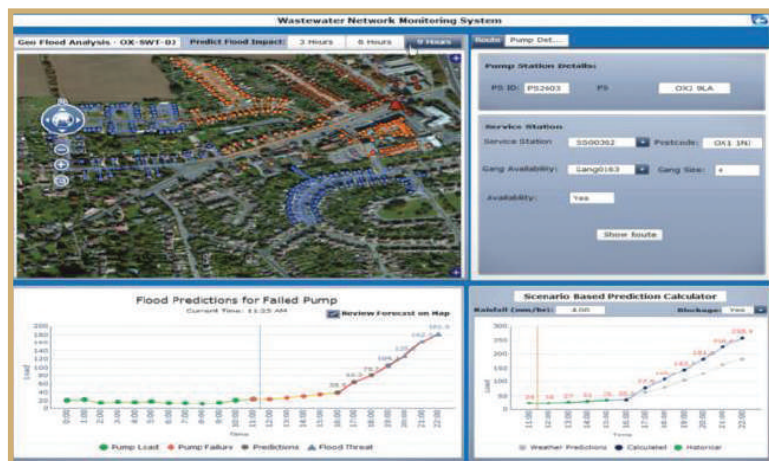
Rolta offers disaster planning and management systems that enable a real-time, common operational picture. It provides a single point of access to a wide range of disparate sensors, systems and other data sources data, encourage collaborative and effective communication and intelligent information sharing between

stakeholders and the key parties helping them, to enable disaster preparedness.

- Delivers flood modeling and predictions
- Geospatial-enabled network data
- Better monitoring of Distribution Performance, Asset Failure Scenario Analysis, etc.



Multi Agency Interoperability



Flood Management & Potential Impact Analysis

Collaborative and co-ordinated response for impact reduction



## Accolades

*"The project has established convenient web based tools helping planners and engineers to update project information digitally rather than relying on parceling bundles of paper reports. This is a real business support tool saving resources and cutting waste".*

-Yousif Amin Yousif, Director, Municipal Planning, Abu Dhabi Municipality.



Municipalika 2014 Award for excellence – Best range of Municipal Solutions

## About Rolta

Rolta is a leading provider of innovative IT solutions for many vertical segments, including Federal and State Governments, Defense, Homeland Security, Utilities, Oil&Gas, Financial Services, Manufacturing, Retail, and Healthcare. By uniquely combining its expertise in the IT, Engineering and Geospatial domains, Rolta develops exceptional solutions for these segments. The Company leverages its industry-specific know-how, rich repository of field-proven intellectual property that spans photogrammetry, image processing, geospatial applications, Business Intelligence, Big Data analytics, Cloud computing, and Software Defined Infrastructure for providing sophisticated enterprise-level integrated solutions. Rolta is a multinational organization headquartered in India. The Company operates from 40 locations worldwide through its subsidiaries, and has executed projects in over 45 countries. Rolta is listed on the Bombay Stock Exchange and National Stock Exchange in India. The Company's GDRs are listed on the Main Board of London Stock Exchange. The Company's 'Senior Notes' are listed on Singapore Stock Exchange.

## Corporate and Global Headquarters

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