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CITY OF CAPE TOWN | ISIXEKO SASEKAPA | STAD KAAPSTAD



# **Water Services Customer Management Model**

**CITY OF CAPE TOWN  
TECHNICAL OPERATIONS CENTRE**

**Pieta le Roux  
GIS Specialist**



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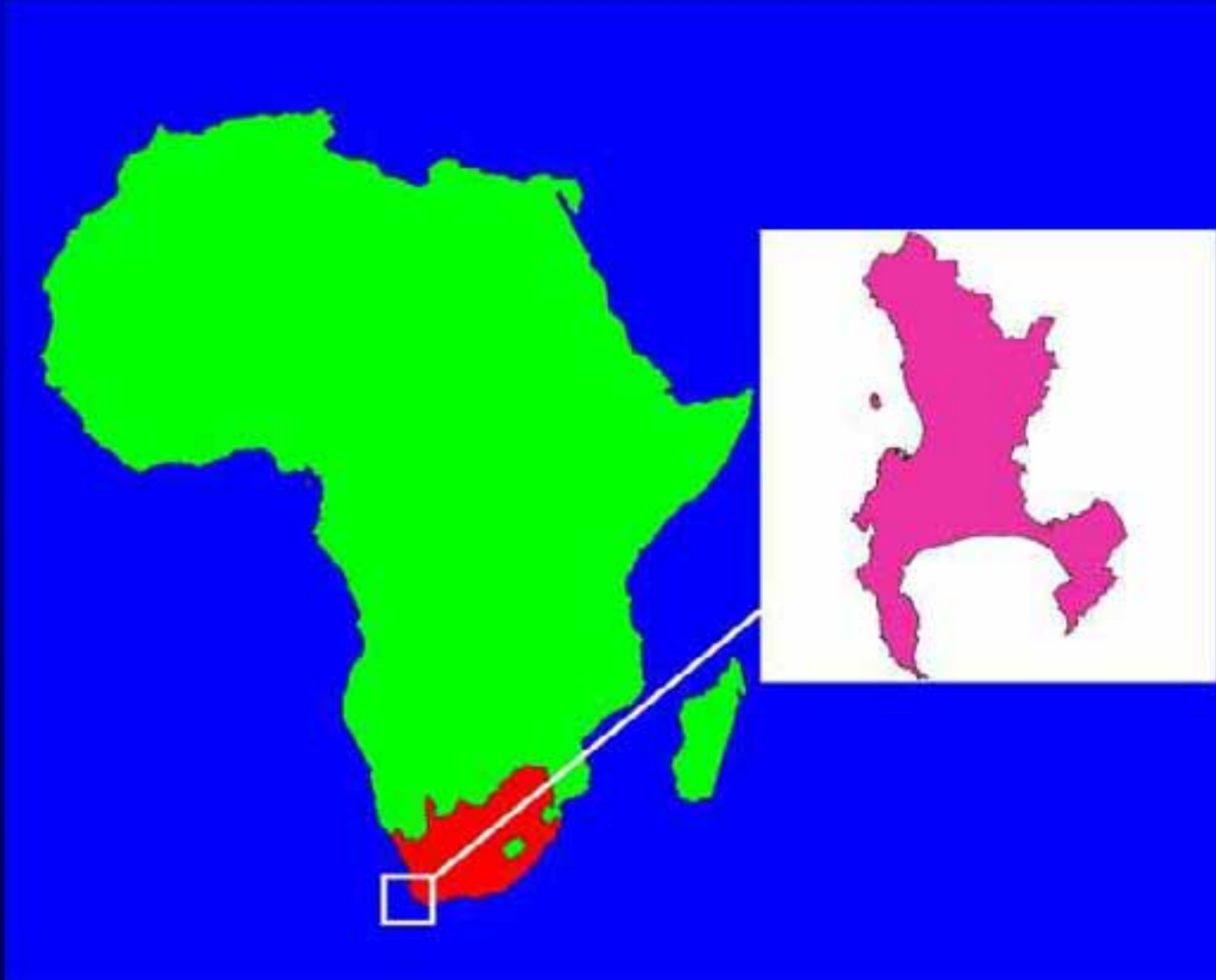
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## Topics

- **Cape Town challenges**
- **The role of the Cities Enterprise GIS**
- **Water Services Customer Services Issues**
- **Pilot project to address spatially-enabled Event Management**
  - **Purpose & Functions**
  - **Technology Platform**
  - **Quantifying Events**
  - **Communication Channels**
  - **Communication Options**
  - **Conceptual Design**
  - **Business Benefits**
- **Demo**

# City of Cape Town

## Where are we located



# Challenges managing Water in the City of Cape Town

- Cape Town's Population increase 2.6%/annum and 750 000 households
- 69% of households in the city have piped water in their dwellings
- 15% have piped water on site and 14% of households make use of communal taps
- Not all informal households have been supplied with water due to unsustainable land occupation
- 67% of consumers earn less than R2500/month (\$385)

# Challenges

**The water demand of the city is approximately 850MI/day**

- The City makes use of 5 large storage dams total capacity 780million m<sup>3</sup> as well as a number of smaller dams**
- The water supply and waste infrastructure includes 33 Treatment plants, 131 Reservoirs, 690 Pump stations, 17 600km (11000 miles) of pipelines & a replacement value of over R12 billion (\$1.9 billion)**
- The strategy follow all possible water demand measures reduce usage eliminate wastage, exploring alternative sources of additional supply**
- An ISO 9001 Quality Management System has been implemented to improve communication, revenue income & management**

# Challenges

- **Future water supply capacity - implementation of the Berg River dam, approximately 50km or 30 miles from Cape Town) in 2006/07**
- **Master planning - new infrastructure R2,8 billion (\$0.44 billion) will be required within the next 10-12 years**



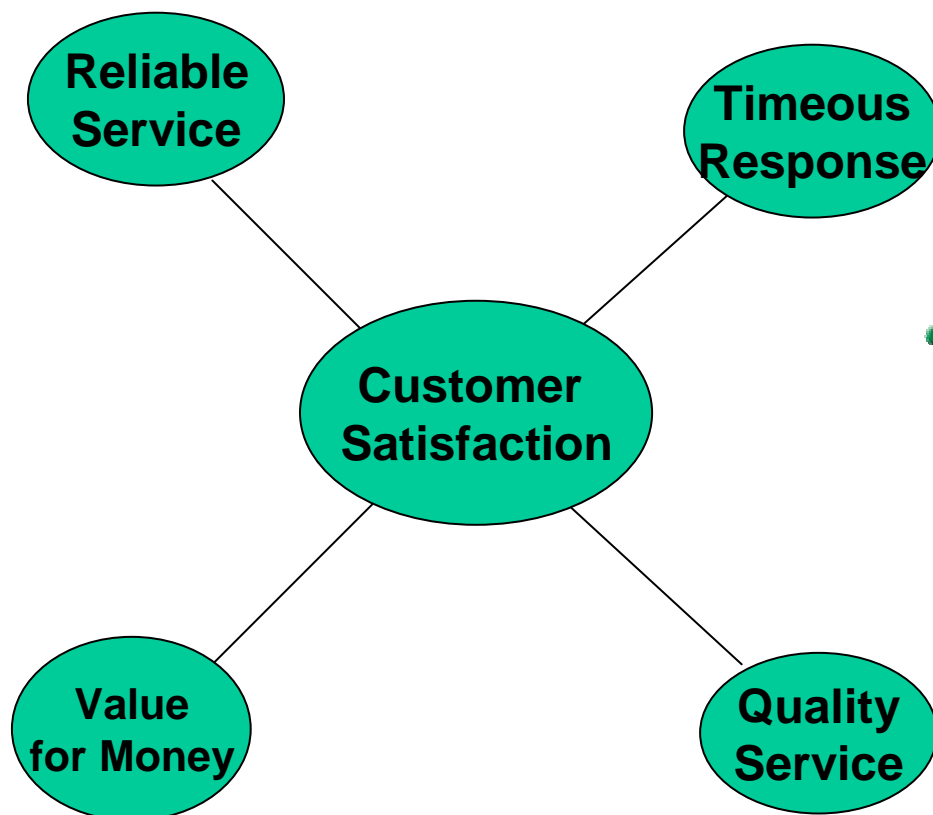
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**How do we provide efficient service delivery through Operations**

# Meeting Customer Needs Through Identifying Strategic Leverage Areas



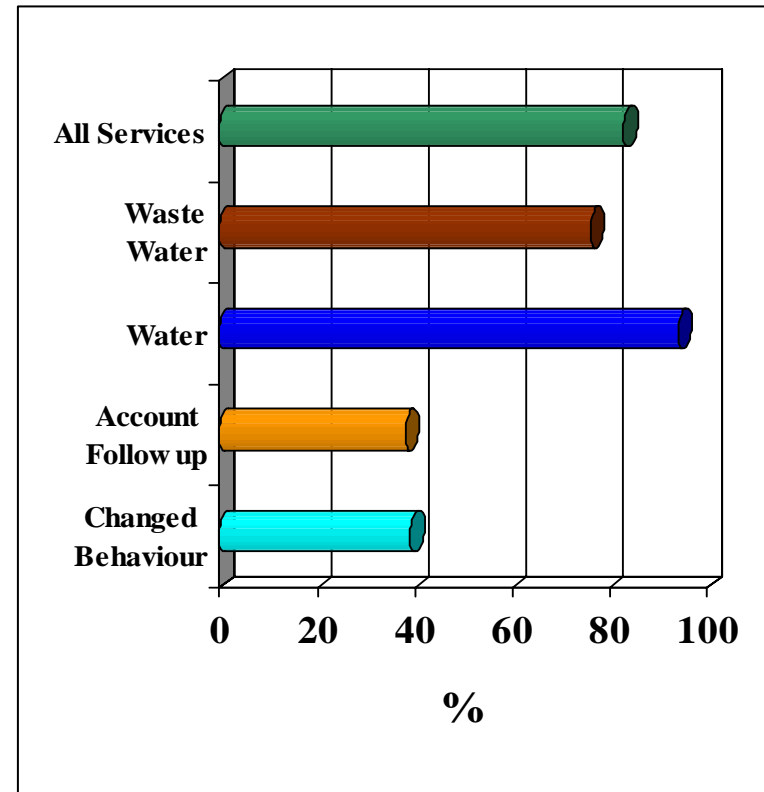
- Affordable, reliable water services
  - Potable water on tap
  - Wastewater safely away



# Response to Customer Service Issues

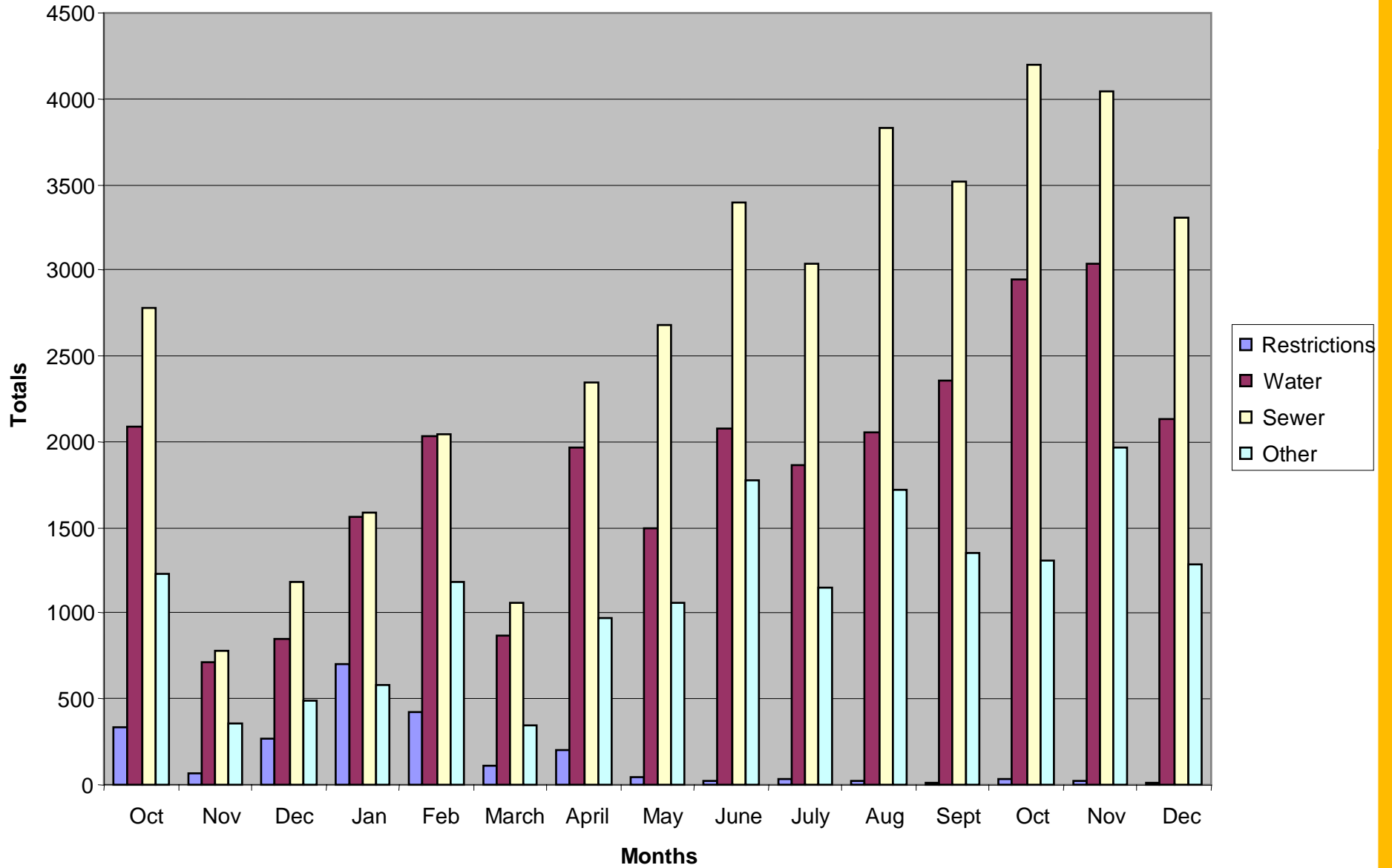
## Customer Surveys (2005 Survey Key Points)

- 83% satisfied with provision of municipal services
- 76% satisfied with maintenance of wastewater system
- 94% satisfied with provision of drinking water
- 38% received follow up to account queries
- 39% changed behaviour to conserve water



# COMPLAINTS RECEIVED

Oct 2004 – Dec 2005





# **Event Management System**

**Pilot project**

**To evaluate technology and  
interfacing options**

# Location of the Technical Operations Centre (TOC)

**Voortrekker Road, Bellville**



# Summary of Tech Ops Control (TOC) Roles

1. **Interface with Customers in partnership with the Corporate Call Centre.**
2. **Events management and interface with Operational Staff**
3. **Initiating operational responses including dispatching of notifications.**
4. **Events tracking and logging.**
5. **Co-ordination of Water and Wastewater emergencies**
6. **Provide support to operational environment. (GIS, Communications, SAP etc)**

# **Summary of Tech Ops Control (TOC) Roles (Continued)**

- 7. Monitoring of strategic leverage areas.**
- 8. Completion of the SAP business closure process relative to each event.**
- 9. Provide Management Information to Decision Makers**
- 10. Water Services asset care and analysis.**
- 11. Water reticulation distribution control**
- 12. Management of customer feedback mechanisms.**



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## **Role of Enterprise GIS in Event Management**

- **The City of Cape Town has a mature GIS – one of the best in Southern Africa**
- **Next process in evolution of spatially-enabled information systems**
- **System utilises all the Cities current systems and technologies**
- **One of the 1<sup>st</sup> Business Operational Systems integrating with SAP, Enterprise GIS, Operational GIS and Work Flow**
- **System is web based allowing deployment at any site, but still ensuring a Centralised approach**
- **Can therefore take advantage of leading edge technology, wireless communications, Server GIS etc**



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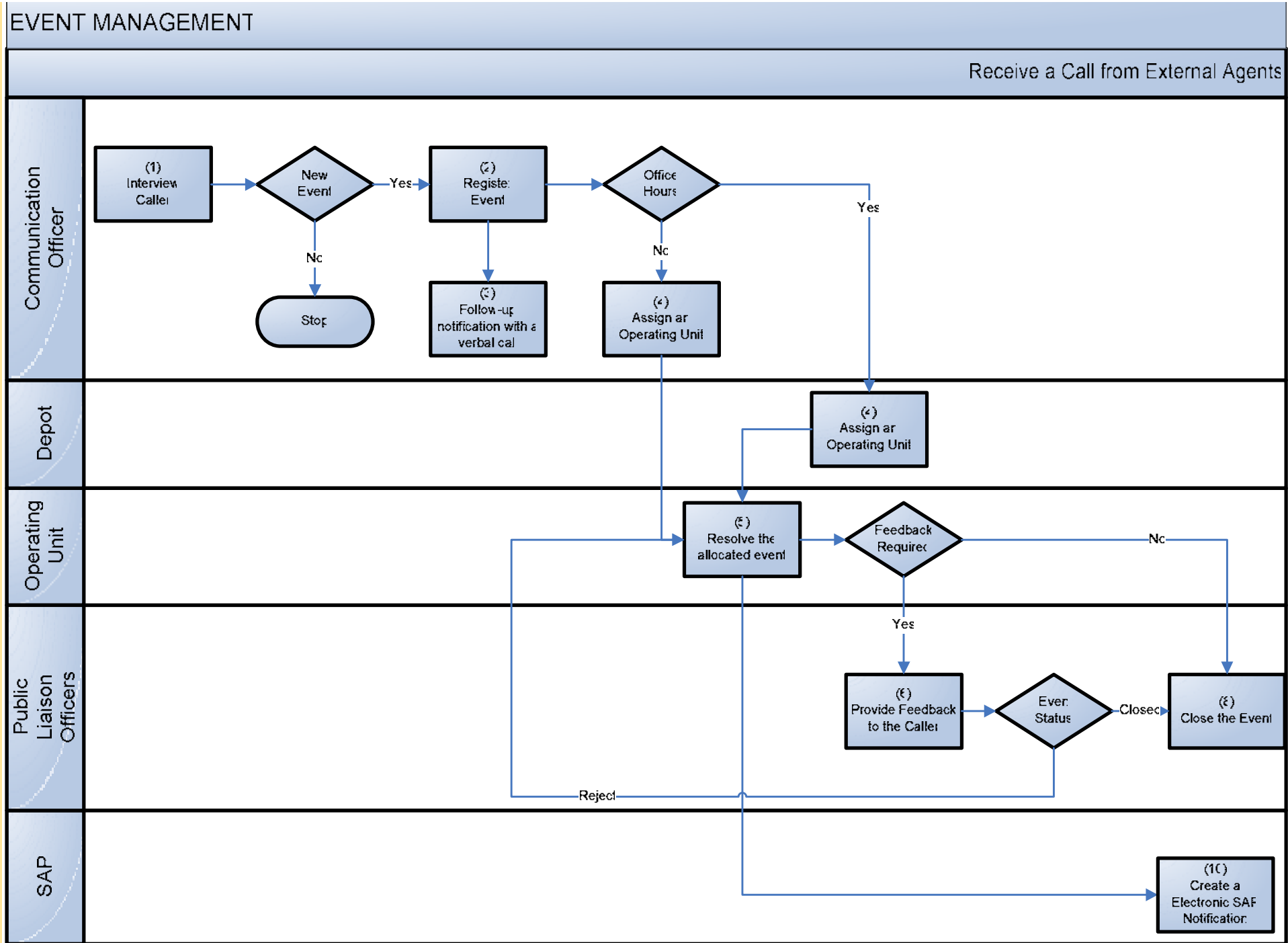
## **Primary focus of Event Management System**

- **To enhance the way the City does business from an efficiency point of view**
- **System uses position to record any event happening in the City**
- **Allows a drilling down capability to easily determine impacts to events at those positions or in the area and quickly assess the situation**
- **Using position the system can then identify assets the City has at that location and inform work crews what will be required to respond to that event**
- **Work flow allows the City to define and manage their standard operating procedures**
- **Work flows determine the system's automated response to the event and can escalate the event into an incident requiring a response**
- **Because Events are spatially positioned, Engineers can more easily visually interpret trends and patterns and become proactive in the City relative to infrastructure management**



# Water Services Events

- **Public complaints (water bursts, sewer blockages, etc)**
- **Reservoir level monitoring**
- **Pump Station overflow monitoring (Water & sewer)**
- **Interface with other Directorates (eg fixing burst in road, new water main in road etc.)**
- **Vehicle tracking**
- **Internal fault notification**
- **Work order processing and progress monitoring**
- **Queries from field operations**
- **Field data acquisition**



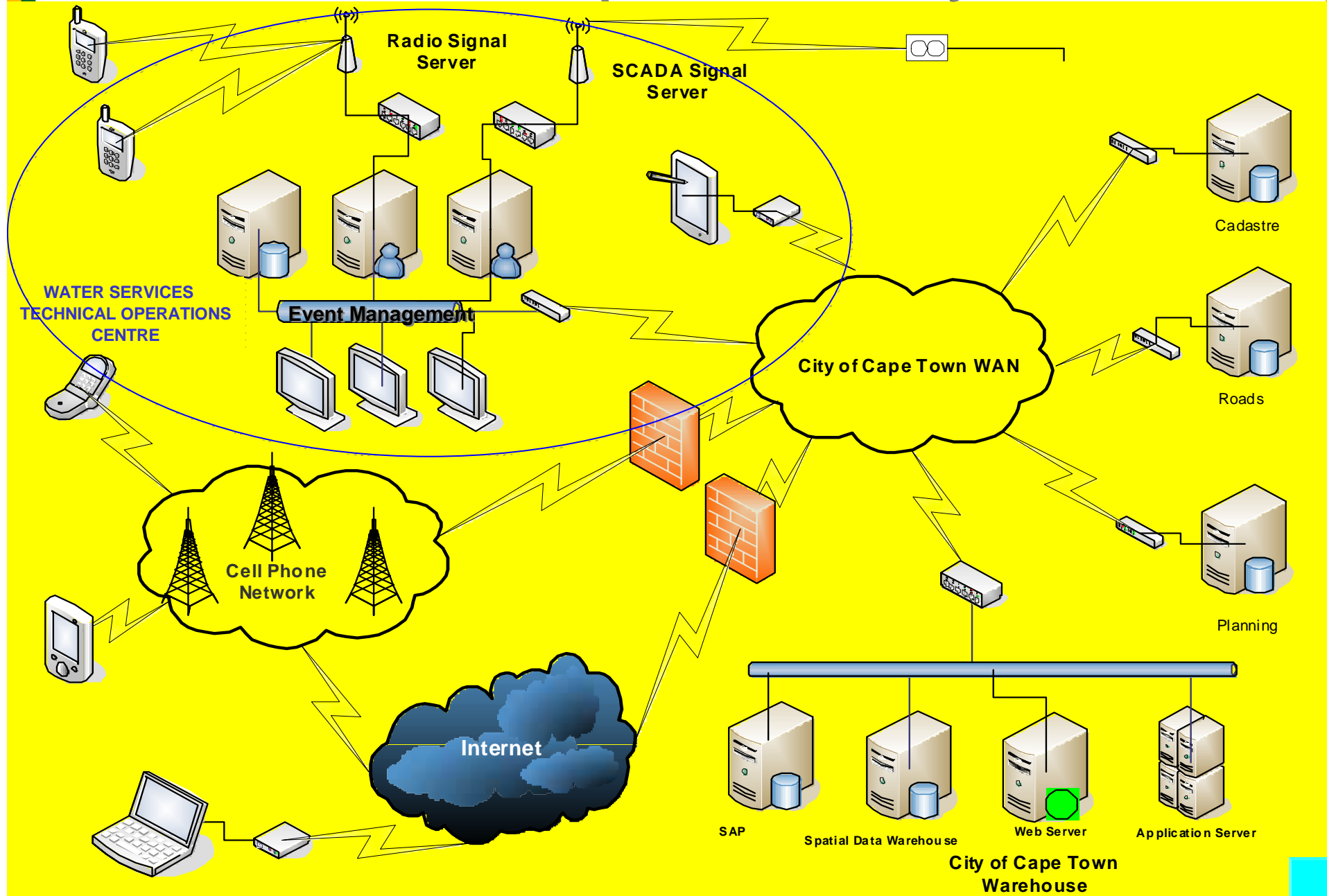
# Communication Channels

- **Voice (telephone)**
- **SCADA (remote measuring devices)**
- **Email**
- **GSM (SMS,GPRS,G3)**
- **Trunking Radio**
- **Tcp/IP**

# Communication Options

- **Wide Area Network (WAN)**
- **Local Area Network (LAN)**
- **Wireless Options**
  - **GSM (SMS, GPRS, G3)**
  - **Radio**
  - **Wi-Fi**
  - **Bluetooth**

# TOC Conceptual IT System



# Business Benefits

## The TOC will:

- **Consolidate processing of all events (e.g faults, complaints) utilising SAP**
- **Enforce standardisation (single point of entry into operations)**
- **Facilitate transformation (move away from ineffective legacy systems)**
- **Migrate from individual knowledge-based operations to institutional knowledge-based operations (i.e. move away from dependancy on individuals and facilitates knowledge sharing)**
- **Protect and enhance the Metropolitan knowledge-base**
- **Improve response and service delivery**

## **Business Benefits (2)**

- **Reduce maintenance costs**
- **Improves problem analysis and solving**
- **Improve the utilisation and deployment of specialised maintenance services**
- **Reduce maintenance bottlenecks**
- **Improve emergency response capabilities**
- **Use computer technology to enforce standards and implement effective standard operating procedures managed by the RDBMS**



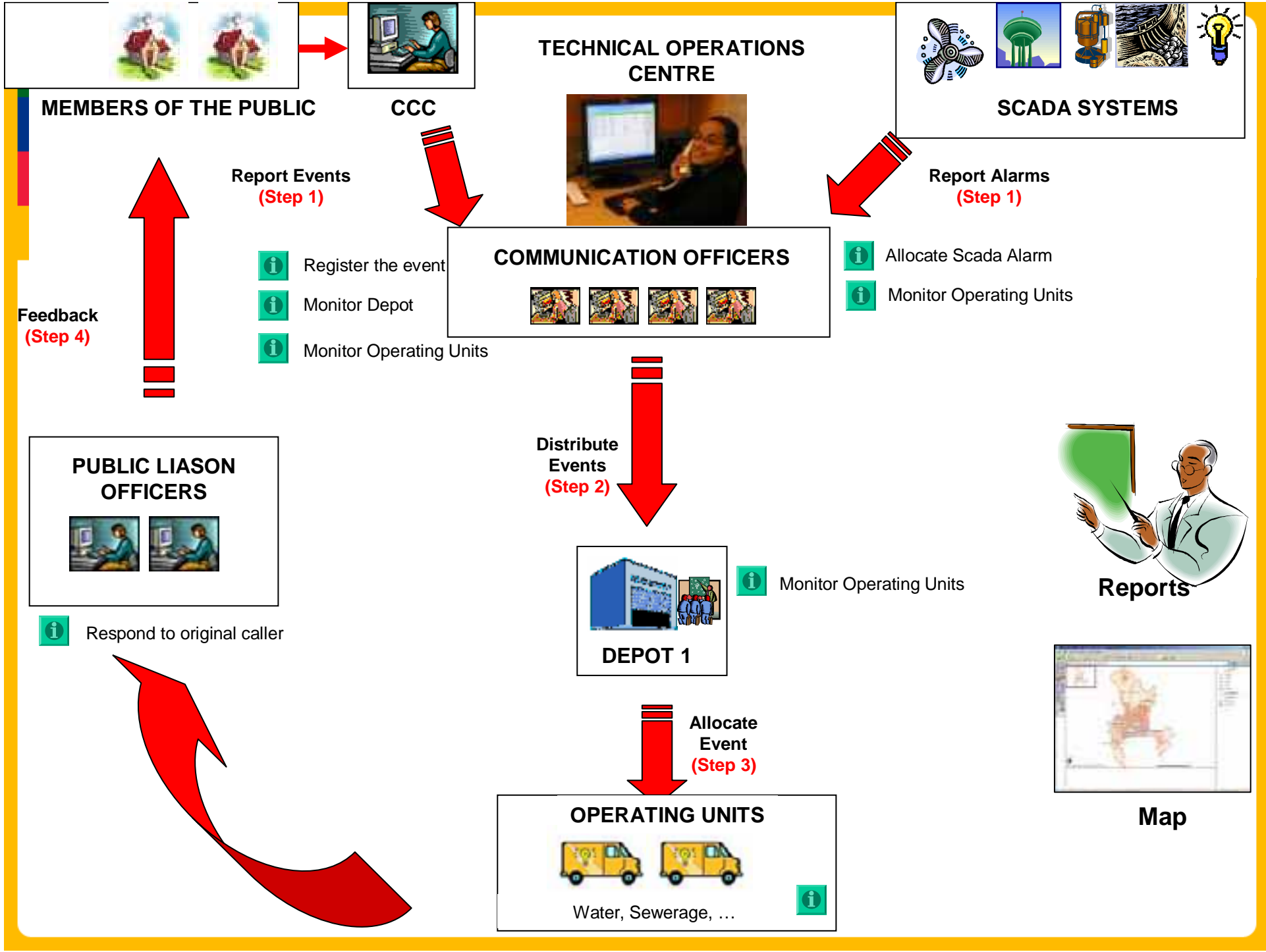
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# Event Management System Demo







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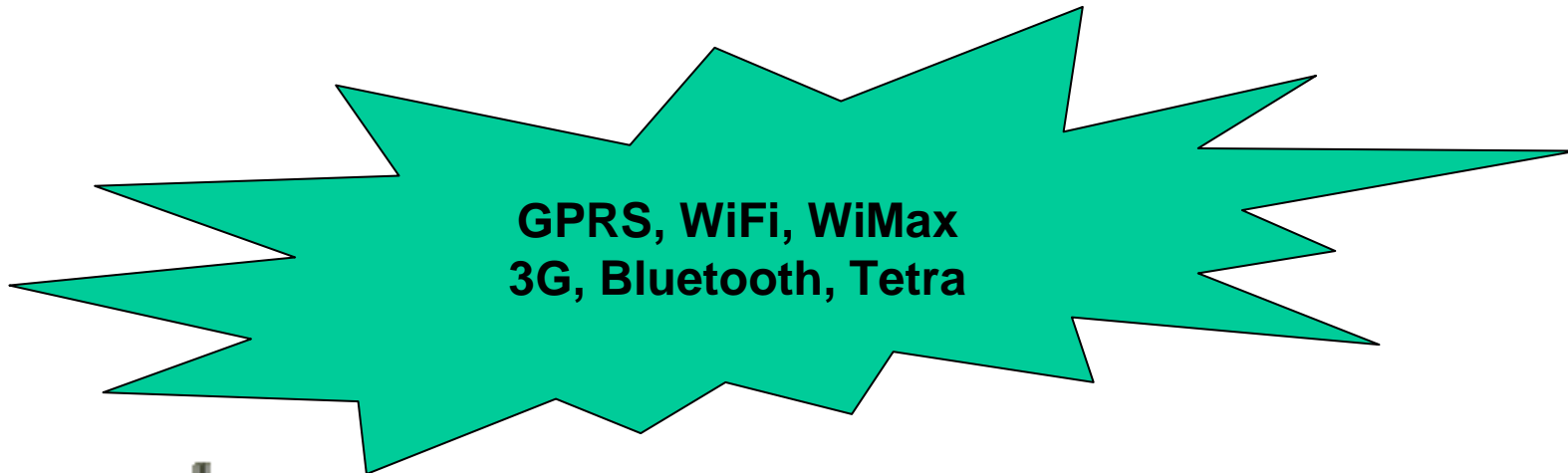
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**OPERATING UNIT**



**COLLABORATOR**



**GPRS, WiFi, WiMax  
3G, Bluetooth, Tetra**



**Radio**



**PDA**



**Cellular  
Phone**



**Tablet  
PC**





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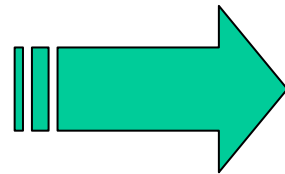


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334:397:Sewer-Drain lid stolen (CAPE TOWN,DURBANVILLE,OXFORD STREET,34)



## MOTOROLA RADIO



334:397:Sewer-Drain lid stolen (CAPE TOWN,DURBANVILLE,OXFORD STREET,34)

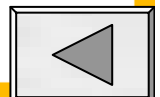
**1** "Accept"

334:397:Sewer-Drain lid stolen (CAPE TOWN,DURBANVILLE,OXFORD STREET,34)

**2** "On Site"

334:397:Sewer-Drain lid stolen (CAPE TOWN,DURBANVILLE,OXFORD STREET,34)

**3** "Completed"





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## **Conclusion**

**Let us work together  
for a better city**