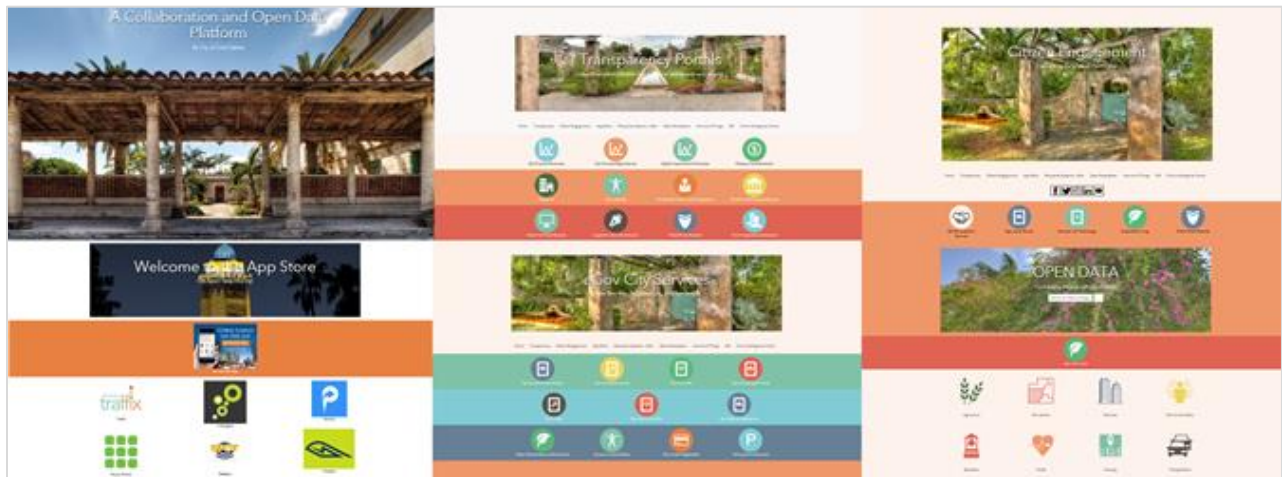




City of Coral Gables
Information Technology Department



INFORMATION TECHNOLOGY STRATEGIC PLAN
2018 UPDATE



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1 – DEPARTMENT OVERVIEW

The City of Coral Gables Information Technology Department (CGIT) works together with the city's leadership and all city departments and offices as a **key strategic partner** bringing value, efficiencies and process improvements across the organization through a significant number of technology solutions, initiatives and projects that benefit the city and its constituents. We also help City departments achieve accreditation and compliance with federal, state, county, city and industry standards, best practices, rules and regulations for information management, security, public safety, sustainability, environmental conservation, financial regulations, business processes, and other government controls.

Technology plays an important role in many of the City's services and operations by facilitating communication between employees, constituents and stakeholders; by fostering collaboration and innovation; expediting tasks, increasing productivity, and operational efficiencies; by reducing carbon footprint and assessing and managing risks; and, by enhancing the delivery of citizen services with added value and convenience.

The CGIT Department's Mission is:

"To provide the City of Coral Gables with reliable and sustainable technical services that bring value to the organization and its constituents, and enhance business processes and effectiveness for all departments."

We align ourselves with the City's vision of a "World class city with a hometown feel," and with **city values, mission and strategic goals**.

CGIT promotes the development of a **smart city ecosystem** that fosters innovation by bringing together through technology People, Businesses, Organizations, Things, and Systems. By leveraging **strategic planning and innovation**, the City's digital transformation and smart initiatives benefit the citizens with **continuous improvement of customer service and quality of life**. Our smart city roadmap is defined by the components of transparency, value creation, open data and analytics, actionable information, efficiencies, citizen engagement, mobility, accessibility, crowdsourcing, inclusion and collaboration. This roadmap implements several interconnected and interoperable elements that include a new **Smart City Hub public platform**, a Data Marketplace, an Application Store, Transparency Portals, a Crime Intelligence Center; Data Platforms, Internet of Things, and a robust and resilient technology infrastructure with high-speed communications.

Our strategic plan delivers **cost efficiencies and fiscal responsibility** while planning and managing technology resources for the City. CGIT works with the Finance Department to properly plan for capital improvements, operating budget requirements and resource allocation for ongoing and future needs, while improving budget management and planning procedures for efficiency and costs reduction. With Finance's help, we have better aligned our capital projects and operating budget line items with the city's strategic action plans and goals.

CGIT Efficiency Benchmark Analysis - When comparing CGIT with Gartner's 2017 industry benchmark metrics for Local Government agencies on three key metric benchmark indicators: IT Spending as a Percent of Operational Expense (%), IT Spending Per Employee (\$), and IT Employees as a Percent of Total Employees (%), where lower is better, we find that CGIT is significantly below State and Local Government industry averages in spending and number of employees, as follows:

- CGIT spends **48% less** as a ratio of the total organization's operational expense than the government industry average.
- CGIT spends **49% less** per organization employee than the government industry average.
- CGIT has **50% less** employees as a ratio of the total number of employees than the government industry average.

We have also established **business metrics and balanced scorecards** to measure our performance against annual goals and expectations, as well as government and industry benchmarks. During 2017, we kept all City technology systems and services operating with high availability and uptime (**99.91% avg. uptime**), and almost zero percent

downtime, with overall adequate capacity and good levels of performance. We have promptly responded to emergencies and reestablished any affected services. We monitored our response times and service levels and addressed customer needs and requirements, with an emphasis in the areas that most needed improvement.

Our customer service scorecards show a **customer satisfaction index of 4.8/5** in I.T. service requests. We have improved our customer service response times and overall department performance metrics, while continuing to listen to the voice of the customer and addressing gaps in a timely manner; seizing opportunities for improvement. Part of our **lean six sigma process improvement action plan** is to collect better customer metrics by implementing additional surveys and data gathering tools.

Public Safety is a key priority of ours. CGIT works together with and collaborates with the city's public safety leadership, Police, Fire, Problem Solving Initiative and other city-wide teams to implement advanced technologies and smart processes. These initiatives include the new Crime Intelligence Center, CCTV cameras and License Plate Readers, CCTV/LPR/Speed trailers, BriefCam video analytics and artificial intelligence system, CrimeView crime analysis system, crime data analysis and visualization, and Paperless Electronic Patient Care process. These are among the many innovative advancements that help prevent and fight crime; and improve safety and quality of life for residents, businesses and visitors.

CGIT is a key component of the City's **emergency management and operation plans**. By improving and strengthening our **business continuity plans and practices**, we continue to ensure resilience, security, quality assurance and high-availability of technology services and communications during emergency events and normal operations. Also, by leveraging **engineering standards and best practices**, our team has built and maintained an award-winning robust and resilient network infrastructure that provides high availability of mission-critical systems and communications for emergency operations, 911, first responders, and city services. This resilience has been tested during natural disasters like Hurricane Irma in 2017, which caused power and carrier service outages that affected more than 80% of the City. Because of these efforts, our team received an **award in 2018** from the Institute of Electrical and Electronics Engineers (IEEE) for our use of IEEE engineering standards in building smart city resiliency. We continue improving our network infrastructure and making it stronger and smarter as technology and standards evolve, and we also partner with city-wide teams, academic researchers and philanthropic organizations implementing smart energy projects to improve energy resilience for the City's critical services.

One of our strategic focus areas is to **build better communication channels and teamwork with all city departments** and to facilitate **citizen engagement**. We conduct technology needs assessment and strategic planning meetings with each department to identify priorities; to focus our efforts on resolving the most important issues for the greater benefit of the organization and the citizens; and, to maximize cost-effectiveness and return on investment. Together with the departments we plan smarter and deliver results on time, within budget and aligned with the scope. We also participate in citizen boards and committees and communicate with members of the community to better understand the technology needs and collaborative ideas of our citizens, to improve the outreach of city technology services and initiatives, and **develop effective communication strategies**. With the implementation of citizen portals and tools like the new smart city hub, mobile apps, websites and customer relationship management systems, we help the citizens communicate and collaborate more effectively with the City. **We conduct in-depth technical and business assessments** to find the right technology that is cost-effective, compliant, and addresses the needs of the citizens and the organization.

City-wide Business Process Improvement is an important part of our strategic action plan. We work on citywide process improvement initiatives, implementing lean six sigma analysis and best practices to reduce waste and costs, solve problems, and improve efficiencies and quality of service. We also implement standard operating procedures, operation plans, policies, best practices and information libraries to improve how we operate and manage our department and our resources.

We participate in the **planning, design, and execution of current and future construction projects** such as Fire Station renovations, the new Public Safety Building, and other important projects. CGIT involvement goes from analyzing technology requirements and associated costs at the early phases of the project, to implementing and testing the technology infrastructure that helps deliver services and communications to the stakeholders. We continue working with Public Works and other departments **provisioning technology infrastructure** for new buildings, renovations and construction projects, such as the Adult Activity Center, the Passport Office, the Streetscape Project, the 2506 Ponce building, Fire Stations, Merrick House, parks, and several other infrastructure projects, facilitating communication and operations for departments and the public using those areas and facilities.

Innovation is also a key component of our strategic plan. We work on multiple *Smart City* and *eGov* initiatives in the areas of sustainability, public safety, citizen engagement, transparency, business intelligence, business process reengineering, public transportation, parking, fleet management, mobile applications, homegrown systems, and other government technology implementations that bring value, convenience, resilience, increased efficiencies and improved customer service satisfaction citywide. We join with the city's leadership to present these Smart City initiatives through the ICMA's Smart Communities eBook, Smart City surveys and case studies, *eMerge* and *Smart Cities Connect* conferences, STEM research groups, Coral Gables Innovation Council, UM and FIU conferences, several publications, events, boards, committees, and Commission meetings.

We are implementing **smart city projects** with internet of things (IoT) sensors and platforms to increase real-time visibility on environmental and urban variables such as traffic, parking, energy, water, air quality, sea and waterways level, and other applications, creating a new Smart District in Downtown and provisioning other areas. For the City's Centennial, CGIT implemented a new Smart City Hub public platform for open data and collaboration for a Beautiful and Smart City, and is working on advanced tools such as augmented reality platforms that will deliver real-time, location-aware, history-and-culture-rich multimedia information to visitors and residents traversing the City and visiting landmarks, tourist and commercial areas. By offering **open data and application programming interfaces**, and **building collaboration** with civic coders, academic professors and students, CGIT is continually adding more value and many applications to the City's public platforms.

These innovation projects and initiatives also have an **economic impact** in the City and the entire South Florida region. Businesses and workers are currently benefiting from the City's smart initiatives (IoT, open data, public Wi-Fi, infrastructure, mobile apps and citizen services) in many ways. We work with the Economic Development department promoting these services to new and existing businesses, startups and entrepreneurs that are considering investing in our City. Also, to continue building and enhancing these initiatives, our team submitted in 2018 two proposals for smart city infrastructure expansion, one to the State's Enterprise Florida and Department of Economic Opportunity, and one to the County's SMART transportation plan, both with engineering design and city and regional economic impact analysis.

We engage in **long-run strategic planning** for the next ten years, with a vision of excellence, sustainability and innovation in technology services for the city and its constituents. We have been planning for current and foreseen challenges in the dynamic urban environment of modern smart cities, including emerging and exponential technologies, increased citizen participation, disruptors such as cloud computing, mobile systems, big data, artificial intelligence, machine learning and social networks, expected growth in service demand, **digital transformation** needs and required upgrades and enhancements of current services, enterprise systems and infrastructure.

One of our strategic areas is **Enterprise Systems and horizontal integration**. We conducted a research study on Enterprise Systems, with the findings of nationwide research and recommendations by subject matter experts on government enterprise systems and horizontal integration within the organization's functional areas. Our study provided substantial information, analysis and expertise that help the city review the best available options and

make an informed and sound decision during the evaluation process of a new Enterprise Resource Planning and Operations system (ERP/EOS) that fits the organization's functional requirements, budget planning, and culture of exceptional customer service. This study was presented to all city departments in 2017, and an executive steering committee was formed with the City's leadership to start the implementation process. Our long and short-term strategies in ERP/EOS include diverse areas such as **core financial, e-Permitting and Electronic Plan Review, Parks and Recreation operations, Facility Management, Human Resource Management**, ubiquitous location-based, GIS information, analytics and data visualization that supports the many business areas of the organization. In 2017, our team working together with several departments completed the implementation of a new facility management enterprise system and a new community recreation enterprise system, delivering customer-centric, data-driven features and functionalities, added value, convenience, mobility, process improvement and increased efficiencies.

Our **team development plan** includes: *i. Improving the skillset of our personnel* with value-driven, customer-focused and career-oriented training; using a combination of in-house cross-training, hands-on learning, certification paths and requirements, off-site training on relevant technologies, customer service and managerial courses, awareness campaigns, degree-seeking education, online trainings, and other tools; *ii. Implementing leadership best practices* to improve employee morale, engagement, and productivity. We have incorporated all the members of our team to our innovation and process improvement programs, listening to their ideas and giving them the opportunity to put them in practice. We have encouraged our team to smartly work together and to diligently achieve our goals, instilling a **customer-centric approach** on what they do, embracing city values of ethics and excellence, and motivating them to achieve their own potential and career goals.

Team maturity - Our team members have collectively achieved a comprehensive set of qualifications, licenses and certifications in information technology, cybersecurity, engineering, business analysis, standards and best practices, business administration, quality management, network and systems, and other areas. Our team has also received several awards and recognition over the past two years, including four Employee of the Month awards, staff commendations from city leadership, team commendation from Fairchild Gardens, a senior membership award from the Institute of Electrical and Electronics Engineers (IEEE), senior membership from the Institute of Industrial and Systems Engineers (IISE), Smart City World Standards Award from the IEEE, city core team membership in the Bloomberg Philanthropies Champion Cities U.S. challenge, American Society for Quality (ASQ) approval of CGIT six sigma black belt projects, Best Conceptual Design award at the University of Miami's Smart City conference, CIO summit governing body membership, panel membership and presenters at IISE, University of Miami (UM) and Florida International University (FIU) smart city and GIS conferences, 5/10/15/20 staff years of service pins, among other recognitions. Our staff has also received a substantial amount of positive feedback as well as constructive observations and recommendations from our customers, which are part of our inputs for continuous improvement. Our strategic plan includes **improving teamwork, productivity and communication** within I.T. functional areas, to reach a more mature team performance level and to continually strive for excellence.

We continue looking inward and outward to assess our own strategies, policies, processes and services; compare ourselves with industry excellence benchmarks, standards and best practices; identify gaps and opportunities for improvement; develop and execute action plans to address our findings; and align ourselves with the city's strategic plans, goals, vision, mission and core values. We work with internal and external auditors, as well as government, industry and academia subject matter experts and organizations to guide us in our journey of **continual improvement**.

Several major milestones have been achieved by our CGIT team over the past two years, and we are excited about the new challenges and opportunities ahead. We look forward to continuing improving and developing our team, our leadership practices and our performance as a department to the highest expectations of the city and its constituents, and continue working together with our big family city **accelerating innovation** and achieving our strategic goals in 2018 and beyond.

2 - STRATEGIC PLAN

Overall Plan Objectives:

- **Provide a high quality of service** for internal and external customers and stakeholders by pursuing a level of excellent customer service.
- **Continuous improvement** of city-wide operations, maintenance, research and development practices through standardization, innovation, automation, city-wide lean six sigma process improvement, Baldrige journey to quality improvements, and optimization of city-wide I.T. processes and infrastructure.
- **Provide the right technology solutions** to ongoing and new requirements and challenges from internal and external customers and stakeholders. **Bring value to the City and its constituents** by leveraging technology and creativity to achieve the City's vision and goals.
- **Save costs and cut waste** in infrastructure, services operations, energy use, carbon footprint, and maintenance overhead.
- Leverage existing and emerging innovative technologies and skillsets to **increase efficiency for the entire City**, and **advance Smart City programs** with sustainable use of resources, innovation, citizen engagement, excellent public safety services and smart technologies for advanced and responsive citizen services.
- **Provide the necessary infrastructure resources and capacity** for existing services and applications, and provision for planned enhancements, projected growth and demand forecast.
- Improve and guarantee **resilience, security, quality assurance and high-availability of services** during emergency events as well as during normal operations.
- **Guarantee compliance** with federal, state, county, city and industry standards, best practices, rules, and regulations for information management, security and public safety, sustainability and environmental conservation, financial regulations, government controls, and any other applicable area of compliance.
- **Build and maintain a strong and cohesive team of I.T. professionals** with high standards of responsiveness, integrity, dedication, competency, skillset, leadership, customer service, loyalty, innovation, accountability, collaboration and accessibility. A successful team that is focused on innovation, smart work, and exceptional customer service in a fiscally prudent manner. Enable those on the team we lead to reach and fulfill their own potential and goals.
- **Advance the I.T. Department's Mission:** *"To provide the City of Coral Gables with reliable and sustainable technical services that bring value to the organization and its constituents, and enhance business processes and effectiveness for all departments."* **in alignment with the City's vision** of a *"World-class city with a hometown feel"*, City values, mission and objectives.

Strategic Focus Areas:

- Business process improvements city-wide. Improve efficiency benchmarking, business metrics and balanced scorecards. Cost efficiencies and fiscal responsibility. Effective Project Management and Business Analysis.
- Public Safety technology projects and process improvement.
- Enterprise Systems that integrate horizontally supported by location based information and GIS data visualization for display, analysis, and metrics. Economic development through smart city initiatives.
- Emergency Management and Business Continuity. Information Security.
- Technical and business process assessments and gap-fit for all City departments.
- Innovation. Smart City projects. Data Science and data-driven intelligence. Mobility.
- Building better communication channels and teamwork with all city departments.
- Customer satisfaction and quality of service. Citizen engagement.
- Planning and provisioning technology infrastructure for City construction projects.
- Team development. Training. Leadership.

Strategic Projects and Initiatives:

- **City-wide Strategic Technology Projects and Initiatives:**
 - Strategic technology projects and high priorities identified for each City department (Technology Needs Assessment documents created by I.T. for each City department).
 - City-wide business process improvements and SOP Libraries.
 - Enterprise Operation System (EDEN ERP Replacement) and Horizontal Integration.
 - e-Permitting, land management, and electronic plan review systems (EnerGov implementation).
 - Fleet Management System and Asset Tracking (DriveCam, Lytx, and NetworkFleet)
 - Facility Management and Parks & Recreation Enterprise Systems enhancements.
 - Internet and Intranet Web Sites Upgrade. Mobile Apps Enhancements.
 - Project Tracker and Enterprise Project Management systems.
 - Enterprise GIS Platform and Service Integration.
 - ERP/EOS Training and Business Process Review (BPR).
- **Public Safety Projects and Initiatives:**
 - CCTV/ALPR Project.
 - Crime Intelligence Center systems, ops, applications (CrimeView, BriefCam, VMS, LPR.)
 - Physical security improvements.
 - Public Safety technology infrastructure upgrades.
 - Fire and Emergency Management systems electronic processes integration and mobility.
 - Fire and Police scheduling system enhancements (Kronos TeleStaff, POSS)
 - Public Safety Facility Projects: New PSB, FS2 and FS3 renovations, new Backup PSAP
- **I.T. Strategic Projects and Initiatives:**
 - Smart City Projects (Smart City Hub public platform, smart districts, IoT sensors, real-time visibility and data analytics, sustainability, Trolley app and tracking system, digital signage, BI, context-aware technologies, AR/MR/VR systems, electronic signatures).
 - Lean Six Sigma process improvement city-wide, 100% paperless processes, automation of manual processes city-wide.
 - Cybersecurity enhancement plan. Security Awareness and Audits Program. PCI compliance.
 - Research projects in collaboration with UM, FIU, MIT, IEEE, IISE, and Bloomberg Philanthropies.
- **I.T. Infrastructure Technology Projects and Initiatives:**
 - Network Infrastructure Upgrades.
 - Systems Infrastructure upgrades (Storage, Databases, O365, SharePoint, Cloud systems).
 - Network infrastructure refresh, Storage upgrade, Cloud services for disaster recovery (DR), hyper-converged systems, storage as a service (StaaS), Virtual desktops (VDI), computing as a service (CaaS), software as a service (SaaS) and Infrastructure as a Service (IaaS).
 - Wireless Backbone and smart Wi-Fi Projects.
- **I.T. Team Development Initiatives:**
 - Staff development, training and certification plan.
 - Think Tank and Innovation program.
 - Workspace improvement.
 - Team building and leadership initiatives.

Figures/Posters 1, 2, 3 (next three pages): Smart City Initiatives engineering concept design and high-level strategic plan. Presented at *eMerge Americas eGov, Smart Cities Connect, UM Smart City Conference, FIU GIS Day, City's Innovation Council.*



CORAL GABLES

THE CITY BEAUTIFUL
A World Class City with a Hometown Feel

SMART DISTRICT PROJECTS

STRATEGIC PLANNING – INNOVATION

CONTINUOUS IMPROVEMENT

CUSTOMER SERVICE – QUALITY OF LIFE

SMART CITY ECOSYSTEM

COLLABORATION, PARTNERSHIP, INTELLIGENCE / CUSTOMERS, STAKEHOLDERS AND TECHNOLOGY

PEOPLE



BUSINESSES



ORGANIZATIONS



THINGS



I.T. SYSTEMS



SMART CITY HUB

VALUE, TRANSPARENCY, OPEN DATA AND ANALYTICS, ACTIONABLE INFORMATION, EFFICIENCIES
CITIZEN ENGAGEMENT, MOBILITY, ACCESSIBILITY, INCLUSION, CROWDSOURCING, COLLABORATION

DATA MARKETPLACE

OPEN DATA PORTALS



IoT DASHBOARDS



GIS PORTALS



APP STORE



ENTERPRISE SYSTEMS • eGOV



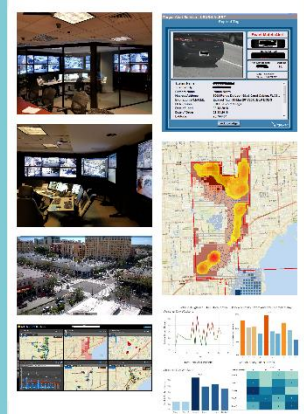
TRANSPARENCY PORTALS



CITIZEN ENGAGEMENT



CRIME INTELLIGENCE CENTER



DATA PLATFORMS

DATA AGGREGATION, INTEGRATION AND CORRELATION / BUSINESS INTELLIGENCE AND ANALYTICS BACKEND

PUBLIC & PRIVATE CLOUDS & DATACENTERS



BIG DATA-AGGREGATION & ANALYTICS



ARTIFICIAL INTELLIGENCE & MACHINE LEARNING



VIDEO ANALYTICS



OPEN DATA & APIS



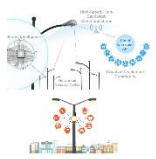
HORIZONTAL & VERTICAL INTEGRATION



INTERNET OF THINGS

REAL-TIME URBAN AND ENVIRONMENTAL VISIBILITY / PHYSICAL INTERFACING

SMART LIGHTS



TRAFFIC & PARKING SENSORS



PUBLIC SAFETY SMART EQUIPMENT



ENVIRONMENTAL SENSORS & ACTUATORS



SMART DEVICES



SMART KIOSKS & DIGITAL SIGNAGE



ROBOTICS & SMART VEHICLES



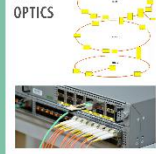
HIGH SPEED COMMUNICATIONS AND RESILIENCE

ROBUST, RESILIENT SMART CITY NETWORK FOUNDATION

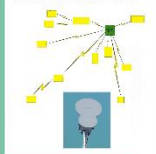
RESILIENT NETWORK



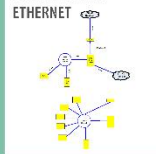
FIBER OPTICS



WIRELESS BACKBONE



METROPOLITAN ETHERNET



PUBLIC & PRIVATE WI-FI NETWORKS



SATELLITE & CELLULAR COMMUNICATIONS



SMART ENERGY RESILIENCE



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www.CoralGables.com

More information: visit www.coralgables.com/IT and www.coralgables.com/SmartCity

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broadband
SmartCity
efficiency
digital
wii
SmartCity
innovation
consumer

CORAL GABLES®

THE CITY BEAUTIFUL

A World Class City with a Hometown Feel



SMART CITY INITIATIVES

- Six-Sigma Process Improvement
- Data Science & Business Intelligence
- Public Safety Smart Initiatives
- Sustainability Master Plan
- Smart Apps & Enterprise Systems

DATA & BI

EARS Applications Dashboard

Elections Dashboard

PUBLIC SAFETY

CRIMEVIEW Dashboard

Stolen Vehicle or Vehicle Alerts



SMART APPS & ENTERPRISE SYSTEMS

CORAL GABLES ON THE GO!

CORAL GABLES TRAFFIC

SMART CITY SERVICES

SUSTAINABILITY

CITY OF CORAL GABLES RECYCLING PROGRAM

Items that ARE Accepted

- Household Appliances (Stoves, Dishwashers, Washers, Dryers)
- Household Electronics (TVs, VCRs, DVD Players, Game Consoles)
- Household Furniture (Tables, Chairs, Benches, Stools)
- Household Appliances (Washing Machines, Dryers)
- Household Electronics (TVs, VCRs, DVD Players, Game Consoles)
- Household Furniture (Tables, Chairs, Benches, Stools)

Items that are NOT Accepted

- Refrigerators
- A/C Units
- Stoves
- Washing Machines
- Dishwashers
- Freezers
- Stoves
- Washing Machines
- Dishwashers
- Freezers

Step Into Solar!

CITY OF CORAL GABLES PROHIBITION ON EXPANDED POLYSTYRENE

CITY OF CORAL GABLES PROHIBITION ON PLASTIC BAGS

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SMART CITY INITIATIVES
 Six-Sigma Process Improvement
 Data Science & Business Intelligence
 Public Safety Smart Initiatives
 Sustainability Master Plan
 Smart Apps & Enterprise Systems

Mission
 To honor our history by providing exceptional services that enhance the quality of life for our community.

DATA & BI

Open Data Services
 Dashboards - BI
 Data Platforms - Cloud
 Transparency, Open Gov

Data-driven strategies
 Data visualization
 IOT Data Console

Linked Open Gov't Data (LOGD)

PUBLIC SAFETY

CCTV, Video Analytics
 License Plate Readers
 AVL, GPS Devices
 Traffic Devices
 Crime Data Analysis
 CAD, RMS, MCT
 Crime Intelligence Center
 Satellite Systems
 Sensors

Information Security
 Business Continuity, DR, Resilience
 Telecommunications

Problem Solving Initiative (PSI)

smart city

SMART APPS & ENTERPRISE SYSTEMS

Service-oriented Customer-driven Smart Apps

ERP/EOS
 ePermitting
 Online services
 CRM, EDM, CMS
 City Mobile Apps
 Traffic Mobile App
 Social Media, e-News
 Digital Signage, Kiosks
 Trolley App, Parking Apps
 Parks & Recreation System
 Business Analysis, Systems Engineering
 Cloud, SaaS, CaaS, SaaS, IaaS, O365
 Facility Management System
 Fleet Management Systems
 Smart IOT Apps
 GIS

SUSTAINABILITY

Sustainability Master Plan

Recycling programs
 e-waste recycling
 Energy efficiency
 Water conservation
 Sea Level Rise (SLR)
 Bike programs
 Green Building, LEED
 Multimodal Transportation Plan

Community outreach
 Solar energy
 Plastic bags ban
 Tree succession program
 Electric vehicles, charging stations
 Environmental IOT Sensors

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3 – SHORT TERM GOALS

Network, Security and Telecommunications

- Complete phases II & III of CCTV/ALPR project: cameras, smart lights, trailers / streets, parks, waterways
- Complete Guest Wireless deployment at four public parks and other CIP locations
- Complete public Wi-Fi smart network deployment at Giralda Pz and Miracle Mile – **COMPLETED IN 2018**
- Improve physical security and safety at Parking Garages
- Overhaul the Voice over IP Telephony infrastructure city wide – **COMPLETED IN 2018**
- Decommission legacy PBX phone switches – **COMPLETED IN 2017**
- Implement voice/data/video collaboration platform (WebEx) – **COMPLETED IN 2018**
- Implement an enterprise Call Reporting System – **COMPLETED IN 2018**
- Phone number and IVR scalable service for emergencies (305-800-NEWS)
- Increase the transport bandwidth in members of Ring 1 of the network to 10 Gbps
- Complete PCI gap analysis and year 1 and 2 of the audit. Security improvements for all critical servers.
- Complete bandwidth and capacity expansion at the Colocation site
- Complete Phase I of the backup point-to-point Wireless backbone
- Deploy devices to Police CID and Motors units. Improvements for biometric authentication devices.
- Continue deploying encryption for sensitive data environments. Fulfill annual compliance requirements.
- Continue telecom facility enhancements, and ADA compliance programs (Closed Captions, Web, TTY)

Customer Support, Content Management and GIS

- Deploy **enterprise GIS data services** for all departments managing spatial data. This includes updating the current desktop environment for the Planning division of Development Services. Expanding the desktop deployment to key departments: Public Works, Economic Development, City Clerk, and others.
- Enterprise GIS goals are to develop web applications that enable and **support a mobile workforce**. Efficiencies provided by a mobile workforce can reduce drive times, improve inspection routing to better serve business and citizen building permitting, and offer stakeholders a clear, visual reference for City operations and services.
- **Enterprise GIS** can also develop and deploy information tools through **analysis, dashboards, and visualizations** to provide spatial awareness, insights, and decision-making capabilities
- Provide continual, on-demand **customer support** throughout the city’s business units and operational periods. Provide a **resourceful and informed Help Desk and Crime Intelligence Center operation** that can manage inbound calls and effectively resolve requests for service and successfully address issues, problems, data/video analysis needs, and service affecting events. **Customer satisfaction is first and foremost.**
- Division staff are also working with the IT Director on the following projects:
 - Design and implementation of the **new city web site** and CMS (Figure 4), in coordination with the Office of Communication and with the collaboration from all city departments. The new site aligns with digital government initiatives, city branding/marketing strategies, a citizen-centric approach that continuously improves citizen experience (UX) with metrics to drive success, human-centered responsive design principles, analytics, crowdsourcing, and design that is responsive to devices and platforms in the market.
 - The **City’s mobile app redesign**, to add new functionalities and improve usability, accessibility, responsiveness, performance, ergonomics, and integration with other apps and platforms (Figure 5.)
 - **New Smart City Hub public platform**, an open data and collaboration platform delivering transparency, value creation; open data and analytics; actionable information, efficiencies; citizen engagement, mobility, accessibility; crowdsourcing; inclusion and collaboration (Figure 6.)
 - Citywide Lean Six Sigma Process Improvement projects and training (multiple work sessions, improvement projects, six sigma certifications and process improvements completed in 2017 and 2018)

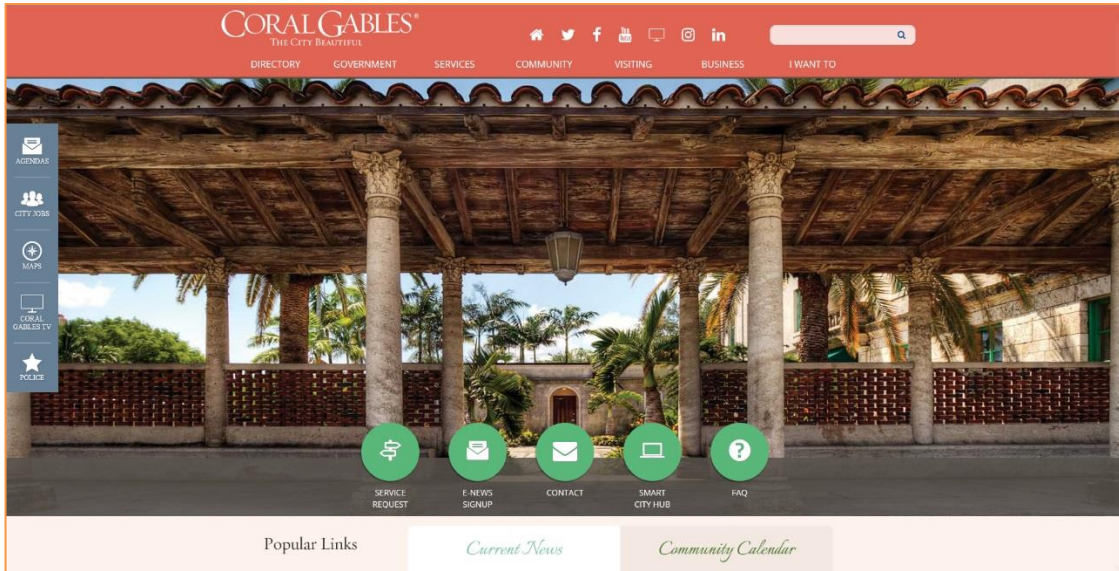


Figure 4. New City Website (work in progress)

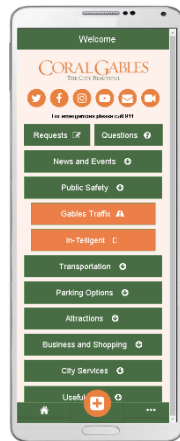


Figure 5. New City Mobile App (work in progress)



Figure 6. New Smart City Hub Public Platform

Applications

The I.T. Application Division is focused on new goals to improve and enhance the current portfolio of applications with off-the-shelf and homegrown systems to improve and expand digital services for constituents and employees.

COMPLETED IN 2017: The implementation of a **new Facility Management system** was completed in 2017. A team from different departments was assembled to facilitate, assist and oversee the completion of this project. The Facility Management application effectively manages the buildings, grounds, and structures that house city operations. Provides the ability to create facility maintenance schedules, implement recurring maintenance tasks, gauge facility and asset performance, and proactively plan for upgrades and repairs. It decreases the waste time associated with reactive maintenance and inefficient processes by enabling workflow efficiencies for facilities. It builds sustainable facility operations by moving away from paper record-keeping and data silos, and allowing staff to conduct mobile operations using wireless tablets and smartphones.

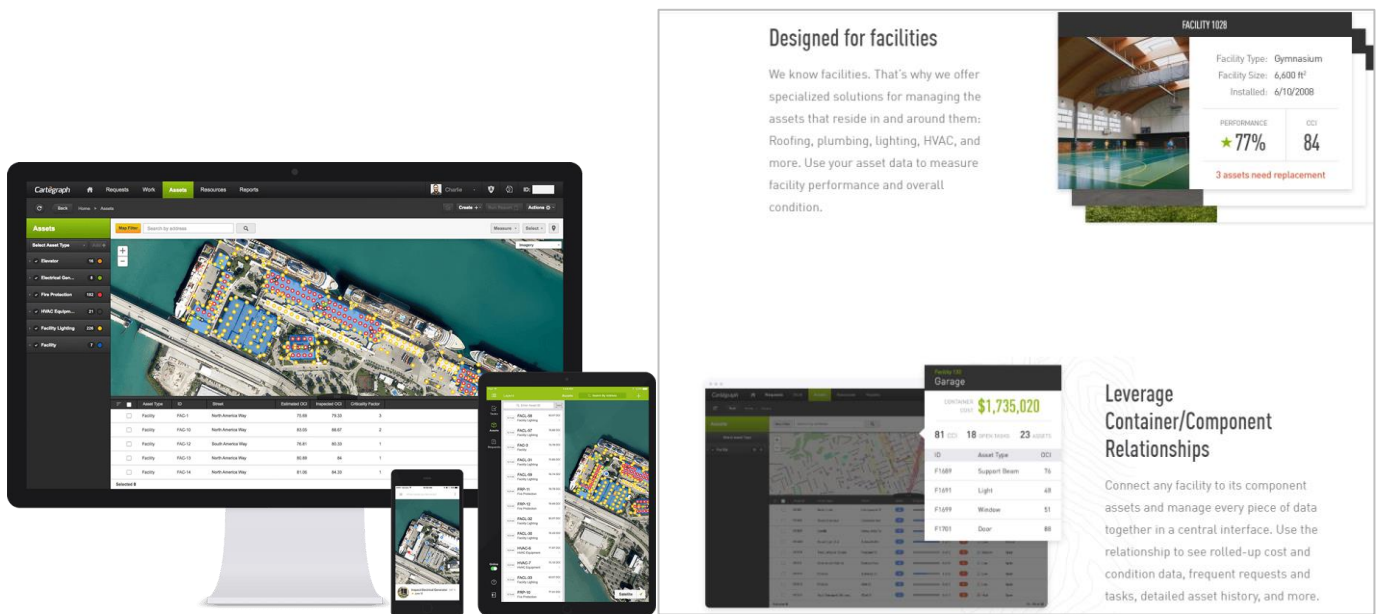


Figure 7. New Facility Management System

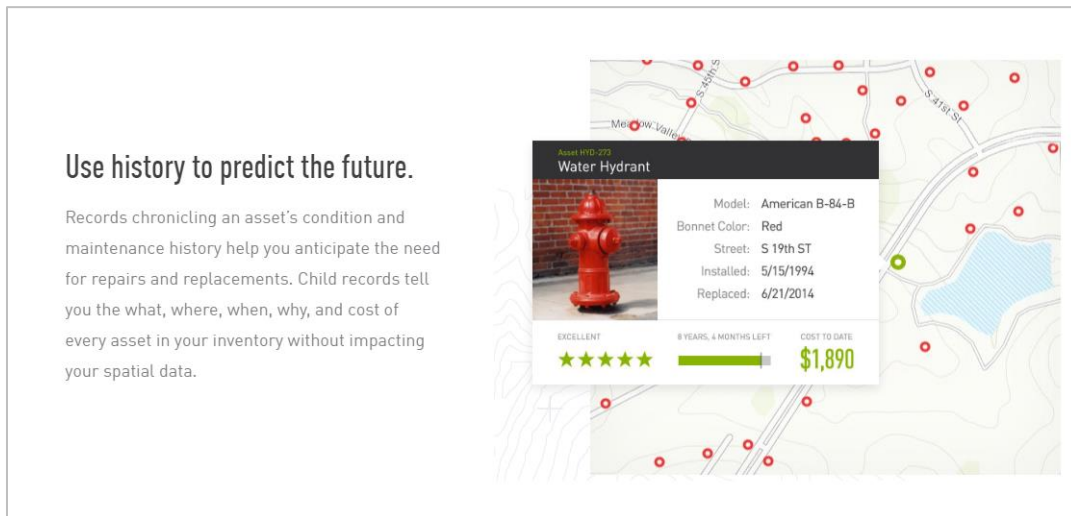


Figure 8. Facility Management system predictive analytics capabilities

COMPLETED IN 2017: The implementation of a **new Parks and Recreation system** was one of the main goals and achievements for 2017. The software is designed and developed specifically for municipal and county government recreation and parks departments, golf courses, park districts, and park maintenance operations. The applications contain complete financial accounting and point-of-sale capabilities, as well as integration with a full range of point-of-sale hardware products and complementary software products. Provides staff and customers with real-time internet access to the application for self-service inquiries and transaction processing, such as online registrations, online membership, online membership renewals, and online facility registrations. It offers customers easy and convenient Internet access to our Parks and Recreations services - 24 hours per day, 7 days per week.

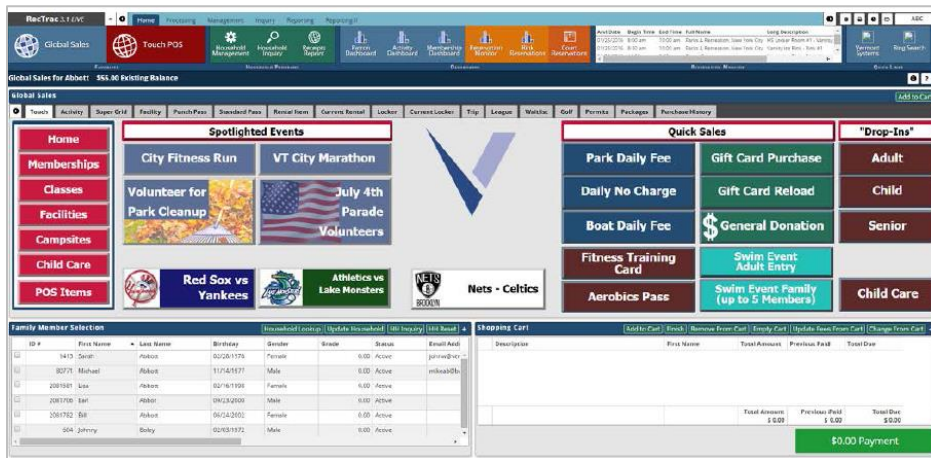
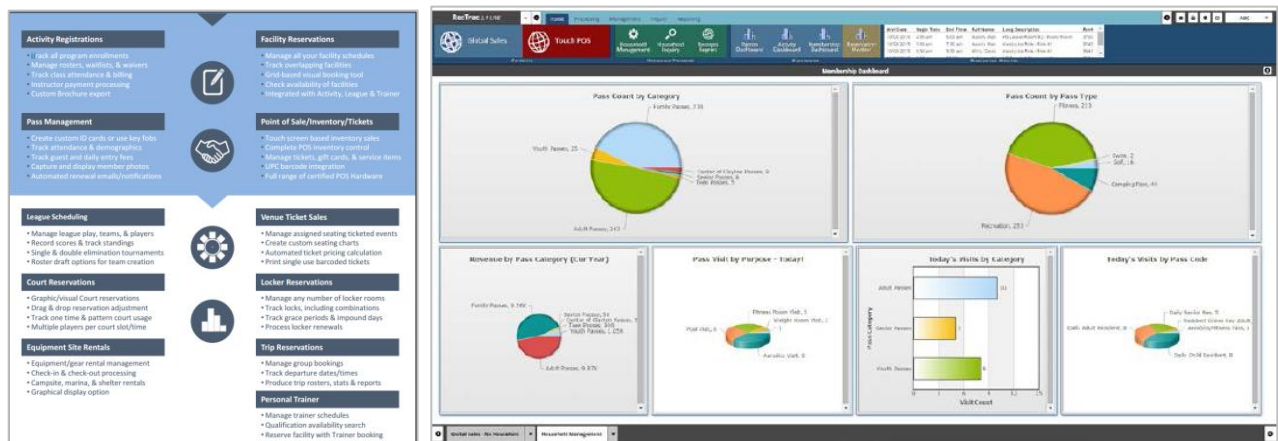


Figure 9. New Parks and Recreation system console



Figures 10. New Parks and Recreation system features and dashboards

City-wide business process improvement and SOP libraries. Implementation of an application to manage Standard Operating Procedures content. Central location, single, secure, online location for the organization, management and distribution of the most important documents—accessed anytime, from anywhere. Provide the ability to quickly see and understand the complete history of the documents—from creation, to publication and everything in between. Always know when, and by whom, it was reviewed, revised, approved and signed. Workflow and ability to collaborate on documents and gather feedback and approvals.

Implementation and training of an **Enterprise Project Management system and best practices.** This application provides project planning, scheduling, resource allocation and change management. It allows project managers (PMs), stakeholders and users to control costs and manage budgeting, quality, risk, scheduling, stakeholders, documentation and may also be used as an administration system. Project management software is also used for

collaboration and communication between project stakeholders. Our goal is to also provide training citywide on project management best practices as per the Project Management Institute (PMI) book of knowledge (PMBOK).

Development of homegrown applications such as the new Coral Gables Traffix mobile app (**COMPLETED in 2017**), which allows the citizens to report chronic traffic issues such as speeding, illegal parking, and blocking the box (Figure 11.) In addition, we are working with Code for Miami, Cambridge Innovation Center, The Lab Miami, Smart City incubators, University of Miami Center for Computational Science, Hackathons, Florida International University and other organizations in joint projects developing code and applications to enhance the City’s app store and smart city hub public platform, CrimeView, and other City systems. Some of the focus areas of new applications include:

- Historic, Culture and Arts mobile applications. Leverage Augmented/Mixed/Virtual Reality (AR/MR/VR) technologies to create immersive tours and visitor experience.
- Integration with traffic systems and open source APIs from applications such as Waze and Google Maps. Leverage industry open source and open data capabilities to bring value for public safety and fleet management operations.
- Develop widgets and embedded apps integrated with the smart city hub platform connecting to open data and open source APIs for automated vehicles, electric vehicles, Internet of Things (e.g.: Thingful.net), Federal, State and County data, Multiple Listing and Property Appraiser, lien databases, weather services, government news, articles and knowledge base databases (e.g.: RSS feeds), and other sources.
- Develop and integrate data layers and correlation analytics from multiple sources that add more value and intelligence to the crime analysis systems (CrimeView, ArcGIS, Tableau, PowerBI, etc.), including: Fire RMS and EMS data, demographic and census data, property data, traffic data, and CCTV and LPR overlay.
- Chatbots and AI algorithms to add functionality, interaction and automation to CRM and City app UX.



Figure 11. New Coral Gables Traffix Mobile App

Complete the implementation of the Kronos TeleStaff **Fire scheduling system** for the Fire Department (90% completed already). This system provides a better way to manage public safety schedules and communications with fairer and more accurate personnel scheduling; automatic, rules-based assignment of overtime; integrated communication; and better emergency response.

Systems

Systems Infrastructure upgrades: Update and replace aging server and storage hardware as part of capital hardware refresh cycle. The systems division is implementing new technologies such as hyper-converged infrastructures (HCIS) to provide enhanced performance improvements across the systems infrastructure stack, which includes servers and storage. This technology provides I.T. the ability to quickly provision the infrastructure and grow that infrastructure incrementally, on a per-node basis, as the demand for resources increases. HCIS provide rapid time to deployment, scale-out architecture, with ease of management that will allow IT staff to attend

to other pressing tasks. Hyper-convergence enables **greater application/workload mobility** providing CGIT flexibility to host data between our primary site (PSB), colocation (DR) and other cloud providers for complete data protection and high availability. As part of these upgrades, **Single Sign-on** will be implemented for better integration and security management between interoperable systems and applications.



Figure 12. Illustration of datacenter and hyper-converged infrastructures (HCIS) and cloud scalability

As part of this goal the systems division is **reducing our current datacenter footprint** resulting in lower costs for power, cooling, rack space and other operational costs. Additionally, these solutions provide us **flexibility and scalability for future growth**, while still maintaining a relatively small footprint. Another big benefit in migrating to these new technologies is that they deliver predictable performance, scalability and costs. By standardizing hardware with this upgrade I.T. can better plan and budget accordingly for future growth. In addition, **Virtual Desktop Infrastructure (VDI)** will continue to be implemented for training rooms, classrooms and labs. VDI images are being built, classified and standardized based on user roles and business operation scenarios.

DR Cloud Service and Cloud Storage: Implement a disaster recovery and storage cloud solution to enhance the City’s ability to maintain high availability during emergency and scheduled maintenance events. In addition to data protection, instituting a cloud solution alternative provides I.T. the ability to offer improved service delivery by allowing mobile employees to access resources from anywhere resulting in quicker turnaround times for citizens. This goal is a multiple phase approach. Phase one is to begin hosting critical application workloads in a cloud provider for application data protection and high availability. Phase two will be to integrate cloud storage to host data backups, as well offloading potential archived data such as files not in used after a set amount of time i.e. 1 year, 3 years, or 5 years. This will help reducing the on-premise storage needs and cost associated with maintaining aged and infrequently used data.

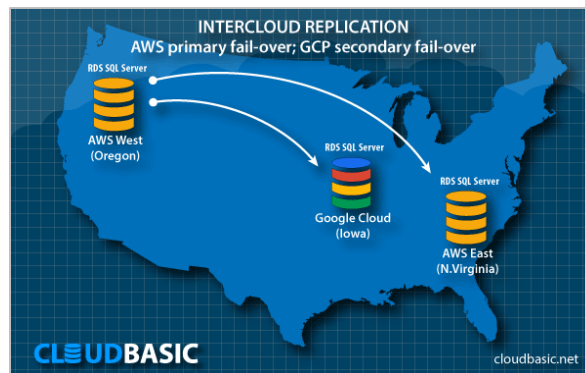


Figure 13. Intercloud data replication

Office 365: In 2017 the Systems Division developed and started executing a comprehensive plan to migrate staff to the Office 365 cloud for email and office products. This ties in with the overall goal of considering cloud providers to offset operational costs due to hardware and maintenance of equipment on premise. Once the plan is complete, a phased migration approach will be taken to begin moving users to the cloud. Currently I.T. has 150 full O365 licenses and purchased 75 kiosk licenses for employees who do not have dedicated workstations and do not have a need for full office installation i.e. Public Works sanitation staff, and city mobile work force. Microsoft Office 365 provides web-enabled access to email, important documents, contacts, and calendar on almost any device—including PCs, Macintosh computers, iPhones, and Android smartphone devices. It frees staff to work where and when they need, letting them respond to important requests right away, from almost any location. With the ability to access email and documents from their mobile device, staff don't rely on risky or difficult-to-find Wi-Fi hot spots. And if they are traveling without access to Microsoft Office, Office 365 helps them view and edit documents from the most popular web browsers on PCs and Macintosh computers. With Office 365, users can create a password-protected portal to share large, hard-to-email files both inside and outside of the organization, giving them a single location to find the latest versions of files or documents, no matter how many people are working on them. They can send instant messages to colleagues and customers and invite them to participate in online meetings where they can review documents or take control of a desktop, and they can collaborate using SharePoint in the cloud.

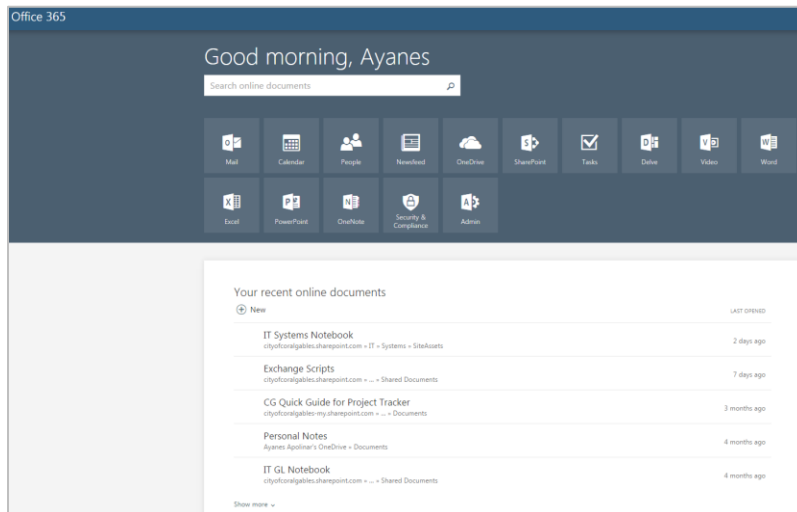


Figure 14. Office 365 web-based user console with access to productivity applications in the cloud.

Data Governance, Electronic Document Management, Workflows and e-Signatures: Working with City Clerk’s Office, Finance, HR and citywide staff implementing data governance best practices, a new HP CMS, and DocuSign to automate all legacy paper and inefficient manual processes, such as contract management, OT and forms.

Centralized Reporting and Business Intelligence: With the increased demand to provide reporting, data analytics, and business intelligence (BI) a central reporting solution is being implemented. This solution will tie in with previously mentioned goals such as Office 365 and cloud service, leveraging a mix of on premise and cloud reporting technologies providing for easier data access from within the network as well as remotely. BI provides staff, including senior management, target-rich data with actionable intelligence assisting them in making key decisions for the City. Business Intelligence tools provided a unified view of operations for managers to identify opportunities for growth and efficiencies. A strong central reporting and business intelligence solution also empowers end-users to create self-service business intelligent reports and dashboard with only the data that is important to them. Advanced self-service capabilities enable users to create visualizations that are much more complex (e.g. trends, forecasting and complex calculations), diverse (e.g. geo-spatial visualizations, funnels and heat maps) and interactive (e.g. support for real-time streaming data, custom filtering and user-defined drill down layers). These tools combined allow the city to provide dashboards and other data to citizens for increased transparency.

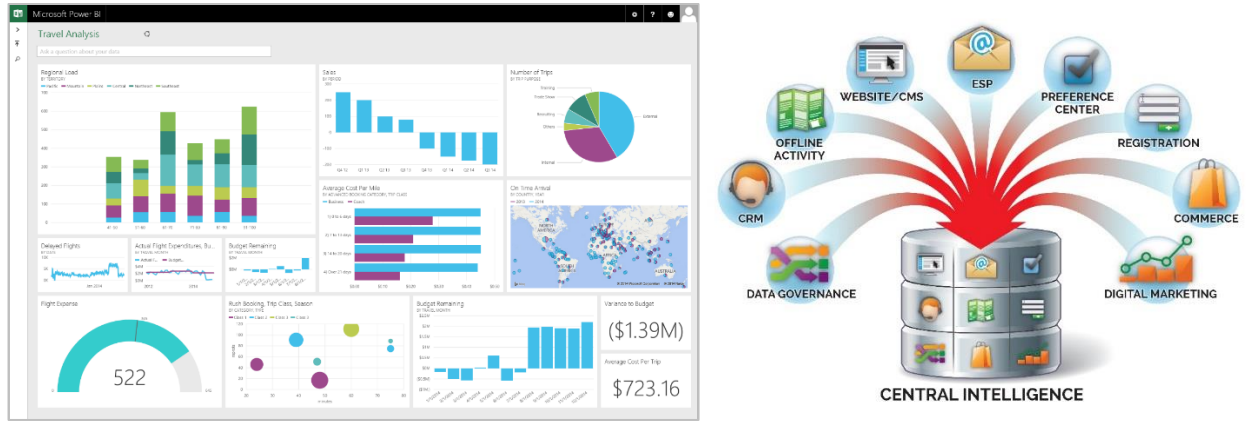


Figure 15: Example of Centralized Data Reporting visualization / Centralized Reporting and BI systems architecture

Internet of Things (IoT) sensors, smart lights and platforms: Working with the Network Division, the Systems team is implementing IoT sensors and smart lights in the City’s Downtown Smart District and other areas. In 2017, pedestrian counter IoT sensors were deployed on Giralda Plaza, and an IoT public platform with dashboards went live on the City’s website. In 2018, the live IoT dashboards were embedded on the new Smart City hub platform, and now provide pedestrian traffic statistics to the public and City staff, bringing value for businesses, economic development, traffic engineering, public safety, academic research, and other uses. In addition, a new public Wi-Fi smart network was deployed on Giralda Plaza and Miracle Mile, providing free Internet access and people sensors and analytics (passersby, visitors and connected users real-time data.) These sensors augment the data collected from the IoT sensors on Giralda Plaza, and the ones being installed on Miracle Mile. Sensor data from Miracle Mile will soon provide real-time vehicle and pedestrian traffic, smart parking functionalities, and environmental data (CO, CO2, pollutants PPM, temperature/pressure, noise dBs) as well. To aggregate IoT data and functionalities in the cloud, the Systems division is implementing a robust **Cisco Kinetic smart city IoT platform**. Smart vehicles (fleet management systems) and robots (drones for CGTV and public safety) IoT will be added to the platform as well.

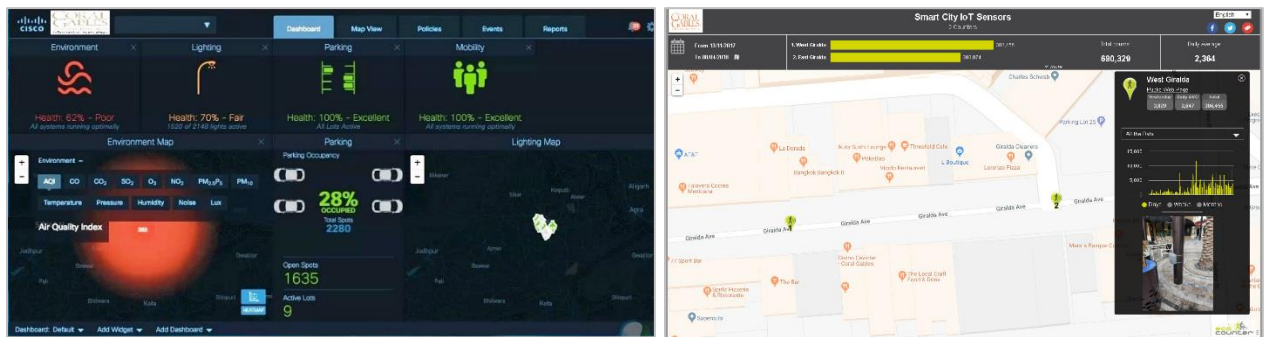


Figure 16: New Cisco Kinetic smart city IoT platform / Eco-counters IoT platform

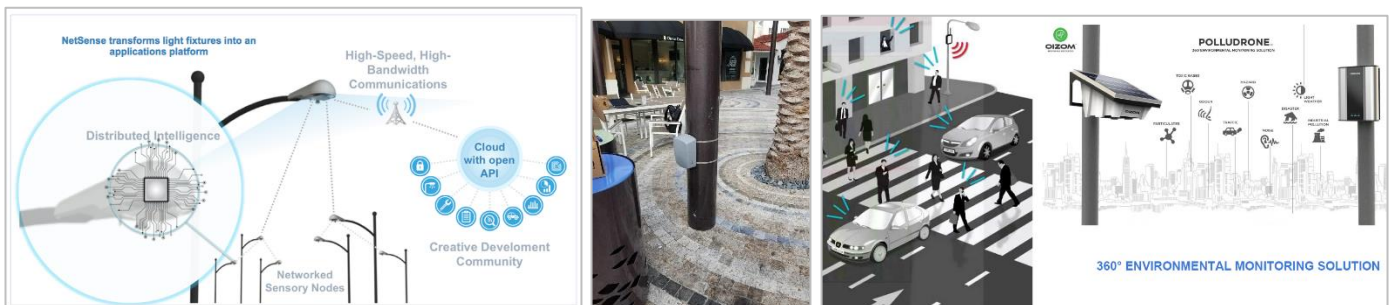


Figure 17: Smart lights / traffic and parking sensors / Environmental sensors

4 – LONG TERM GOALS

- ERP/EOS **Enterprise Systems and horizontal integration**. I.T. conducted a research study on Enterprise Systems, with the findings of nationwide research and recommendations by subject matter experts on government enterprise systems and horizontal integration within the organization’s functional areas. The goal was to provide substantial information, analysis and expertise to help the city review the best available options and make an informed and sound decision during the evaluation process of a new Enterprise Resource Planning and Operations system (ERP/EOS) that fits the organization’s functional requirements, budget planning, and culture of exceptional customer service. This study was presented to the city’s leadership and all city departments in 2017, and an executive steering committee and working groups were formed. Our strategies in ERP/EOS include areas such as **core financial** (planning and evaluation phase), **e-Permitting** (implementation started) and **Electronic Plan Review** (implementation started), **Parks and Recreation operations (COMPLETED in 2017)**, **Facility Management (COMPLETED in 2017)**, and other areas of the organization. This core ERP/EOS project will have four major project components over multiple years:

- Replace the City’s Current core financial and HR ERP from EDEN with a new post-modern ERP/EOS system with service-oriented architecture and horizontal integration with the organization’s functional areas. A multi-year city-wide project. **In Planning and Evaluation phase now.**
- Replace the City’s current EDEN permitting and licensing system with the new EnerGov system. Implement an electronic plan review process, and horizontal integration with the new ERP. **Implementation Started.**
- Complete a full business process review (BPR) of all business processes impacted by the new systems, prior to implementation.
- Engage a dedicated project manager to oversee implementation of the new systems in accordance with the results of the BPR.

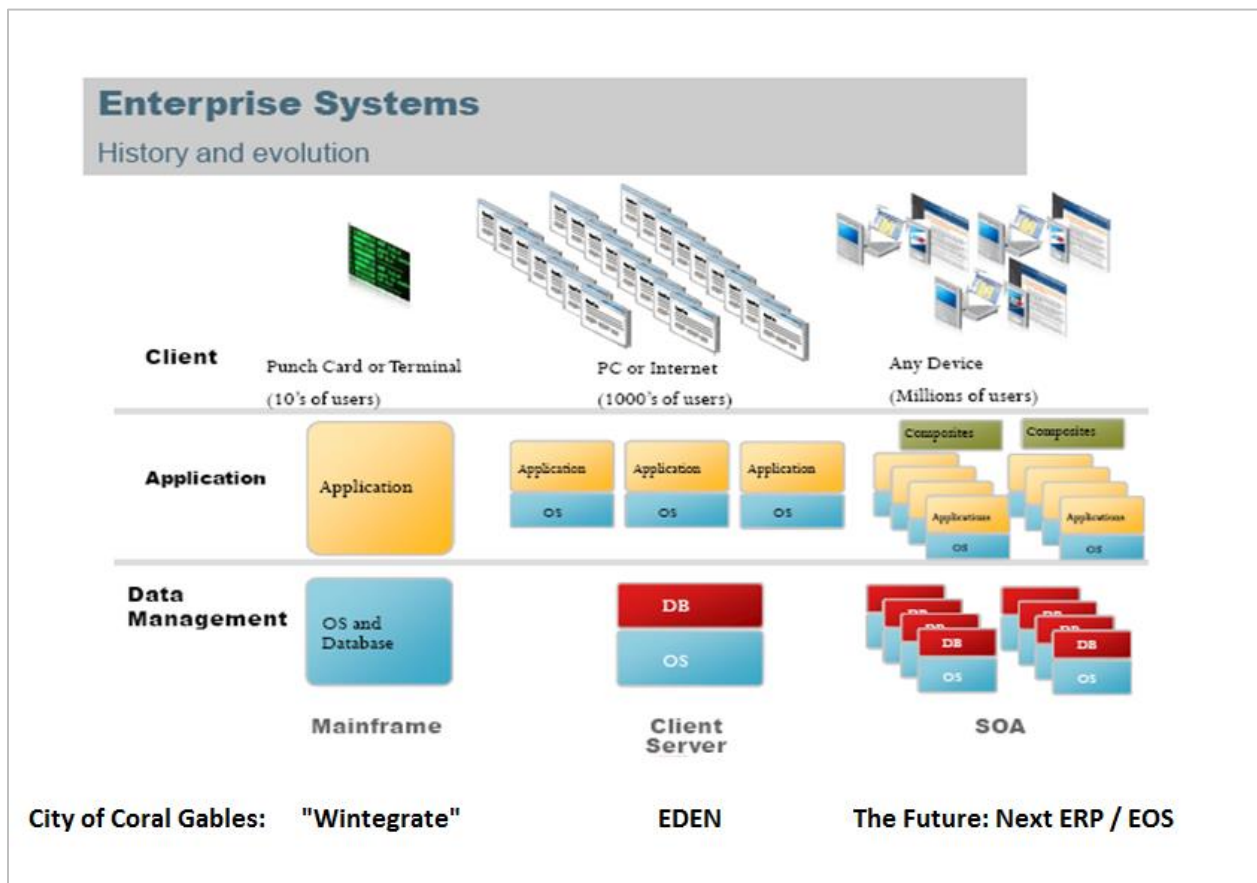


Figure 18. History and evolution of the city’s ERP enterprise systems, with the proposed next generation ERP/EOS SOA

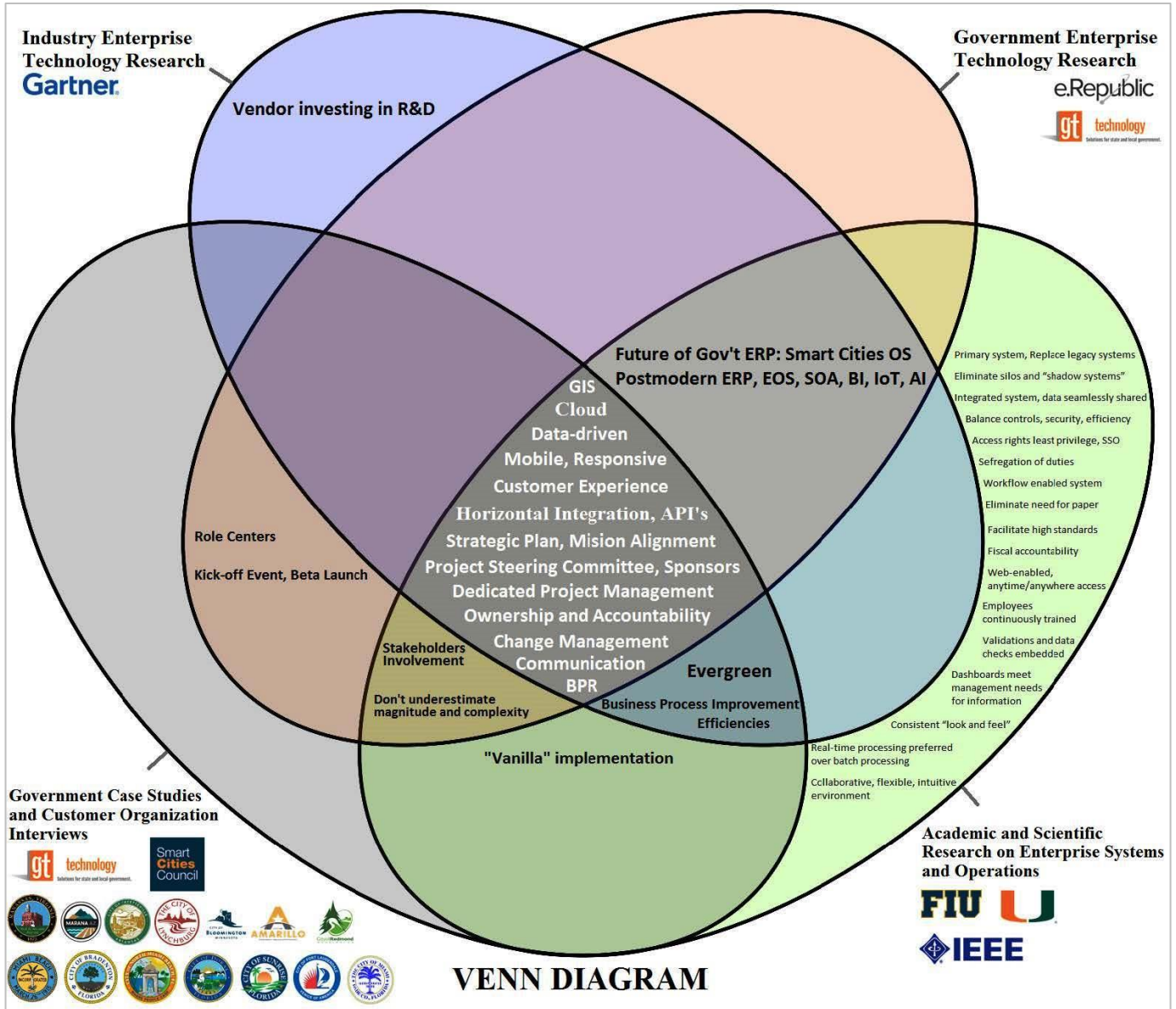


Figure 19. Venn Diagram of ERP/EOS CGIT Research Study Conclusions and Recommendations

- Complete all phases I-IV of the **CCTV/ALPR Project** and transition it to an operations and improvement cycle.
- Achieve **Smart City milestones** with smart processes, high efficiencies and automation in transportation, public safety, energy/water/environmental resources, technology, finance, economic development and citizen services. Improvements in customer service and quality of life metrics and benchmarks.
- **City Centennial** smart city hub and augmented reality projects, in cooperation with Parks, Historical Resources & Cultural Arts, University of Miami and civic coder organizations.
- Long term goals (10 years) for the **Sustainability project**, in energy consumption reduction, 100% paperless processes, green/smart energy, green datacenter, 100% achievement of energy efficient and low carbon footprint infrastructure benchmarks.
- Completion of public safety facility construction projects (New Public Safety Building, Fire Stations 2 and 3 renovations, new Backup 911 PSAP center.)

5. SWOT ANALYSIS:

- **Strengths:** Current technology infrastructure, communication services and client hardware in place in good standing. Team’s broad technical and managerial skillset, certifications, experience and credentials. Team’s maturity, teamwork, commitment, ownership, customer service, good morale. Presence at Equinix NAP of the Americas colocation site in Downtown Miami. Telecommunication outside plant infrastructure. Strategic Plans and technological initiatives. Collaboration with City departments on strategic initiatives (Public Safety, Sustainability, Digital Processes, Process Improvement...) Disaster recovery (DR) and business continuity high-availability systems, facilities and resources. Comprehensive policies, procedures, and standardized operations. Collaboration and ongoing relationship with University of Miami, Florida International University, Singularity University, IEEE, PMI, ASQ, IISE, FES, NSPE, IIBA, FLGISA, CIO/CISO/CDO summits, Knight Foundation, eMerge, ICMA, Innovation Council and other professional organizations and universities. Six sigma programs. Support from City’s Leadership and Community.
- **Weaknesses:** insufficient automated service request workflows, training gaps, aging network infrastructure in some facilities, ERP and other enterprise systems are reaching sunset, insufficient resources to cover growing demands from departmental and city-wide needs and projects, supervisor backup staff training and skill gaps, lack of adequate office space, need a more systematic approach to processes and operations, lack of administrative assistance personnel, need better process documentation, other findings from audits, city-wide Baldrige performance study and from Lean Six Sigma process improvement sessions.
- **Opportunities:** Cloud applications and platforms, Grant opportunities, more collaboration with the County, UM, FIU, SU, Nova University, MDC, other municipalities, Gartner, ICMA, PMI, IEEE, ASQ, SANS, IISE, Public Safety and Department of Homeland Security agencies, Code for Miami, The Lab Miami and other organizations on joint initiatives. Lean Six Sigma process improvement methodologies. Smart City and e-Gov opportunities (new cost-effective mature technologies, research programs, projects, initiatives, events, awards, Internet of Things, robotics, AI & ML, big data, mobile technologies, Cloud resources). University of Miami location and historic partnership. New Public Safety Building. Growing areas of responsibility and challenging projects, tasks and initiatives. Crime Intelligence Center (CIC), Crime Data Analysis initiatives, problem Solving Initiative (PSI). Internal and external audits. Always-evolving technological landscape and exponential technologies. Regional transportation and economic development projects and initiatives (SMART Plan, TPO, Enterprise Florida...) Think Tank, R&D and Innovation initiatives; City’s Innovation Council. Internships from schools, colleges and universities.
- **Threats:** Availability of fiber network, telecom links and services. Hurricanes and other disasters threatening high availability of services. Service Level Agreements with third party providers. Cyber-threats (hacking, hacktivists, cyber-fraud, malware, cyber-attacks and cyber-crime in general). New infrastructure and systems vulnerabilities. Aging equipment and technology-related risks affecting service availability. Aging facilities and building conditions. Employee stress. Resources availability, attrition and understaffing risks. Office space limitations. Added costs related to changes in policies and regulations. Project lags and unforeseen changes of scope and requirements. Rapid/exponential disruptive Industry/Market/Consumer Technological changes and innovation gaps. Availability and reliability of technology providers (hardware, software, services) and unpredictable merges, acquisitions, declines, bankruptcies and closures of companies providing/supporting services. Unforeseen increases in costs of equipment and services. Staff retention issues due to competitive market and other government agencies recruiting, frequent needs and additional costs for rehiring and retraining. Aging electrical grid infrastructure.

6 – I.T. Organization

The I.T. Department (CGIT) reports to the Assistant City Manager and Director of Public Safety, Frank Fernandez. CGIT currently has 17 full-time and 6 part-time positions (23 total). CGIT has four operational divisions:

Applications Division (Supervisor: Lemay Ramos. 4 F/T, 1 P/T):

- **Applications & Programming** - Develops and manages all software applications for the enterprise. The IT department maintains and supports more than 200 home-grown programs and off-the-shelf applications, including specialized products for the enterprise, public safety and community services. Many applications and smart apps are used to deliver services for residents and businesses in Coral Gables. They provide day to day operational capability by front line city staff in Finance, Building and Permitting, Economic Development, Police and Fire, and Community Services. These applications require extensive network and systems support in order that staff have continuous access to the software and the information to provide needed services to our customers and constituents. And, the records and data used and created with these applications needs to be made secure and safe; as well as properly maintained and backed up.
- **Business Analysis and Systems Engineering** - Provides solutions to the City using Business Intelligence (BI) information technology and tools. This includes data science, analysis, plans, systems engineering and functions for enhancing public safety and business processes, operations and information process flow.

Customer Support, Content Management and GIS Division (Supervisor: Mark Hebert. 2 F/T, 3 P/T):

- **Service Desk** - Receives and manages all inbound calls for IT Service. They assist internal and external customers by providing phone support and remote customer support. They assign and dispatch field service staff for onsite response. The Service Desk retains ownership and tracks all calls until an issue is resolved. Call volume at the help desk exceeds 100 service request or incident reports per week. All these calls must be assessed and handled on the first contact, as practical. Otherwise, the call is escalated to one of the other IT divisions for scheduling and resolution. Help desk staff continue to manage and track each call, regardless of escalation, and they ensure that calls are responded to and resolved in an expedient and timely manner.
- **Field Service** - Responsible for supporting day to day operations of all city departments; providing high quality onsite customer service and technical expertise. They work to resolve many kinds of PC, telecommunication and network issues. Many IT calls for service and reports of incidents are handled by Help Desk staff over the phone or by email. When the situation requires a response escalation, staff is resourced from one of the divisions in IT and redirected to the customer site, or incident location.
- **GIS** - Manages the business, culture, and organization of geographic information products, across the enterprise. Traditionally, for many customers, GIS has meant maps. In the Coral Gables IT department, GIS is an analytical and intelligence tool that can provide insights into data to understand trends, correlate interactions, and support group collaboration. GIS is spatial analysis through the manipulation of spatial data, the application of statistical analysis, and the creation of spatial models. The results of these efforts are displayed in maps, charts, graphs, web portals, apps and spreadsheets than assist stakeholders and executives with actionable information that supports key operations and fulfillment of customer requests.
- **Content Management** - Responsible for designing, developing and maintaining digital content management systems such as Web sites, Mobile Apps, Digital Signage, Social Media systems, and Collaboration platforms.
- **Crime Intelligence Center** - Includes management and support of technical operations and public safety technology needs at the CIC. Monitoring, troubleshooting and operation of CCTV cameras, license plate reader systems, crime analysis systems, video management systems, traffic management systems, crime mapping technologies, public safety applications and other technologies. Assists public safety and other city personnel with data and video analytics requests (incidents, traffic engineering, events.)

Systems Division (Supervisor: Ayanes Apolinar. 4 F/T, 1 P/T):

- **Servers and Clients** - Designs, engineers, analyzes and supports server and client infrastructure and high-availability. This includes desktop and mobile computer hardware, tablets and smartphones devices,

operating systems, system management utilities, Internet of Things (IoT) and client-server platforms infrastructure. Systems division maintains and supports over 1,000 end-customer devices for office desktop computing, and mobile in-field computers. This include nearly 200 devices wirelessly connect to the city network for Police and Fire personnel conducting public safety operations.

- Databases and Storage** - Designs, engineers, and supports database and storage system infrastructure and high-availability. This includes databases, data backup systems and processes, centralized storage systems, smart city data marketplace, and data infrastructure. Systems orchestrates and continually maintain hundreds of physical and virtual servers running mission critical applications for the enterprise and department-level programs vital to serving resident and business needs in Coral Gables. Underpinning the applications on those servers are nearly 100 databases running under Microsoft SQL licensing in a robust, high-capacity, high-availability to the data on the servers. These services include all the hardware, connectivity, and redundancy to support daily data backups, off-site storage, on-site and remote failover capability, disaster recovery and off-site implementation for critical operations staffing.
- Cloud Computing, Hyper-Convergence and Virtualization** – the scope of systems includes private and external cloud services, server and client virtualization and hyper-converged systems that provide a platform for a smart city ecosystem, reduce infrastructure footprint, increase interoperability, scalability, mobility, accessibility and availability of systems, services and applications.

Network Division (Supervisor: Gisela Rodriguez. 5 F/T, 2 P/T)

- Network and Security** - Designs, engineers, implements and manages networking infrastructure, high-availability and cybersecurity. This includes WAN/LAN, Intranet/Internet/Extranet, CCTV and ALPR systems, voice, data and video network equipment, wireless and wired networks, and physical security systems.
- Telecommunications** – Supports and manages more than 200 networks connection and endpoint devices, that include all switches and routers for a diverse, multi-campus, multi-facility enterprise. Telecom staff designs, engineers, implements, manages telecommunication infrastructure, outside plant, services and high-availability. This includes voice, data and video circuits, wireless and wired links, smart city IoT nodes and gateways, 911 PSAP, fiber optics network, telephony systems, SCADA telemetry, telecommunications towers, I.T. environmental and facilities maintenance. For telephony Telecom support a full call manager system across the enterprise with nearly 300 devices on office desk throughout our service domain, ensuring call quality, voicemail service, and switchboard/call transfer and conference call capabilities.

City of Coral Gables
Information Technology Department

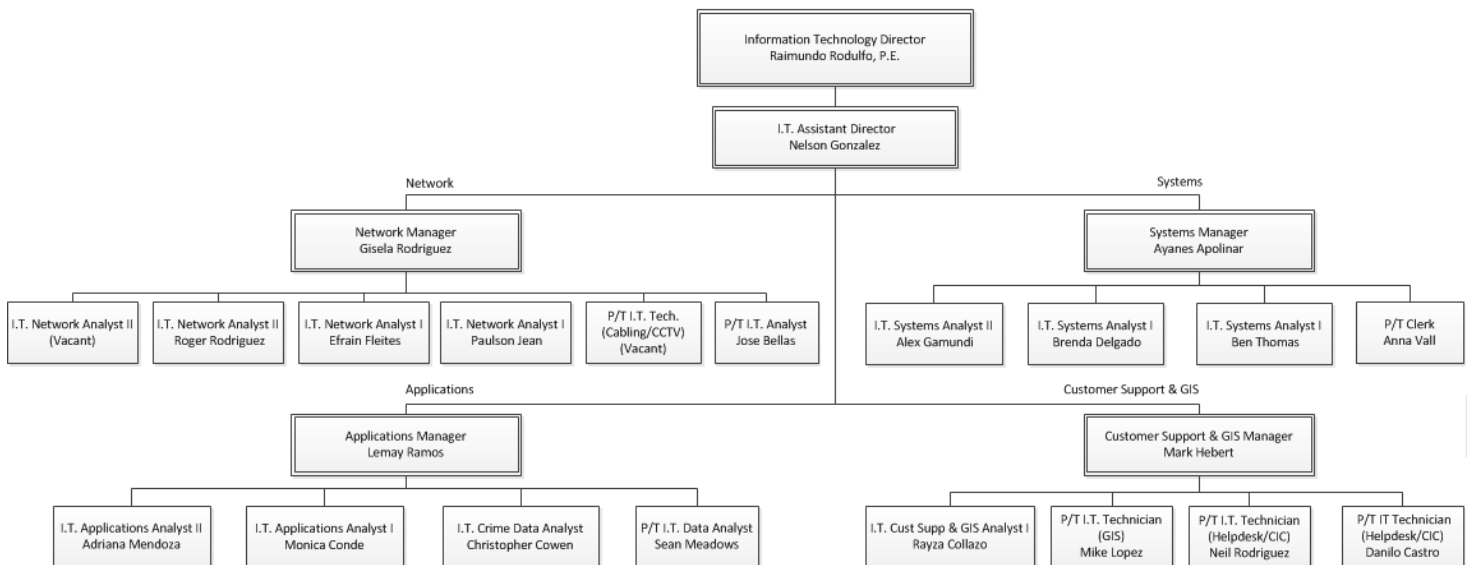


Figure 20. I.T. Organizational Chart