CITY OF CORAL GABLES, FLORIDA
2024-2025 BUDGET

INNOVATION AND TECHNOLOGY

FISCAL YEAR 2024 MAJOR ACCOMPLISHMENTS

✓ Technology engineering and provisioning milestones for ongoing building projects, including Minorca Parking Garage 7, Coral Gables Country Club, Granada Pro Shop, City Hall renovation, Passport Office renovation, 338 Minorca Ave. Office, New Fire Station 4; Parking, Finance, and HR office relocations and reprovisioning, and other projects.

✓ Working with Finance, Human Resources, project Executive Steering Team and Working Groups, completed the implementation and go-live of the Global HR (GHR), Workforce Management (WFM) / Payroll, and Questica Budget Preparation components of the City's new Core Financial, HR and Supply Chain Enterprise System (INFOR CloudSuite ERP). These successful cutovers completed the implementation of the City's ERP Cloud Suite project. This enterprise business capabilities (EBC) advanced system completes the transition to paperless processes and digital efficiencies citywide, integrating with several other enterprise systems recently implemented in key areas such as infrastructure services, community recreation, electronic permitting, waste management, public safety, citizen engagement and asset management.

✓ Completed Phase I (Alhambra Circle Financial Corridor) and Phase II (Ponce de Leon and University Drive commercial corridor) of the broadband and public Wi-Fi expansion project, building additional fiber optics segments to connect multiple city buildings and facilities and install additional smart city poles to improve/enhance connectivity, mobility, public safety, network resilience, situational awareness, digital inclusion, and citizen services, and foster innovation, quality of life programs and economic opportunities for the entire community, with a regional impact.

✓ Working with the Office of Communication and the City Clerk's Office, completed the implementation of the City's new City Mobile App, Mobile Digital Experience Platform (DXP) and Customer Relationship Management (CRM) 311 citizen center platform (Salesforce). This platform provides advanced communication capabilities for Coral Gables residents, businesses, and visitors, including a chatbot AI assistant and text messaging and notification functionalities.

✓ New smart city AI-powered modular pole featuring the Coral Gables v3 award-winning custom industrial design was installed in the Alhambra Cir. financial corridor. This new design was created as a collaboration between our City, Ekin, and Pininfarina, with SME advice from the University of Miami School of Architecture. The CGIT team worked with engineers and contractors installing the new pole (the second in the corridor). This new pole –connected to the City's Community Intelligence Center (CIC)– provides free public Wi-Fi, CCTV, traffic/environmental IoT sensor data and traffic safety automation, and enhances public safety in that busy area of our central business district.

FISCAL YEAR 2024 MAJOR ACCOMPLISHMENTS – (Continued)

✓ Working with Police, Fire and 911 Communications, implemented the final phase of the new Police/Fire/911 CAD and RMS cloud suite (Mark43) for its June 2024 go-live. The new smart public safety cloud-native system features advanced and smart data reporting, mobile applications, systems integration and interoperability, with a robust and resilient platform and automated electronic process capabilities and functionalities for public safety. The user interface is modern and provides a seamless experience for users, with accessible and integrated up-to-date geospatial information, and advanced record management capabilities with streamlined workflows, intuitive search, and native NIBRS record format validations.

✓ Implemented multiple network and computer upgrades and additions: over 250 user computers and end-point devices deployed citywide; 25 additional CCTV Cameras deployed to control illegal dumping in residential neighborhoods; Public Safety trailers retrofit with camera upgrades and advanced analytics; Wireless Point to Point antennas city wide backhaul upgrade for higher bandwidth and stability (Region Bank, Alhambra Circle, UM one tower, Fire Station 3), Cartagena Circle and Ingraham Park public safety equipment upgrade with latest technology of Wireless Point to Point links, switches, CCTV cameras and sensors; Cocoplum bridge ALPR pole site upgrade with latest hardware and software; Deployment of cell signal boosters in various city facilities.

✓ Responded to and addressed over 2,300 IT service support tickets received from internal and external customers; implemented over 50 medium-to-large enterprise IT projects; and maintained and supported a comprehensive indoor and outdoor technology infrastructure throughout city districts, buildings and facilities, including over 2,900 hardware equipment/devices (servers, desktops, laptops, tablets, smartphones, routers/switches, firewalls/filters/gateways, wireless, phones, storage, audio/video, cameras, and trailers), and over 190 off-the-shelf and homegrown enterprise software applications.

✓ Implemented several GIS systems and improvements: Asset management data dashboards developed for Greenspace Management and Facilities Management businesses of Public Works; Launched revamped and improved Smart City Digital Twin GIS web application; Completed floodplain management system configuration and kicked-off API integration with the City's permit system; Implemented Utilities field work in the Asset Management system; Developed new, improved email Public Notice secure web application.

✓ Developed multiple homegrown applications for various city functions and departments (public safety training system, data analytics dashboards, geospatial systems and apps, augmented reality and artificial intelligence apps for residents and visitors, development services and public works digital tools, and other applications.)

✓ Worked with Economic Development, Gables TechTank incubator partners, CGIT Lab team, Miami Tech Talent organizations, and education partners (UM, FIU, MDC, Coral Gables High School, and others) developing tech talent and internship programs and connecting them with jobs and career development opportunities.

FISCAL YEAR 2024 MAJOR ACCOMPLISHMENTS – (Continued)

✓ Smart City Digital Twin Platform Redesign – CGIT reengineered the City's Digital Twin smart city platform and implemented multiple upgrades and improvements that went live in December 2023: New advanced 3D photogrammetry and mapping and object modeling for buildings (BIM), RoW objects, trees are now visually represented with their real species in sync with our asset management systems, city trolleys dynamic visualization from integration with fleet management systems, smart city infrastructure (sensors, telecom, public Wi-Fi, smart lights, kiosks), city parks, green areas, streets/roads/RoW assets; better data integration and interoperability with the City's enterprise systems (AM, EPL, ERP, CMS, smart parking systems, LiDAR photonics ROW StreetSmart digital environment, IoT urban analytics platform, Smart City Hub, County GIS and CIP/ROW projects/infrastructure/assets, external HPC's), AI-powered process automations, hundreds of 3D geospatial open datasets, integration with Google maps, Waze, and other GIS platforms, UX improvements and new menu layout and design.

✓ Launched Phase 3 Reengineered Version of the AI Digital Assistant (AIDA). Recent enhancements include integration with Large Language Models (LLM) and improved ontology, heuristic, and Natural Language Programming (NLP) algorithms; integration with other bots across the City's enterprise systems and the launch of other AIDA personas such as our new 311 CRM chatbot and the City Website chatbot. AIDA was initially developed in 2021 as part of the NSF-funded STIR Labs initiative, by a government-academia joint research team integrated by our CGIT team, researchers from University of West Virginia Human-Computer Interaction Lab (WVU-HCI) led by world-renowned AI and HCI expert Dr. Saiph Savage (MIT, WVU, NWU), the UC Berkeley Innovation Group (BIG), Stanford University, and the City Innovate STIR Labs cohort. In Phase 2 (2021-22), CGIT collaborated with graduate students from University of Miami's Institute of Data Science and Computing (UM-IDSC) enhancing AIDA's NLP models and decision/recommendation engine; and in Phase 3 (2023), CGIT reengineered AIDA with the latest enhancements and integrations mentioned above.

✓ Completed Year-1 milestones and kicked off Year-2 phase in Coral Gables of the Autonomous Intelligent Assistant (AutonomIA) traffic/energy AI optimization project – funded by the U.S. DOE Advanced Research Project Agency (ARPA-E) – with scientists from the Pacific Northwest National Laboratory (PNNL), UC Berkeley, industry partners and City engineers from the City of Coral Gables Innovation & Technology and Public Works departments. This exciting R&D project combines artificial intelligence, multiscale simulation, and real-time control to improve energy efficiencies and reduce energy expenditures, congestion, and emissions for regional transportation systems for multiple operational scenarios. Our project team is showcasing AutonomIA on a small-scale traffic network in Coral Gables for varying Connected and Automated Vehicles (CAV) penetration levels to demonstrate these gains. Project execution is undergoing, and the teams have already developed a smart traffic network digital twin environment for various Coral Gables testbed traffic corridors (Ponce de Leon Blvd., Alhambra Cir., and Miracle Mile), published scientific white papers, started field testing, and completed other key project milestones.

FISCAL YEAR 2024 MAJOR ACCOMPLISHMENTS – (Continued)

✓ City of Coral Gables was named a winner in the 2024 IDC Smart Cities North America Awards. The city was selected as the winner in the Sustainable Infrastructure category at the 2024 IDC Smart Cities North America Awards, for our project "Coral Gables Custom Smart City AI-Powered Modular Poles". These awards recognize municipalities that achieved success in leveraging emerging technology and innovation to support Smart City initiatives.

✓ Coral Gables was named one of the world's Top 7 Intelligent Communities of 2024 by the Intelligent Community Forum (ICF), for the second year in a row. The announcement was made at the Smart Cities and Intelligent Communities conference, conducted as part of the Taiwan Smart City Summit & Expo in Taipei. In 2024, the ICF recognized intelligent communities from seven nations over five continents, named as finalists in ICF's annual Intelligent Community of the Year Awards Program. Each of the cities, towns, or regions that received the ICF Top 7 award have applied six principles evaluated by ICF: i. Broadband Connectivity, ii. Sustainability, iii. Knowledge Work, iv. Digital Inclusion, v. Innovation, vi. Community Engagement.

✓ City of Coral Gables Received the 2024 Smart 20 Award. The city received the award from Smart Cities Connect and Smart Cities Connect Foundation, for our project "Coral Gables Custom Smart City AI-Powered Modular Poles". The Smart Cities Connect organization said: "The Smart 20 Awards annually recognize global smart cities projects, honoring the most innovative and influential work." This is CGIT's third Smart Cities Connect international award – our team also received it in 2023 for the project "Coral Gables Digital Twin Smart City Horizontal Integration Platform" (one of the top three global winners) and in 2020 for the urban infrastructure project "Coral Gables Smart Districts Expansion."

✓ City of Coral Gables received the Connected City Innovator of the Year recognition from the Dense Networks think tank and the Connected Cities organization.

✓ Collaborated with the National Institute of Standards and Technology (NIST, U.S. Department of Commerce) on the development of a federal strategic plan and framework for smart cities, published by NIST in 2024. Worked together with the leaders of the Smart Cities program within the NIST Communications Technology Laboratory, the NIST Global Community Technology Challenge (GCTC) think tank, and George Mason University (GMU) scientists developing the national strategic foundation. NIST published a new strategic plan for its Smart Cities program in 2024, which references Coral Gables contribution and smart city case studies. The plan was made available for public comment on the federal NIST webpages.

✓ Presented the City's smart city innovation and technology initiatives at professional events, creating productive partnerships with experts in academia, government and industry professional organizations and increasing outreach and adoption of City technologies. Also, the City of Coral Gables Innovation and Technology team (CGIT) hosted the Cities Today Institute (CTI) City Leadership Forum (CLF) on Digitalization at the City of Coral Gables Community Meeting Room (CMR). The CLF brought together 20 North American city leaders to our city to exchange best practices through roundtable discussions, Q&A sessions, case study presentations and site visits. CGIT also hosted during

FISCAL YEAR 2024 MAJOR ACCOMPLISHMENTS – (Continued)

✓ that time the inaugural Emerging Leaders Programs (ELP) in Coral Gables at the Emergency Operations Center (EOC). The ELP is a tech leadership education program developed by the CTI and Harvard University, specially crafted for young city tech leaders to improve their innovation leadership and business acumen for smart city programs.

✓ Authored and submitted papers and articles to professional publications, including engineering research papers for the Institute of Electrical and Electronics Engineers (IEEE), Smart Cities Americas, and CIO Magazines. Also, Florida International University (FIU), U.S. DOC, NIST, U.S. DOE, PNNL, Harvard University, IEEE, FES, Gartner Inc., StateTech, Smart Cities America and multiple other organizations published case study videos, papers and articles highlighting City of Coral Gables smart city initiatives and accomplishments.

✓ Several STEM research, education and lab internship partnerships and smart city collaboration initiatives with University of Miami, Florida International University, NOVA University, Miami-Dade College, UC Berkeley, Institute of Electrical & Electronics Engineers (IEEE), Cities Today Institute (CTI), Smart Cities Council, Dense Networks Think Tank, U.S. Department of Energy (DOE), Department of State (DOS) and Department of Commerce (DOC), Advanced Research project Agency-Energy (ARPA-E), Pacific Northwest National Laboratory (PNNL), National Institute of Standards and Technology (NIST), World Business Angel Investment Forum (WBAF) Smart City Commission, 4Geeks Academy, Beyond Academics, and other organizations. Also, collaborated with IEEE and NIST in the development of engineering standards and frameworks for smart cities, emergency management and incident response.