



Smart Districts - Broadband Infrastructure Expansion Project July 2025 Update

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Director of Innovation and Technology / CIO*



Smart Districts – Broadband Infrastructure Expansion Project Update

Secure, Smart & Connected Districts, Buildings and Facilities

Project Background and Recap

Previous agenda items when this project was presented to City Commission in 2022:

- Presentation on Smart Districts Broadband Infrastructure Expansion Project
- Presentation regarding the Pininfarina Industrial Design for the new Coral Gables Smart City Poles: Resolution No. 2022-269
- Fiber Optic Backbone Expansion Project procurement bid award: Resolution No. 2022-257
 - Fiber construction kicked off in November 2022 after solicitation award and approval
 - IT Strategic Action Plan 4.1-3: Smart and Connected Districts, Buildings and Facilities / City Goal 4 - Optimize City processes and operations to provide cost-effective services that efficiently utilize City resources / Obj. 4.1 - Enhance the effectiveness of key City processes.

Main Project Accomplishments 2023-2025:

- Completed the four new city-owned underground fiber optic corridors proposed in the CIP (Ponce de Leon Blvd., Alhambra Cir., Aragon Ave. and Andalusia Ave.)
- Expanded public Wi-Fi coverage (multiple new public Wi-Fi nodes on these corridors and community areas and facilities - Full List below)
- Connected additional City buildings with high-speed city fiber (Youth Center, Adult Activity Center, all Parking Garages, Fink Studio / Economic Development, some Parks)
- Designed and Installed three new smart city poles on those corridors
- Additional smart city kiosks in those corridors

Smart Districts – Broadband

Infrastructure Expansion Project Update

Secure, Smart & Connected Districts, Buildings and Facilities

Broadband Expansion Phase 1-4 Scope:

- Installation, connectivity and turnkey of:
 - 25 additional fiber optic corridor segments
 - 8 additional smart city poles
(public Wi-Fi, cameras, sensors, lighting, incorporate Coral Gables industrial design & aesthetics)

- Connect multiple City Buildings/facilities:
 - Youth Center
 - Adult Activity Center
 - Museum
 - Parking Garage 1 and Parking Garage 4
 - Andalusia and Salzedo, West
 - Andalusia and Salzedo, East
 - Parking Garage 2 and Parking Garage 6
 - Museum Garage
 - Giralda and Merrick Way
 - Fink Studio (Econ. Dev. Ofc.)
 - Ponce Circle

Smart Districts – Broadband Infrastructure Expansion Project Update

Secure, Smart & Connected Districts, Buildings and Facilities

Four Phases:

1. Financial Corridor on Alhambra Circle
2. Ponce de Leon and University corridors
3. Mobility Corridor on Andalusia
4. Arts & Culture Corridor on Aragon, and a block segment of Merrick Way

Funding & Execution:

- Funding: CIP Funds allocated for broadband infrastructure - Phases 1-4 were completed on budget, leaving remaining funds available for new Phases 5-6
- City IT Team performed project management, planning/engineering/design, systems integration and configuration in house, for cost savings and ROI
- Solicitation for fiber construction and pole installation - Resolution No. 2022-257
- Estimated completion time after procurement, as presented in 2022 *:
 - Phase 1: 9 months
 - Phase 2: 15 months
 - Phase 3: 9 months
 - Phase 4: 9 months

* Project Fiber Construction Phases 1-4 were completed one year ahead of time

Smart Districts – Broadband

Infrastructure Expansion Project update

Secure, Smart & Connected Districts, Buildings and Facilities

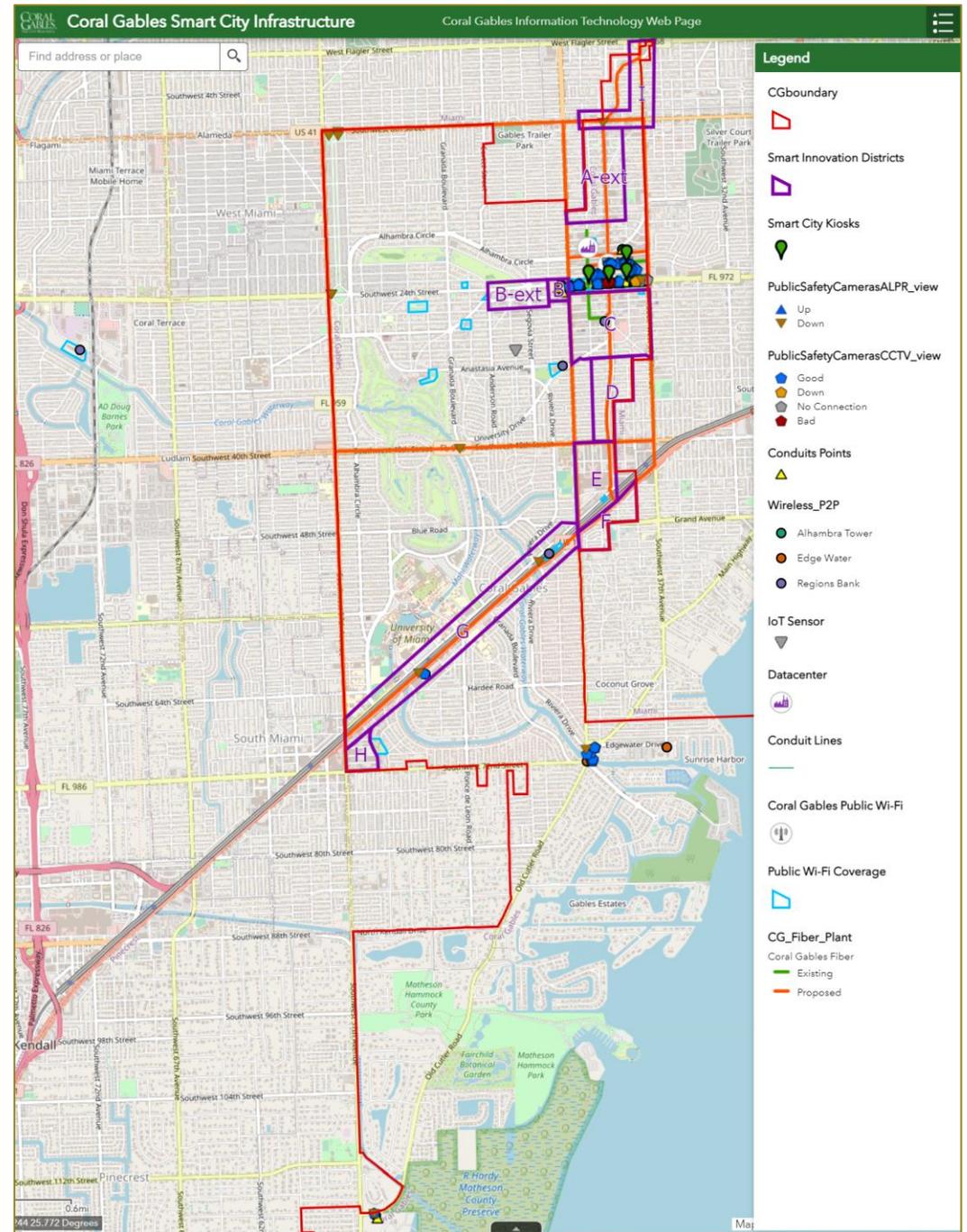
Benefits/Impact:

- High speed connectivity & capacity for city services
- Enhanced network/telecommunications resilience
- Digital services, data, and public connectivity for residents, businesses, students, visitors
- Quality of life, enhanced citizen services
 - Public Safety and Emergency Management
 - Mobility and Transportation
 - Digital inclusion, telehealth, tele-education, telework, digital literacy, tech upskilling and workforce development
 - Situational awareness/visibility, urban analytics, automation, real-time actionable information
Environmental, traffic, safety, economic
- Economic, entrepreneurship and jobs opportunities
- Tech/innovation incubators, accelerators, P3s, startups, scaleups, tech-parks, think-tanks, STEM research

What we had before

Previous Projects Completed before 2023:

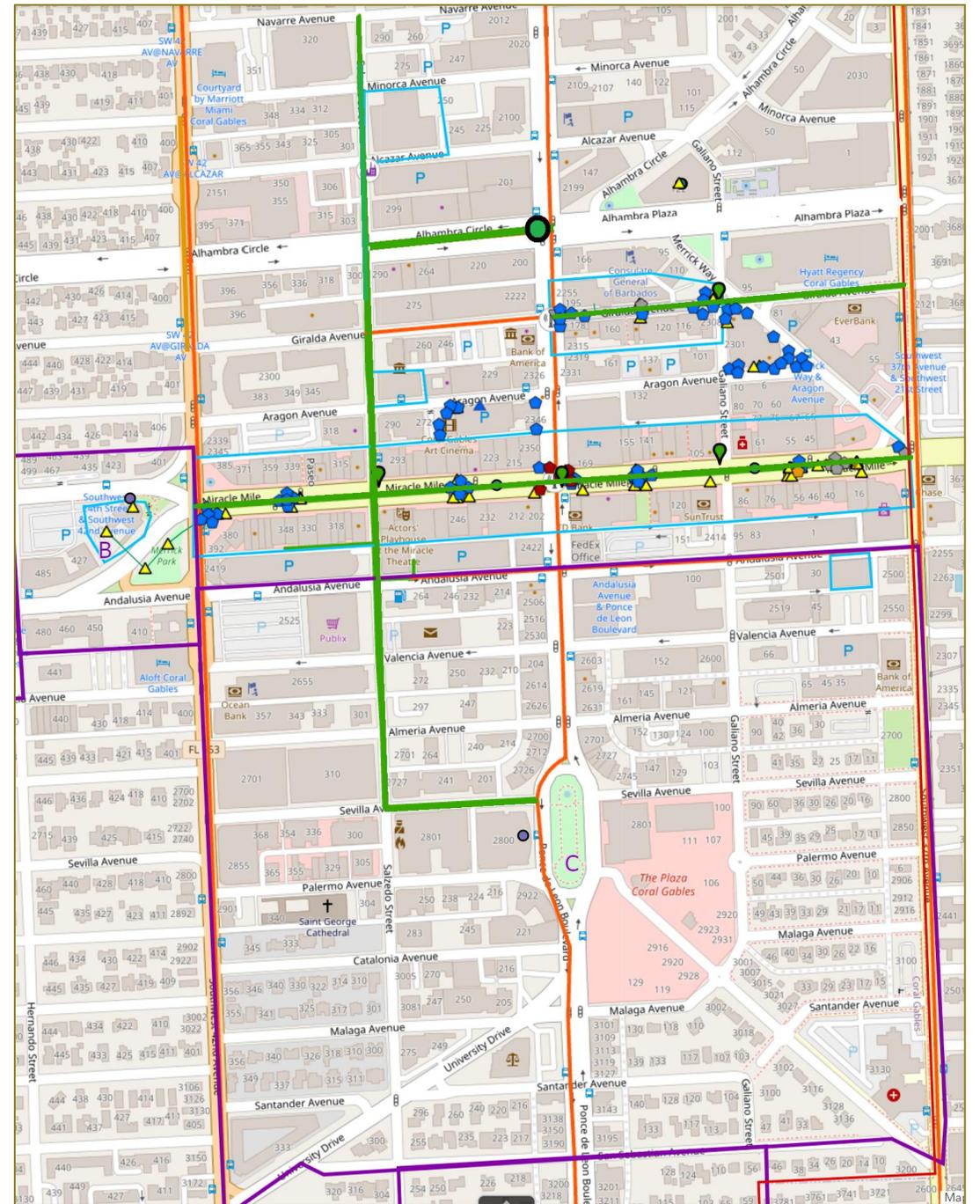
- **Smart Districts (A, B, ..., H, I; & Geofence) Infrastructure**
- Fiber Corridors (20 segments):
 - Miracle Mile, Giralda Plaza, Salzedo, and one-block segments in Sevilla, Andalusia, and Alhambra 200 Block
 - Connected buildings: Police and Fire HQ, City Hall, Development Serv. Ctr, Parking Garages 1 & 4, network node at Regions Bank Bldg.
- Public Wi-Fi network (CBD/Downtown, Public Parks & Facilities)
- Wireless point-to-point network (redundancy)
- Public Safety cameras/sensors - CCTV, ALPR, Geofence
- IoT Sensors (traffic, safety, environmental, economic)
- Smart lighting poles and controllers
- Smart City AI-powered pole (pilot)
- Smart City kiosks
- Smart and connected buildings, datacenters, network nodes, smart city hub / community intelligence center



What we had before (continued)

Previous Projects Completed before 2023:

- Smart Districts (A, B, ..., H, I; & Geofence) Infrastructure
- **Fiber Corridors (20 segments):**
 - Miracle Mile, Giralda Plaza, Salzedo, and one-block segments in Sevilla, Andalusia, and Alhambra
 - Connected buildings: Police and Fire HQ, City Hall, Development Serv. Ctr, Parking Garages 1 & 4, network node at Regions Bank Bldg.
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- IoT Sensors (traffic, safety, environmental, economic)
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- **Smart City AI-powered pole (pilot)**
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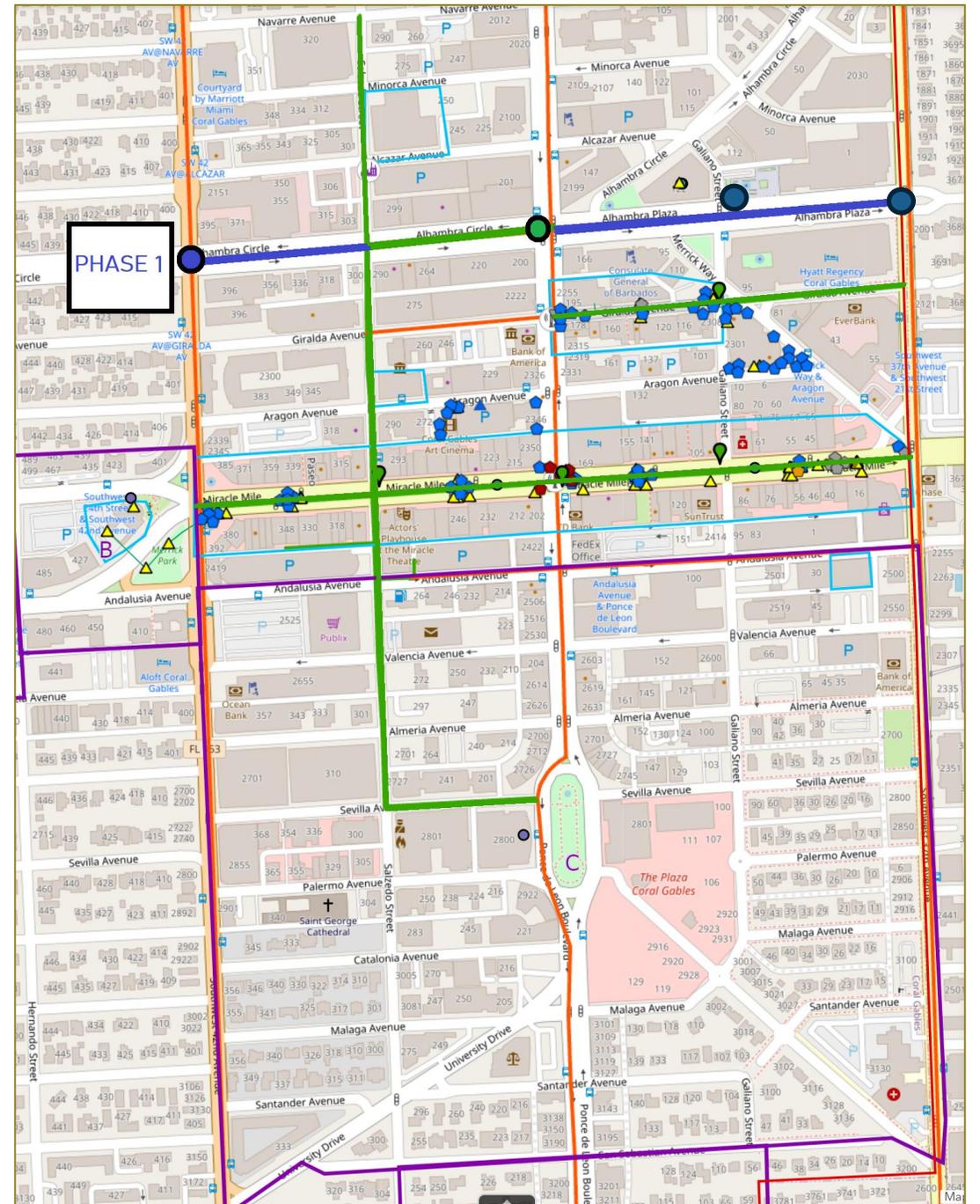


What was added (Expansion Phases)

Phase 1

Financial Corridor on Alhambra Circle:

- ✓ ● Three additional fiber block segments
 - Connected to existing fiber on Salzedo and Alhambra Circle
- ✓ ● Three additional smart city poles:
 - LeJeune and Alhambra Circle
 - Douglas Rd and Alhambra Plaza
 - Pump station at Galiano and Alhambra Plaza



What was added (Expansion Phases)

Phase 1

Financial Corridor on Alhambra Circle:

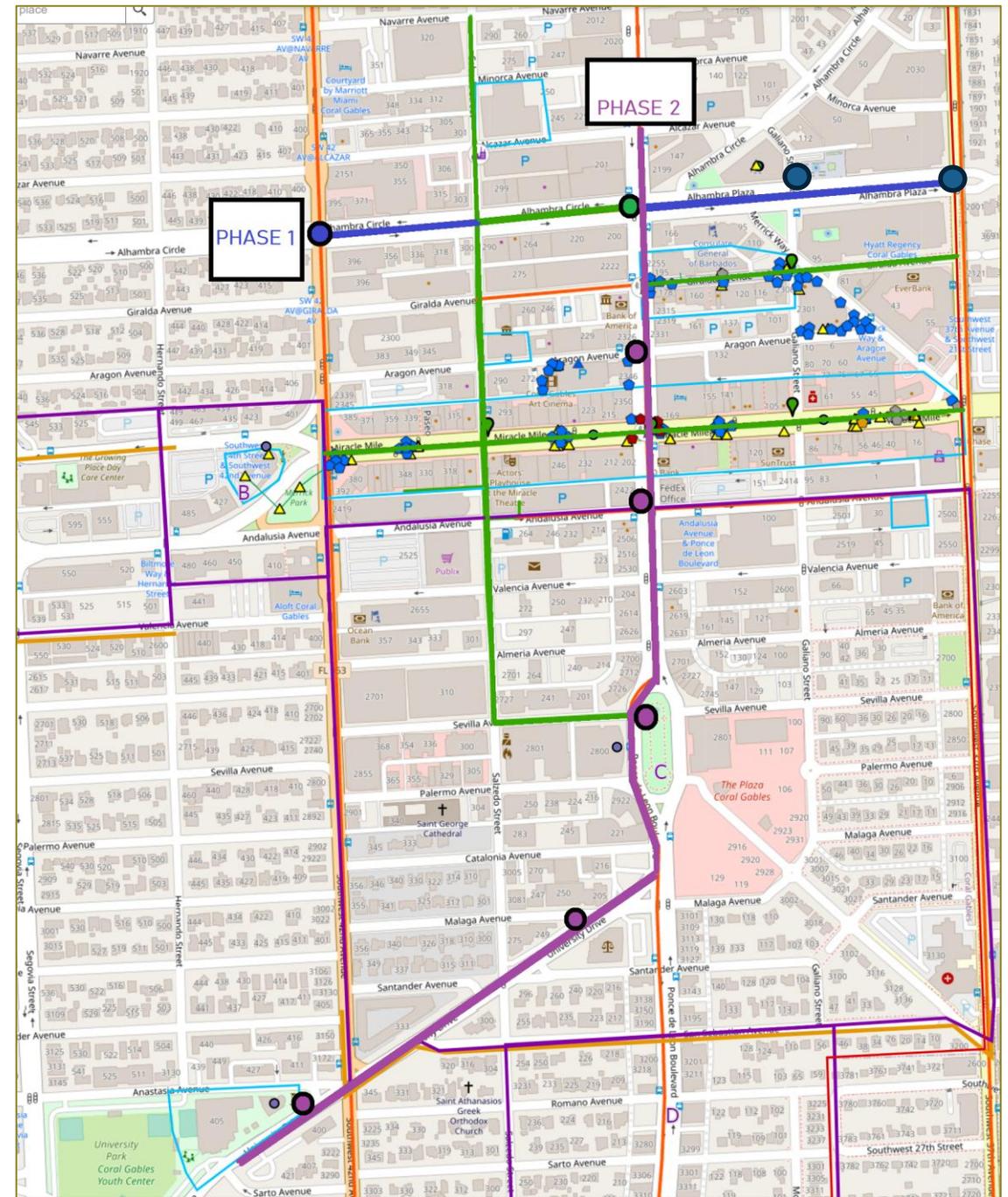
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 - LeJeune and Alhambra Circle
 - Douglas Rd and Alhambra Plaza
 - Pump station at Alhambra and



Phase 2

Ponce de Leon and University corridors:

- ✓ ● 14 additional fiber block segments:
 - ✓ ○ Ponce - 10 segments
 - Connects to existing fiber on Miracle Mile
 - ✓ ○ Connects to **Fink Studio** (Econ. Dev. Ofc.), the **Ponce Circle**, and right-of-way adjacent to The Plaza building complex.
 - ✓ ○ University – four segments
 - Connects to the **Youth Center** building.
- Five additional smart city poles:
 - Ponce and Aragon, Andalusia, and Ponce Circle (pending for park renovation to start)
 - University and Malaga and Le Jeune



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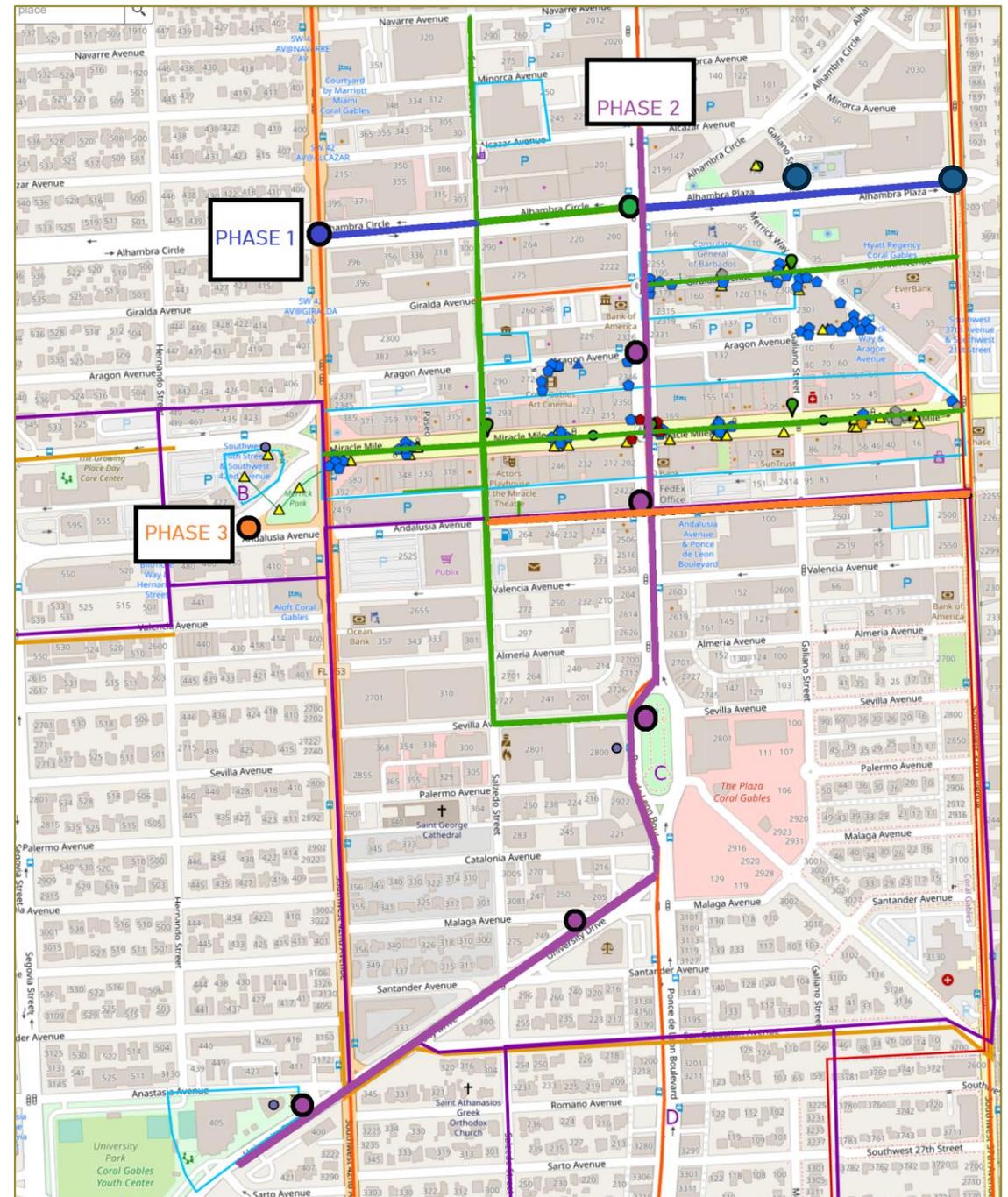
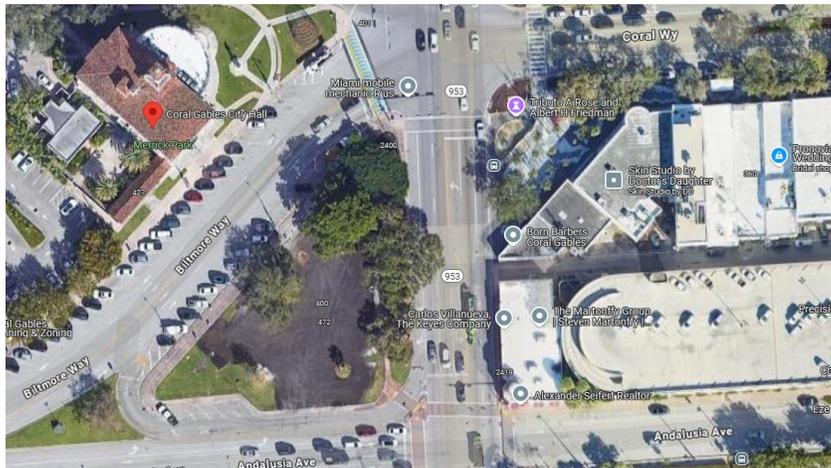


Phase 3

Mobility Corridor on Andalusia:



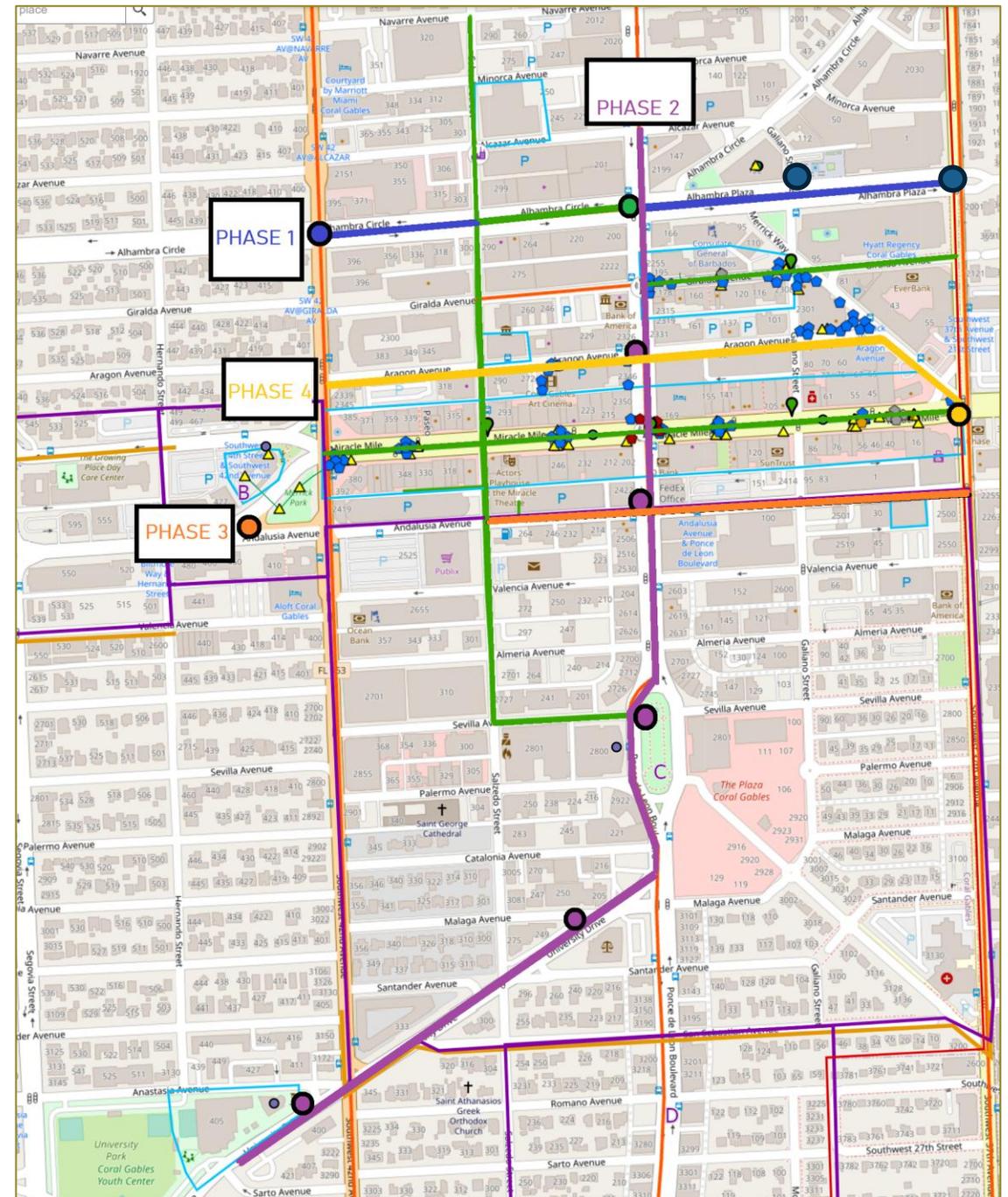
- Three additional fiber block segments
 - Connects to existing fiber on Salzedo and Andalusia (Parking Garages 1 & 4 pre-existing segments)
 - Connects to the **Adult Activity Center** building
- One additional smart city pole: **Merrick Park** and **Andalusia** (in front of **City Hall** and the **Development Services Center**) – On preliminary design / permit now



Phase 4

Arts and Culture Corridor on Aragon, and one block on Merrick Way:

- ✓ ● Five additional fiber block segments:
 - ✓ ○ Aragon - four segments
 - Connects to existing fiber in Salzedo and Aragon
 - Connects to **Museum building, Parking Garage 2, and Parking Garage 6**
 - ✓ ○ Merrick Way - one segment
- One additional smart city pole: Merrick Way / Miracle Mile / Douglas (may not be necessary because a pole was already installed at Douglas Rd. and Alhambra Plaza)



Phase 4

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 - Connects to **Museum building, Parking Garage 2, and Parking Garage 6**
 - ✓ ○ Merrick Way - one segment
- One additional smart city pole:
Merrick Way / Miracle Mile / Douglas (may not be necessary because a pole was already installed at Douglas Rd. and Alhambra Plaza)



Public Wi-Fi, Traffic Safety cameras and sensors, Traffic counters (multimode, vehicle, pedestrian...)
Environmental sensors (air quality, weather...); Hurricane wind resistant structural design

Enhanced communications, enhanced cameras, Coral Gables Pininfarina industrial design and aesthetics, smart lighting, noise sensor, announcer...

Coral Gables Smart City AI-Powered Modular Pole
Applied AI and Aerospace Engineering
First of its kind installed in North America

2021: Coral Gables Ekin Prototype V1



2022: Coral Gables Ekin Prototype V2



2023-25: Coral Gables custom industrial design by City of Coral Gables, Pininfarina, Ekin, UM



Public Wi-Fi, Traffic Safety cameras and sensors, Traffic counters (multimode, vehicle, pedestrian...)
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Applied AI and Aerospace Engineering
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Concept 01
Archway into the Future

Inspired in Mediterranean architecture were the church and main building towers define the skyline of the city. This pole contains an arched portal that connects past and future.



#tower #arches #repetition #lighthouse

Concept 02
Twisted Module

This proposal in macro shapes takes inspiration from the twisted column architecture found often in Coral Gables, modernized with a surface treatment that represents the elegance of natural lines found on palm leaves.

For the micro details, a custom 3D pattern has been designed that is directly inspired from the organic sinuosity of coral itself.

Applying a LED round light on the top creates a direct point of eye contact, expressing exactly what this new technology does: connecting people.



#statement #elegance #repetition #dynamic



Concept 05
Overhangs & Blossoms

Rational architecture structure and organic palm leaf pattern

The main form factor is derived from the Ormate Architecture style. The arch-shape skeleton starts from the top of this iconic column and expands in to the ceiling which express the tension of visualization.

Also, the arrayed layers are applied on the pole allow for a beautiful blend between the city and its lush landscape.

#Elegant #Avant-garde #Pure #Organic #Emotional
#Energetic #Lively #Friendly #Nature #Unexpected
#Clean



Concept 01
Archway into the Future



Concept 02
Twisted Module



Concept 05
Overhangs and blossom



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Secure, Smart & Connected Districts, Buildings and Facilities

Free Public Wi-Fi Sites Completed

- Miracle Mile corridor
 - Giralda Plaza corridor
 - Alhambra Circle financial corridor
 - City Trolleys (inside the trolleys, for the riders)
 - Salvadore Park
 - Kerdyk Tennis Center
 - Lamar Louise Curry Park
 - Riviera Park
 - Balboa Park
 - Pierce Park
 - Pittman Park
 - Merrick House
 - City Hall and Annex
 - Development Services Center
 - Youth Center
 - Adult Activity Center
 - Coral Gables Country Club
 - Venetian Pool
 - Fink Studio
 - Passport Office
 - Public Safety Building
 - Fire Station 2
 - Fire Station 3
 - Facilities at 72nd Ave
 - Parking Garage 7 (Minorca)
 - Trolley Building
 - Historic Department
 - Coral Gables Museum (Aragon / Salzedo area)
 - All public smart kiosk locations in Ponce, Biltmore Way, Miracle Mile, Giralda, Alhambra
- Ongoing expansions and upcoming sites in progress:
- Ponce de Leon corridor + University Dr section
 - Andalusia corridor sections
 - Aragon corridor sections



Smart Districts – Broadband Infrastructure Expansion Project Update

Secure, Smart & Connected Districts, Buildings and Facilities

Next Broadband Expansion Project Phases 5 & 6 (New) 2025-2027:

The Innovation & Technology department is already planning the new phases of the broadband corridors expansion, to expand service in Coral Gables districts and neighborhoods with public Wi-Fi and public safety / traffic safety technology services:

Phase 5 (2025-2026):

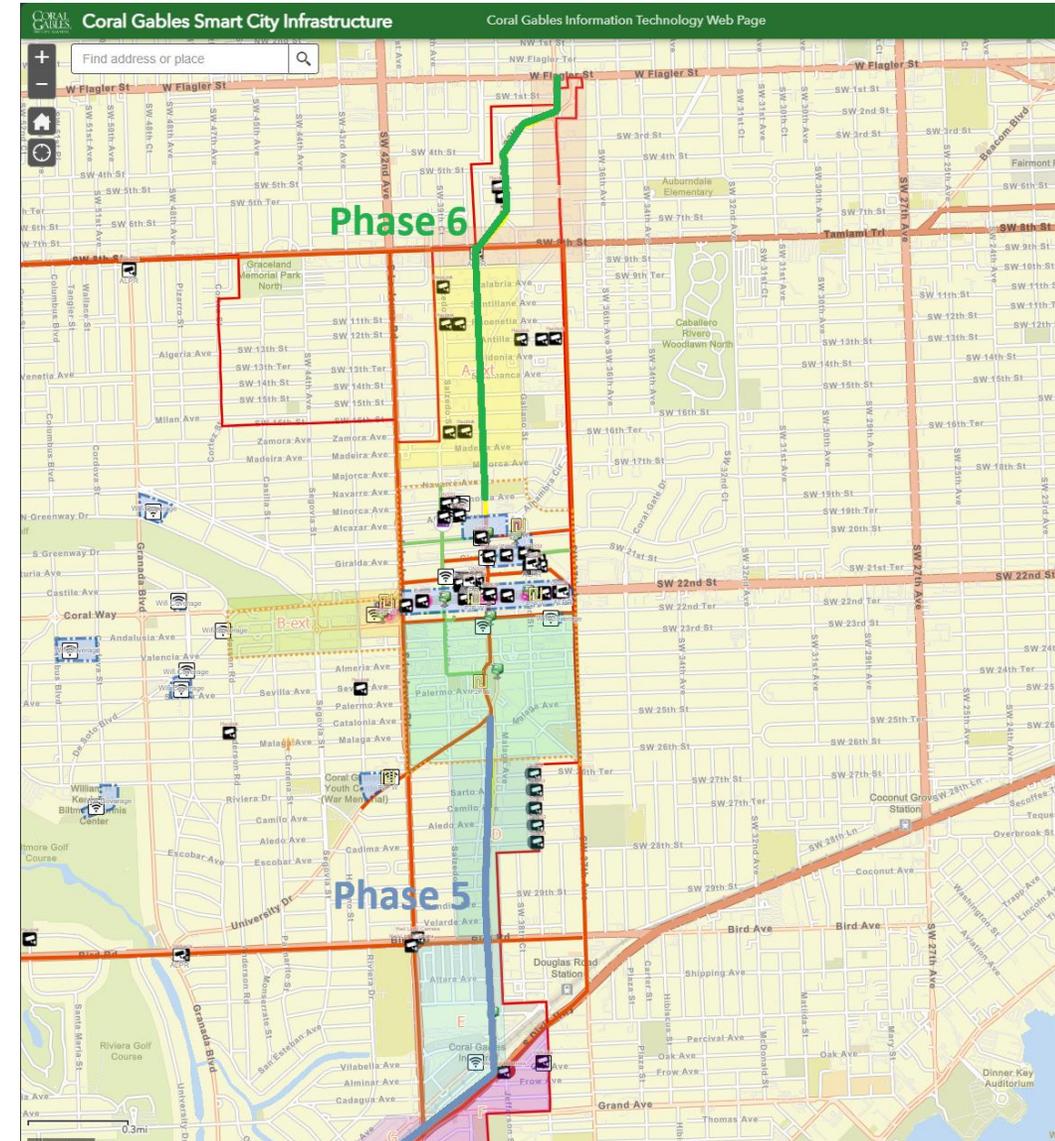
Will connect the City's smart districts fiber backbone to:

- The Bird Rd transit corridor and Merrick Park complex
- The Coral Gables Innovation District
- The Underline / US-1 corridors to the South (Connection to Miami and South Miami)
- Coral Gables Fire Station 2, Backup 911 PSAP, Trolley Depot, and Passport Office facilities

Phase 6 (2026-2027):

Will connect the City's smart districts fiber backbone to:

- North Gables (Districts, Parks, Connected infrastructure, Traffic intersections, 8th St.)
- The Flagler corridor to the North (Connection to Flagami, County, Miami Downtown)



A Robust Foundation of High-Speed, High-Capacity, Secure, Smart & Resilient Communications Infrastructure

Enables and facilitates:

- Real-time urban, environmental, and economic visibility
- Actionable information and analytics
- Access to scalable, highly-available clouds and mobile platforms
- The delivery of services, tools, enterprise applications, and actionable data to a Smart City ecosystem: people, businesses, organizations, smart/autonomous systems
- Alignment with strategic goals, mission, and vision of excellence



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



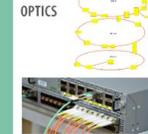
HIGH SPEED COMMUNICATIONS AND RESILIENCE

ROBUST, RESILIENT SMART CITY NETWORK FOUNDATION

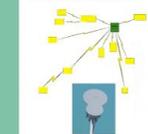
RESILIENT NETWORK



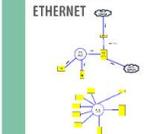
FIBER OPTICS



WIRELESS BACKBONE



METROPOLITAN ETHERNET



PUBLIC & PRIVATE WI-FI NETWORKS



SATELLITE & CELLULAR COMMUNICATIONS



SMART ENERGY RESILIENCE

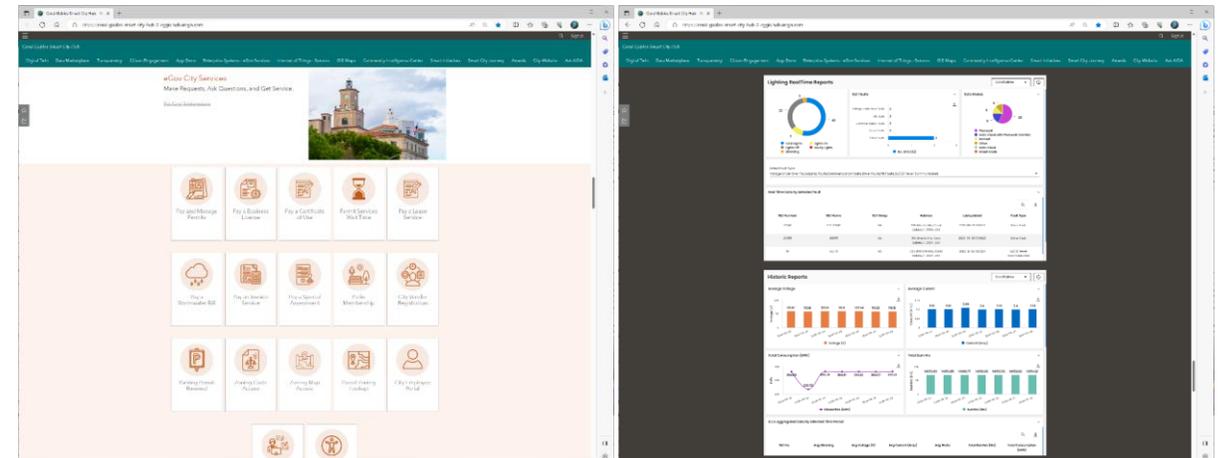
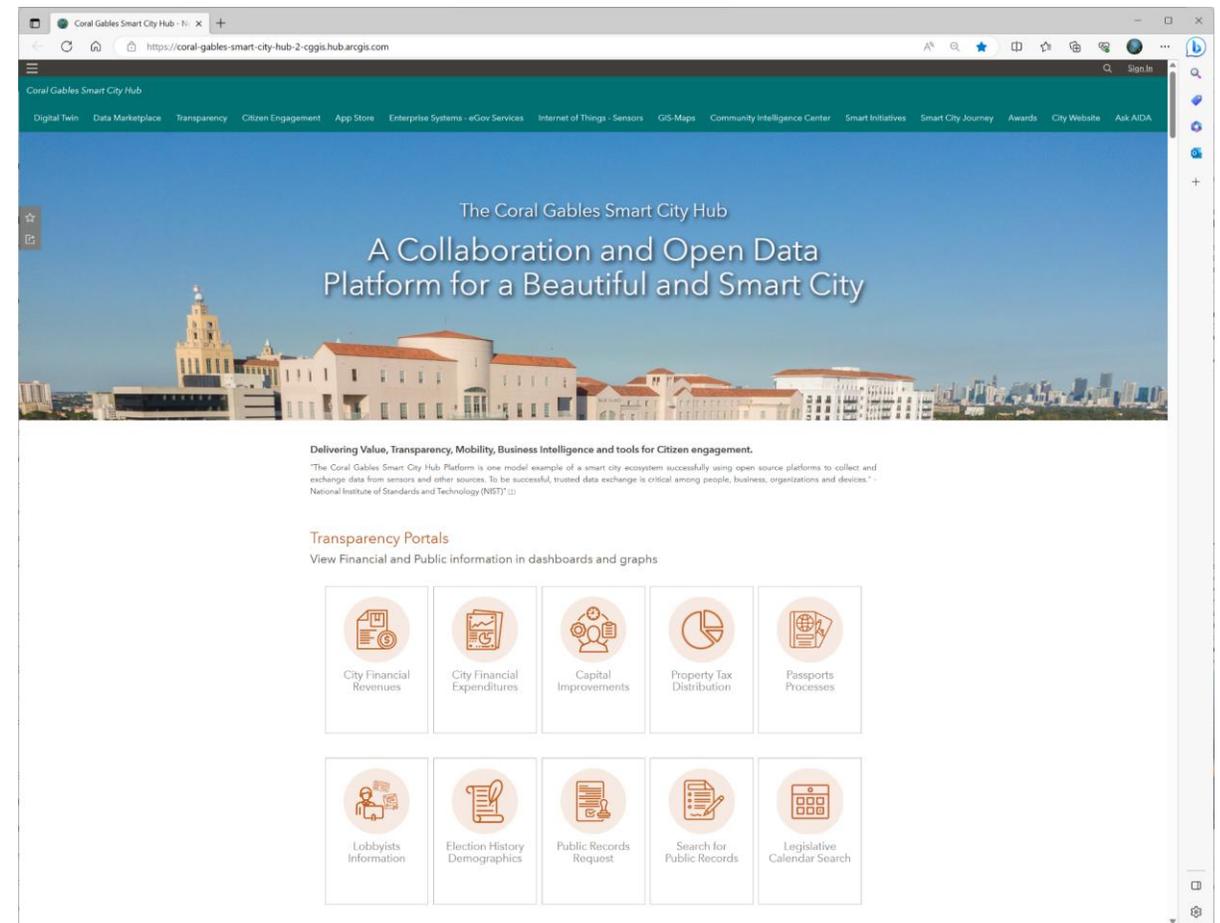


**City of Coral Gables - Innovation & Technology Department
SMART CITY HUB Platform
Digital Supermarket, Open Data, Apps, Tools for Collaboration**

WWW.CORALGABLES.COM/SMARTCITYHUB

Value and Benefits:

- **Free open data** from multimodal traffic and environmental sensors; provides statistics by hour/day/week/month; it can be used to design **business strategies** (retail, service, etc.)
- **Digital services**, mobile apps and applications for residents, businesses and their customers (transportation, parking, public safety, customer services connect...)
- **Transparent government data** that benefits all constituents (property tax, public records, business licenses, vendor services, open bids, demographics, dashboards, City agendas, legislative documents...)
- Tools that **engage citizens and attract visitors and customers** (social media, news, events, attractions, City virtual tours, parks and recreation digital services...)
- **Open GIS mapping data** that is useful for residents, developers, real estate agents, contractors and businesses in general
- **Actionable information** from business databases; among other features that foster economic growth and business innovation

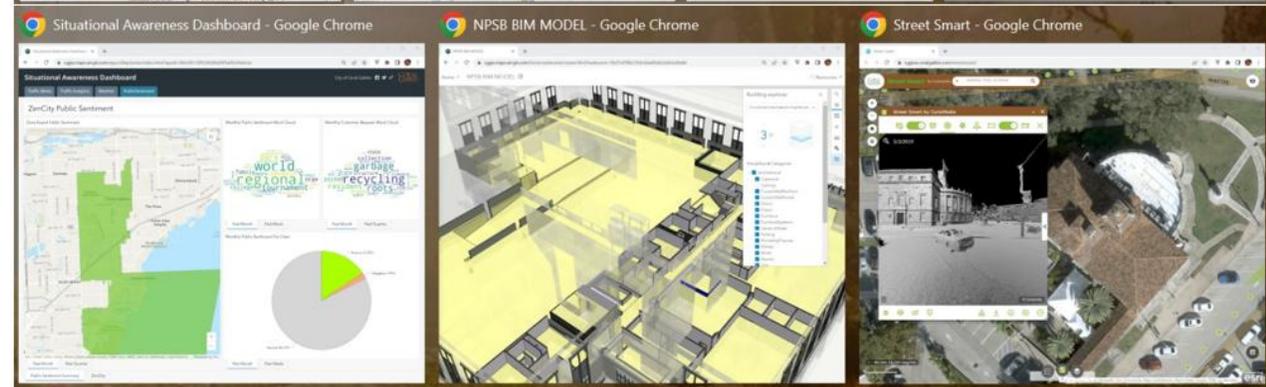
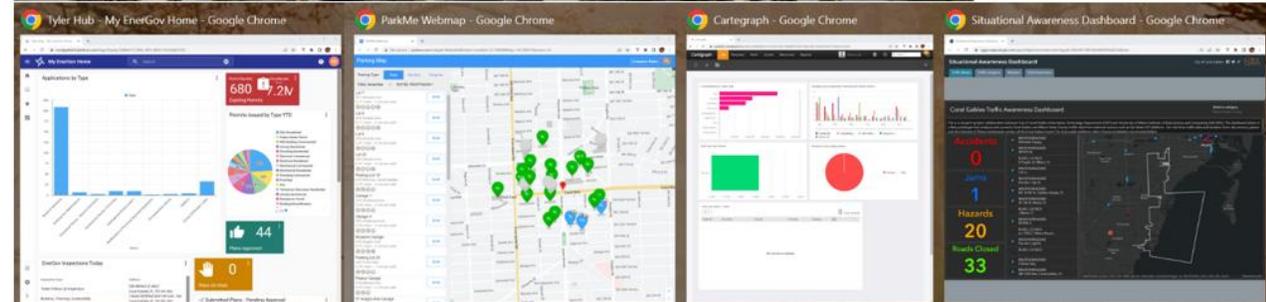
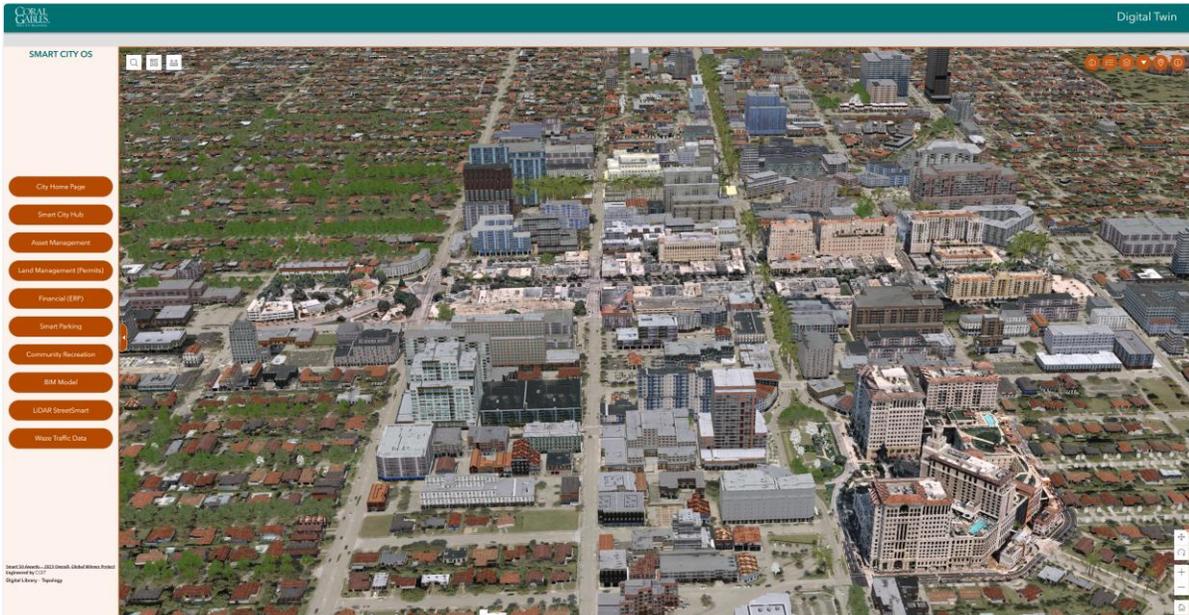
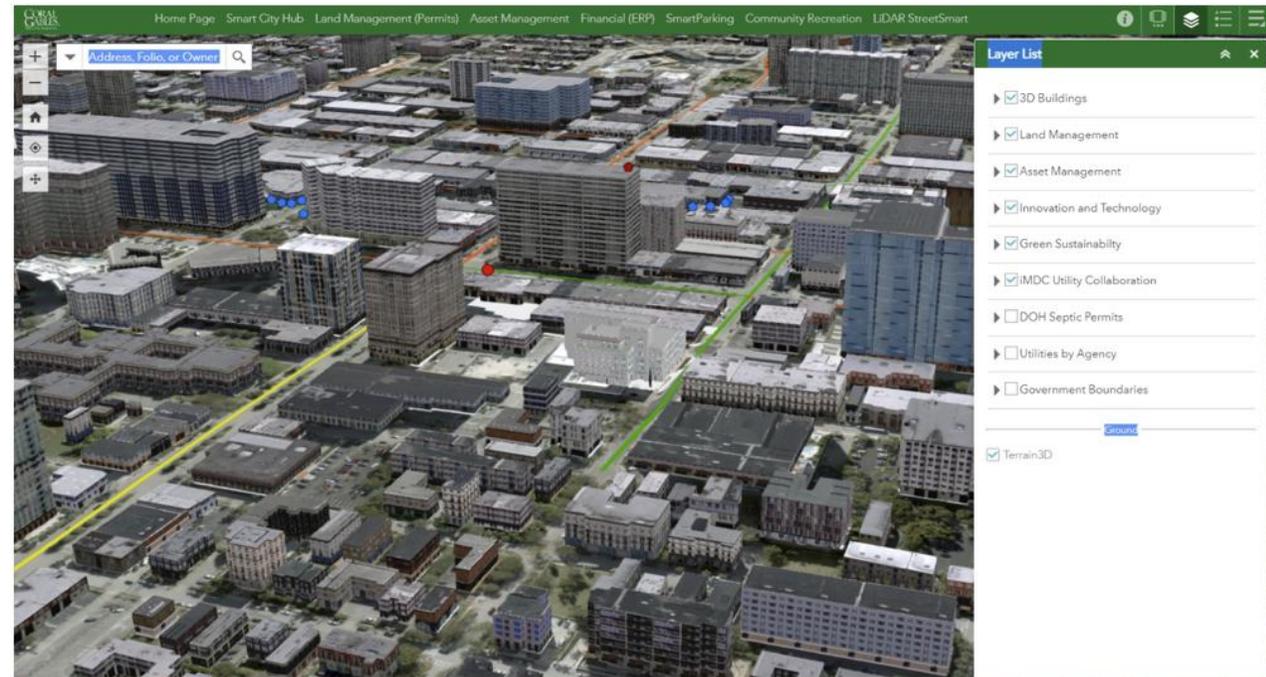


DIGITAL TWIN Smart City Platform

City OS and Horizontal Integration Dashboards

WWW.CORALGABLES.COM/DIGITALTWIN

- This architecture **fosters interoperability in real time** and connects the dots between all the city's enterprise systems and data domains to improve operational efficiencies and citizen access to digital services.
- Merges the Coral Gables Smart City Hub public platform, the City's Urban Analytics Artificial Intelligence (AI) Internet of Things (IoT) platform, citywide enterprise systems and open data, and a 3D horizontal integration spatial computing platform into one single **City OS** digital environment.
- Allows for **integration with building information models and immersive virtual reality** user experience navigation for operations, inspections, monitoring, control.
- A **smart city open data platform gateway to Web3** and decentralized immersive experience environments.
- **Aggregates value and increases visibility and awareness** over City operations.

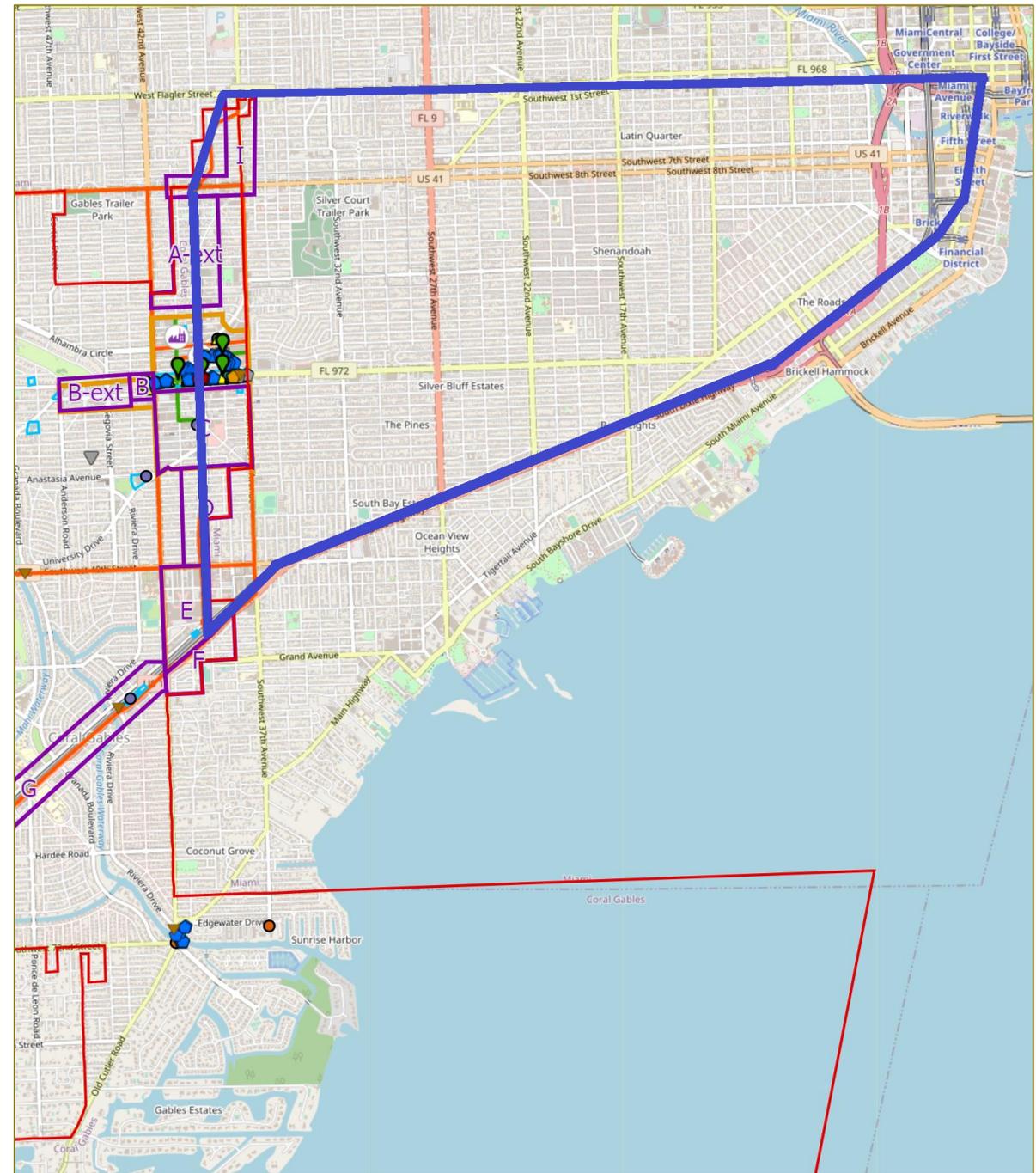


What does the future look like?

Long-Term Regional Collaboration Broadband Vision:

● Innovation and Research Triangle

- Connecting Coral Gables smart districts with the Underline/Metrorail corridor to the South and the Flagler corridor to the North
- Provides last-mile connectivity for other N-S and E-W broadband and technology/innovation corridors
- Regional Data Sharing and Research Collaboration
- Inter-agency mutual network redundancy, hurricane/disaster recovery and resilience
- Quality-of-life Collaboration Projects (mobility, safety, education, healthcare, jobs, recreation, community programs, sustainability and environmental conservation, resilience, digital inclusion...)
- Tech-driven Economic Zones
- High-tech smart cities centers of excellence
- Job creation, Upskilling
- Regional STEM projects
- Attracting high-tech employers



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AWARDS RECEIVED BY THIS PROJECT IN 2023, 2024, 2025





*Smart Districts - Broadband Infrastructure
Expansion Project
July 2025 Update*



THANK YOU

*Community Support
City Leadership*

Innovation & Technology Department Team

Partnering Depts (PW, PD, FD, Finance, Econ. Dev., Dev. Services...)

Partners in Industry and Academia

