Coral Gables Mobility Hub

Application to the U.S. Department of Transportation
Fiscal Year 2022 RAISE Grant Program

Type of Project:	**Transit - Multimodal Center**
Project Location:	**245 Andalusia Avenue** **Coral Gables, FL**
Total Grant Funds Requested:	**$25,000,000 (37% of Project Costs)**
Benefit-Cost Ratio:	**3.29 to 1 at a 7% Discount**
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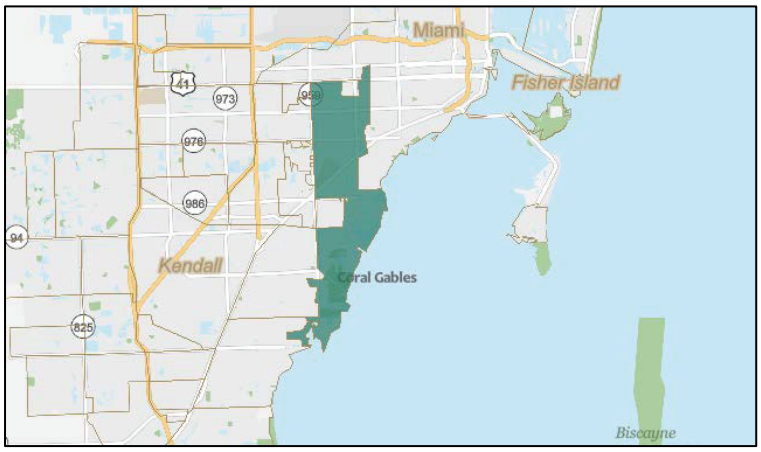
1. Project Description

The City of Coral Gables is located along south Florida's east coast. It is renowned for its lush, elegant surroundings and envied for its mild climate, with year-round temperatures between 60° and 81° Fahrenheit. The city is nestled on Biscayne Bay and offers more than 40 miles of waterways and coastline. Its lively, pedestrian-friendly environment and numerous transportation options have resulted in the city being named "the sixth most walkable suburb in the United States" by the Wall Street Journal.



Source: United States Census Bureau

Coral Gables has become a highly desirable location for domestic and international investment and one of the premium office markets in south Florida. It is also an ideal location to live and work. The city offers a diverse population with over half of the population fluent in another language. It has also become a destination for shopping, dining, and cultural events. The city boasts multiple museums, live theaters, cinemas, fine art galleries, music venues, and a number of other cultural and historical locations.

The City of Coral Gables is home to the University of Miami, the Lennar Foundation Medical Center on the Coral Gables campus along with UHealth. These facilities employ thousands of physicians, scientists, nurses, and other health professionals.

Coral Gables is within close proximity to a number of other communities such as the City of Miami and Fort Lauderdale. It is also a short drive from the Miami International Airport and Port Miami, where 23 cruise lines dock, handling nearly 7 million passengers a year.

The City of Coral Gables has adopted the following vision statement in the Mobility Element of its Comprehensive Plan:

Provide progressive direction for the City's multi-modal transportation system in a way that sustains the City's natural, aesthetic, historic, cultural, social and economic resources.

This statement imparts the City's commitment to providing multi-modal transportation facilities for residents and visitors that live, work, and play in Coral Gables.

Furthering this effort, the City of Coral Gables has developed the Coral Gables Mobility Hub. The Mobility Hub has been designed to include multiple modes of transportation, safety features, creative energy saving innovations, as well as additional features to be utilized by the community. The Mobility Hub will be constructed in the City's downtown area within steps of the Miracle Mile Shopping District and within walking distance of the Giralda Plaza Shopping District.

The Mobility Hub will also provide a safe and dedicated place to transfer between many of the available transportation options and provide access to and from other areas of the city and the greater Miami-Dade region.

1.1 Detailed Project Description

The Mobility Hub project has been divided into the following phases:

- Phase One: Pre-Design
  - Project Kick-Off
  - Data Collection
- Phase Two: Design
  - Schematic Design Development
  - Design Development
  - Construction Documents Development
  - Cost Estimate Development
- Phase Three: Implementation
  - Bidding
  - Permitting
  - Construction

Phase One: Pre-Design is complete. Phase Two: Design is currently underway and nearing completion. The Design Development Plans have been included in Attachment A.

The City of Coral Gables is requesting RAISE funding from the US Department of Transportation for Construction activities which will take place during Phase 3 of the Coral Gables Mobility Hub project.

Once construction is complete, the Mobility Hub will include the following elements:

- Ground Floor:
  - Micro-Mobility Services
  - Drive-Thru Lane for Ride Sharing Services Drop-Off/Pick-Up Point

  - Coral Gables Trolley Drop-Off/Pick-Up Point
  - City of Miami Trolley Drop-Off/Pick-Up Point
  - Retail Space
  - Bicycle Storage
  - Bike Share Docking Stations
  - Sculpture Garden
  - Restrooms
- Floors 2-9:
  - Vehicle Parking
  - Charging Stations for Multiple Types of Vehicles
- Floor 10 (Rooftop Terrace):
  - Playground/Park
  - Outdoor Theater
  - Fitness Nodes
  - Event Space
  - Catering Kitchen
  - Restrooms
  - Drone Delivery Facility
- Other Features:
  - Rooftop Solar Panel Canopy System
  - Rooftop Planters
  - Planter Walls
  - Elevators

The Mobility Hub will be constructed to allow for upgrades to the electrical system which may be needed to accommodate future expansion of the electric vehicle (EV) charging infrastructure. These provisions will include running empty conduit to the future location of EV charging stations and additional space for transformers and other electrical equipment in the electrical room.

Conceptual plans for the Coral Gables Mobility Hub project are included in Figures 1-4. A complete set of conceptual plans is included in Attachment B.

Figure 1 – Conceptual Plan – Ground Floor

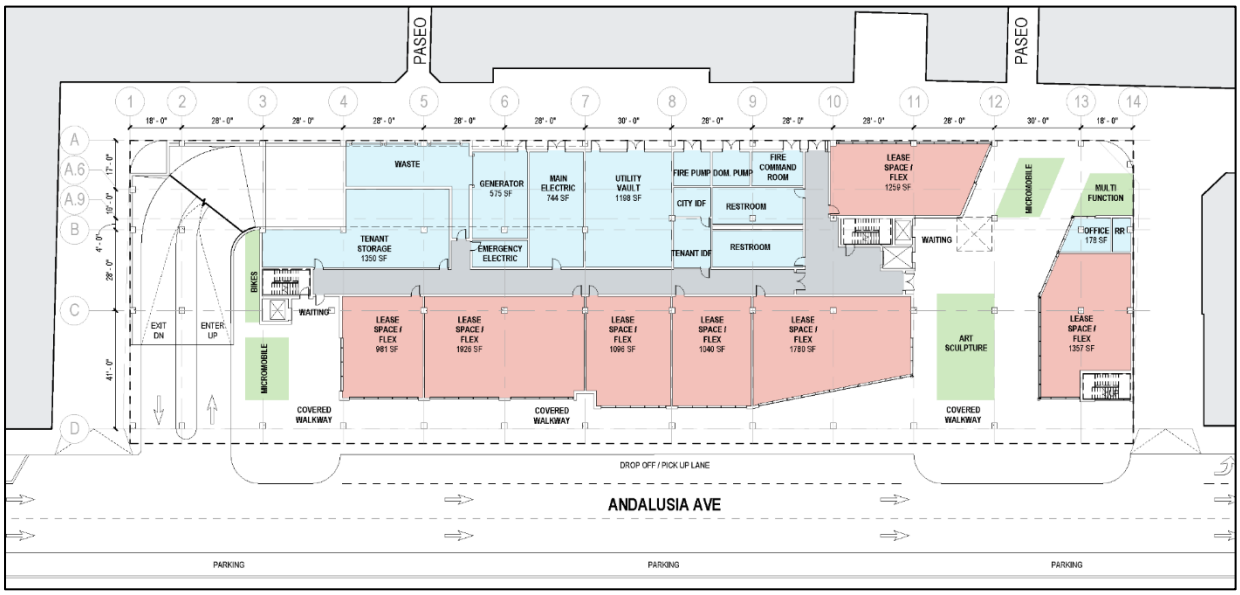


Figure 2 – Conceptual Plan – Floor 2

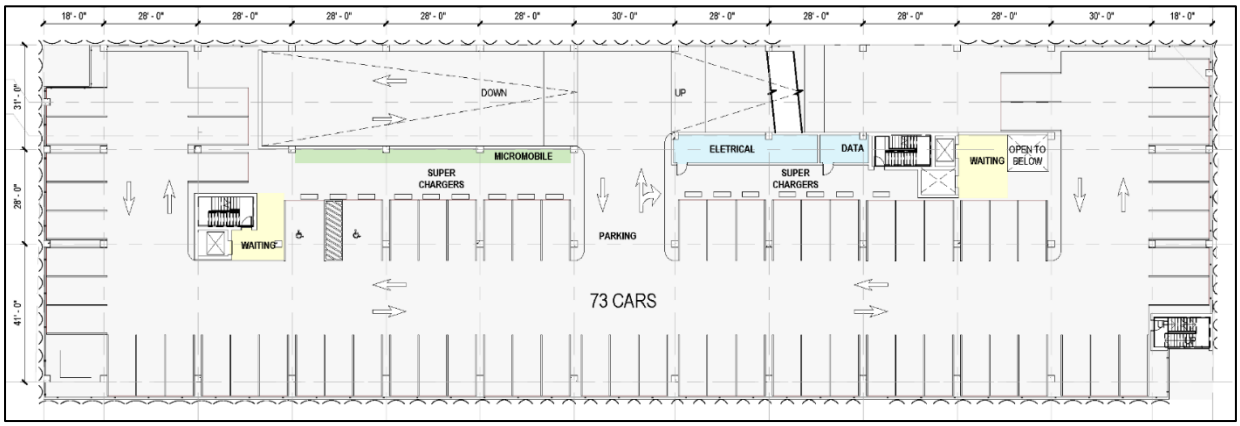


Figure 3 – Conceptual Plan – Floors 3-9

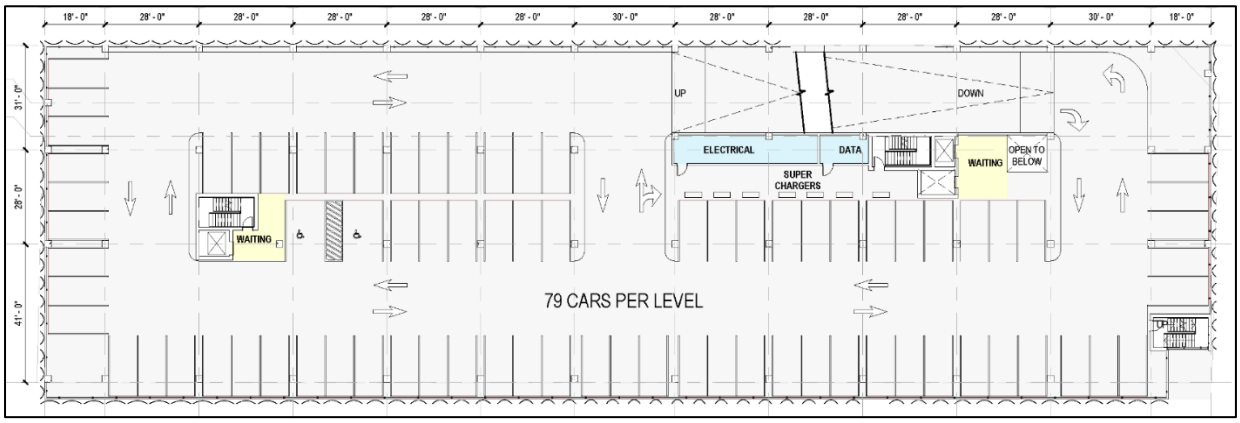


Figure 4 – Conceptual Plan – Roof Terrace

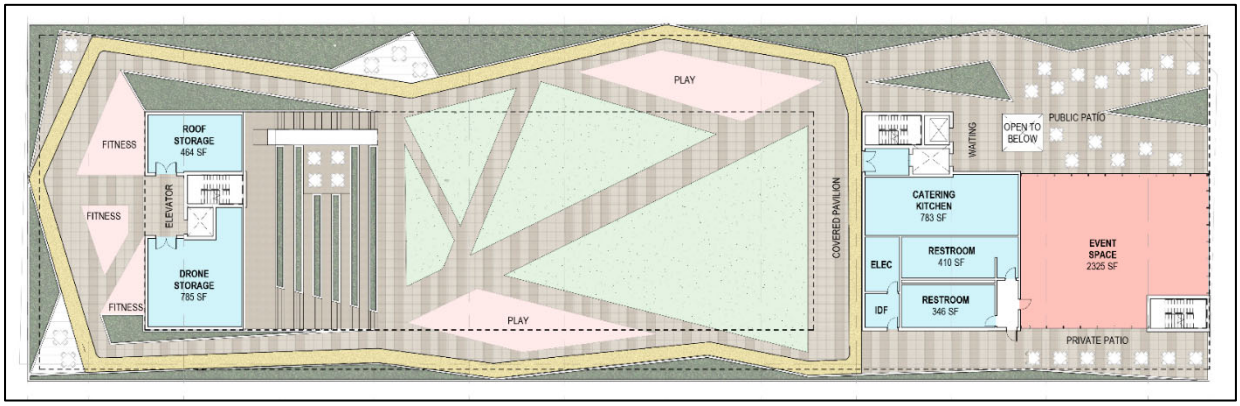


Table 1 - Overview of the Coral Gables Mobility Hub Project

Cost Shares and Start Date	
DOT RAISE Grant	$25,000,000
Local Contribution	$42,650,635
Total Project Cost	$67,650,635
Anticipated Start Date for RAISE Funded Work	April 2023 (Construction)
Anticipated Completion Date for RAISE Funded Work	March 2025 (Construction)
Impacts	
Long-Term Project Benefits	
Increased Revenue	$121,347,113
Reduced Energy	$246,102,106
Reduced Emissions	$30,180,266
Reduced Fatality/Injuries	$99,811,197
Benefit-Cost Analysis	
Result	Benefit-Cost Ratio of **3.29 to 1** @ 7% and 6.27 to 1 @ 3%

1.2 Transportation Challenges to be Addressed

With completion of the Mobility Hub project, the City of Coral Gables will address a number of transportation related challenges and goals outlined in the city's 2010 comprehensive plan. The Mobility Element of the plan details the city's goals, objectives, and policies for multiple modes of transportation for its visitors and residents. Objectives included in this element of the comprehensive plan include increased safety for pedestrian, bicyclists, motorists, and public transportation users; greater utilization of different modes of transportation; and furthering interconnection with other public transportation options. A copy of the Mobility Element from the *Coral Gables Comprehensive Plan* has been included in Attachment C.

The Coral Gables Mobility Hub project directly addresses the goals outlined in the comprehensive plan and implements tangible solutions to solving the City's transportation challenges.

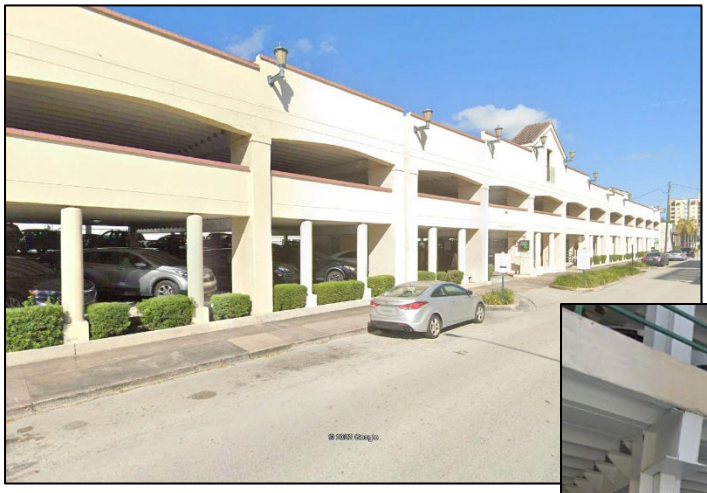
1.3 Project History

The City of Coral Gables as already made a significant investment in development of the Coral Gables Mobility Hub. In June 2021, the City contracted with M. Arthur Gensler Jr. & Associates, Inc., for Design Consultant and Engineering Services and then contracted with The Weitz Company, LLC for Preconstruction and Construction Manager at Risk services in September

2021. Additional funding was recently obligated in February 2022 for demolition of the parking structure currently on the project site. To date, the city has obligated nearly $3,000,000.

The pictures below illustrate the current parking facility on the Mobility Hub project site.

Figure 5 - Current Conditions



Andalusia Avenue
South Elevation

Alley
North Elevation

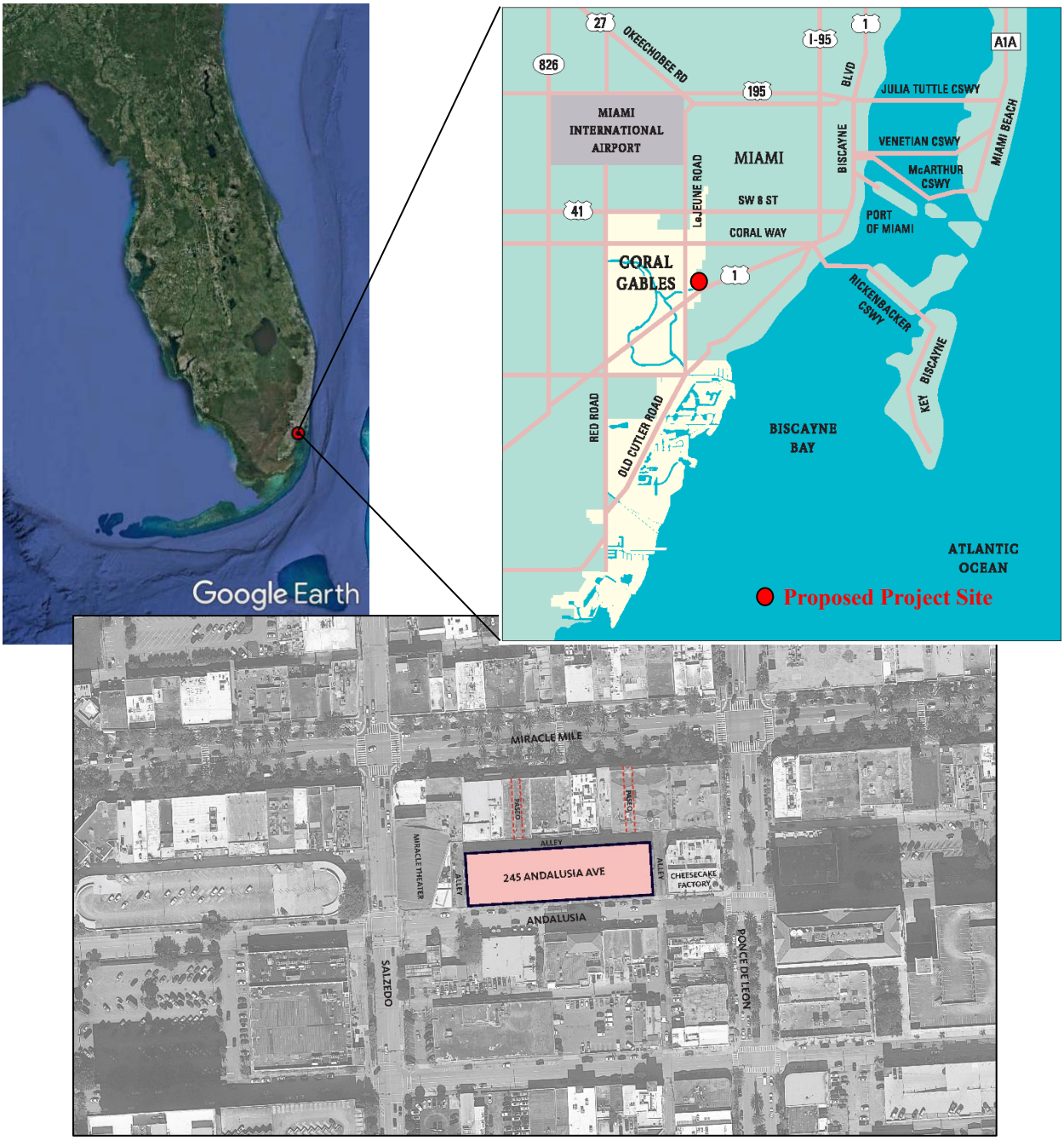
1.4 Concurrence with Existing Plans

This project is consistent with the Mobility Element of the *City of Coral Gables Comprehensive Plan*. The City's Comprehensive Plan can be downloaded from the following website. https://www.coralgables.com/comprehensive-plan

2. Project Location

The Coral Gables Mobility Hub will be located in downtown Coral Gables at 245 Andalusia Avenue. The maps below detail the project location.

Figure 6 – Coral Gables Mobility Hub Location Maps



Connections to Existing Transportation Infrastructure

The City of Coral Gables is consistently seeking innovative and creative ways to alleviate traffic congestion and parking demand. The Coral Gables Trolley has been conveniently moving residents and visitors around the city since 2003 and currently provides service to more than 4,000 customers daily. A trolley stop is currently located at the proposed project site. The City of Miami offers a free trolley service as well. Its Coral Way Route will provide service to and from the Mobility Hub. There are also a number of Miami-Dade Metrobus stops in close proximity to the Mobility Hub site. This affords easy access to free or low-cost transportation options connecting the downtown area to surrounding neighborhoods and destinations. The Coral Gables Trolley, the City of Miami Trolley, and Miami-Dade Metrobus systems also provide a link to the Miami-Dade Metrorail which further expands the transportation connections of this project to the greater Miami-Dade region.

Attachment D includes maps of the Coral Gables Trolley route, the City of Miami Trolley routes, the Miami-Dade Metrobus routes, and the Miami-Dade Metrorail routes. These maps will show the different transportation options that can be accessed from the project site which has been added to the maps for purposes of this application.

3. Grant Funds, Sources and Uses of All Project Funding

3.1 Project Costs

The total construction cost for the Coral Gables Mobility Hub is estimated at $67,650,635. The City intends to utilize RAISE grant funds for construction costs only. All other costs will be funded by the City of Coral Gables.

3.2 Source of Funds

The City will use bond funds for Environmental, Engineering/Design, Project Administration, Contingencies expenses. A combination of RAISE grant funds and bond funds will be for construction of the project.

3.3 Matching Requirement

The City will use bond funds as the required matching funds for this project.

3.4 Project Budget Breakdown by Funding Source

The project budget is detailed in the Table 2 below.

Table 2 - Budget Table

Element	Non-Federal ($)	Non-Federal (%)	RAISE ($)	RAISE (%)	Total ($)	Total (%)
Environmental	$0	0%	$0	0%	$0	0%
Engineering/Design	$0	0%	$0	0%	$0	0%
Construction	$42,650,635	63%	$25,000,000	37%	$67,650,635	100%
Project Administration	$0	0%	$0	0%	$0	0%
Contingency	$0	0%	$0	0%	$0	0%
Project Total	**$42,650,635**	**63%**	**$25,000,000**	**37%**	**$67,650,635**	**100%**

4. Merit Criteria

The construction of the Coral Gables Mobility Hub will have numerous positive long-term benefits for the City of Coral Gables and the Miami-Dade region. The project objectives are consistent with those identified in the Notice of Funding Opportunity (NOFO) and the project satisfies all eight (8) evaluation criteria. Completion of this project will improve the long-term economic competitiveness of the city, enhance local livability, and improve safety in the downtown area in a manner that ensures environmental sustainability. The project will create near-term impacts by creating construction jobs and deliver a long-term Benefit-Cost Ratio that is advantageous for Federal investment.

4.1 Safety

Numerous safety aspects were considered during design of the Mobility Hub. Some of the features incorporated into the design include:

- Placement of the entry/exit lanes and drive-thru lane which have been positioned to avoid conflict with existing traffic patterns on adjacent streets.
- Dedicated drop-off/pick-up locations for city trollies and other transportation options to limit possible pedestrian interaction with active traffic.
- A dedicated pedestrian connection with open, separated, and safe sidewalks from the Mobility Hub to the main shopping district.
- Perimeter columns designed to provide for a long span parking bay to improve maneuverability, visibility, and overall safety for vehicles and pedestrians in the parking areas.

Once complete, the new facility will enable residents and visitors to safely shift from one mode of transportation to another.

4.2 Environmental Sustainability

The Mobility Hub will meet both LEED and Parksmart development standards as a sustainable project. A number of features have been incorporated into the design of the facility to further this effort. These features include:

- Upon opening, there will be 73 electric vehicle charging stations available for public use.
- A photovoltaic system will be constructed on the roof canopy. This system will charge batteries for power backup and charge electric vehicles of all sizes.
- The parking decks will be built with floor-to-floor heights that will allow for alternative uses no longer needed for vehicle storage.

- The floor-to-floor height design will also support reduced use of power by providing natural ventilation and light.
- The location and design are specifically intended to encourage people to use alternative means of transportation to reduce the use of single occupant automobiles.
- The rooftop terrace features will provide public event and recreation space, expanding the potential uses of this facility.

A review of available data, traffic patterns, fuel costs and emissions information, has determined that the project is expected to provide reduced energy consumption and reduced emissions. Specifically, a reduction in the following emissions is estimated annually (all amounts in metric tons):

Nitrogen Oxides (NOx) – 2.64 MT*
Carbon Dioxide (CO2) – 10,317 MT**
Particulate Matter under 2.5 microns (PM2.5) - 0.20 MT*
* US DOT Bureau of Transportation Statistics – Vehicle Emissions Rates
** EPA Greenhouse Gas Equivalencies Calculator for CO2

4.3 Quality of Life

This facility will encourage the use of multiple forms of transportation such as the City's free trolley service the City of Miami's free trolley service, rideshares, bicycles, scooters, etc. It will also provide easy and safe access to transportation systems which connect to the greater Miami-Dade region, such as the Miami-Dade Metrobus and Metrorail services.

The connectivity provided by the Mobility Hub will create a greater independence for underserved populations who do not have access to or cannot rely on traditional automobile transportation. Additional employment opportunities will be open to a wider population, as a result, by providing advantages to job seekers and the underserved populations traveling to and from the downtown business district, especially the traditionally African American neighborhoods of Macfarlane Homestead and Golden Gates as well as several new senior housing projects planned for development along the Ponce de Leon corridor.

Effort to ensure utilization of this facility is possible for the underserved populations will include:

- Coordination between the multiple transportation options to reduce travel time between the pickup point and the Mobility Hub, lessening the burden of commuting and improving the overall quality of life of users.
- The city will adopt a set of comprehensive best management practices to ensure interaction between the Mobility Hub and underserved populations such as households with limited English proficiency, unemployed people, and disabled populations.
- Screens at the Mobility Hub will provide trolley service information in locally spoken languages.
- Targeted outreach and education programs will be implemented to encourage underserved populations to use the free trolley services or other modes of transportation to connect the principal transportation corridors to the Mobility Hub.
- The Mobility Hub's micro-mobility component will offer last mile connectivity via e-scooters and rental bikes, which are low-cost options for people of all walks of life, including minority populations and economically disadvantaged populations.

4.4 Mobility and Community Connectivity

The Mobility Hub will provide a high level of multi-modal connections between the City's downtown and many high-density residential areas. This will help to reduce, or even eliminate, barriers to community participation and provide for greater employment opportunities for underserved populations. The Mobility Hub will also connect populations to and from local universities, medial facilities, recreational facilities, and cultural and heritage sites throughout the region.

The Mobility Hub will connect with the City's free trolley service, the City of Miami Trolley service, and the Miami-Dade Metrobus service. These, in turn, will connect to the Miami-Dade Metrorail system. This provides riders the opportunity to travel to and from downtown Coral Gables, City of Miami, Miami International Airport, and many other destinations within the

greater Miami-Dade region without the use of an automobile. The Mobility Hub will also serve as a nexus for rideshare services, bike rentals and storage, as well as provide community space.

The City of Coral Gables is within the Miami, FL Urbanized Area with a population of 5,502,379 based on the 2010 census data. The ability of this project to connect to multiple forms of transportation enable the Coral Gables Mobility Hub to reach at least that number of people, not including tourists and visitors. That equates to a $4.54 per person federal investment in this project if fully funded with $25,000,000 in RAISE grant funds.

4.5 Economic Competitiveness and Opportunity

The Coral Gables Mobility Hub will provide numerous opportunities and enhance economic competitiveness for the city. This facility will promote easier movement of residents and visitors to the city. It will also assist in calming traffic congestion as a result of less vehicles on the roadways. The Mobility Hub, once complete, will foster access to a more diverse and larger workforce. It will improve business capabilities and efficiencies, allowing underserved populations to participate in a wider job market.

The Mobility Hub will also provide expanded services, capabilities, and economic impacts without expanding the footprint of the current parking garage. A planning feature of the completed Mobility Hub is storage for drone delivery devices, providing greater opportunities for merchandise sales and deliveries. The facility will also include retail space and micro-mobility spaces for lease.

4.6 State of Good Repair

The city's goal is to build a facility that will be resilient, flexible, and able to serve Coral Gables, its residents, and businesses, for the next 50 to 75 years. The facility will be owned, operated, and maintained by the city. As such, maintaining the Mobility Hub in a constant state of good repair will be imperative to its operation and use by the community.

4.7 Partnership and Collaboration

The city is dedicated to partnerships and collaborations in relation to the Mobility Hub. Partnerships with micro-mobility services, rideshare services, autonomous vehicle providers, and others are being explored as well as partnerships with area businesses and property developers to promote the Mobility Hub. The City of Coral Gables also intends to collaborate with local community groups to identify how underserved populations can be better served by the Mobility Hub.

The city has partnered with Freebee, an innovative electric vehicle shuttle service, to provide free door-to-door on-demand rides throughout downtown Coral Gables. Freebee is currently operating in the city and will be utilize the Mobility Hub once constructed.

The construction contract for this project will be procured in a manner that encourages the use of small, minority and/or disadvantaged businesses, when feasible. The city will work with Federal and local agencies to identify and perform outreach to create awareness regarding the contracting opportunities.

Additional collaborations regarding innovation are described below.

4.8 Innovation

Innovation is at the core of what the mobility hub stands for. From developing a completely frictionless (no gates) storage system to wholly supporting the Internet of Things (IoT) by providing for direct communications between all mobility options and the city's enterprise management system. This system will include a centralized curb management system that supports not only driven vehicles but autonomous vehicles, transit vehicles, trucks and small delivery vehicles. This innovation is a collaborative effort between the City's Parking and I.T. Departments that builds on their Smart Cities platform and efforts they have made to provide analytic information and tools.

- Smart parking technologies and Parking Guidance Systems with computer vision, gateless entrance, payment system integration, IoT sensors, real-time traffic/parking/ occupancy data, CCTV, ALPR, mobile platforms and apps, digital signage integration, hyper-connectivity, and hyper-automation
- Connected and Autonomous Vehicles (CAV)
- Mobility as a Service (MaaS) technologies, collaboration with car manufacturers (e.g.: Ford and Argo AI, Tesla, MB, Nissan, etc.) and transportation network companies (TNC: Uber, Lyft, etc.)
- Use cases and test pilots of drones, UAS & eVTOL, robo-taxis, autonomous cargo and delivery systems
- Collaboration on smart mobility, electrification and autonomy research with the Department of Energy and the Pacific Northwest National Lab (PNNL), funded by DARPA (we are a Co-PI in this R&D project, and Coral Gables is the pilot City and early adopter of the DOE PNNL TranSec AI technology): https://arpa-e.energy.gov/sites/default/files/documents/files/OPEN%202021_Project%20Descriptions_Final.pdf.

  - The City of Coral Gables was the only project selected in category of Transportation Networks (page 16): Transportation Network / Pacific Northwest National Laboratory – Richland, WA / "Autonomous Intelligent Assistant (AutonomIA): Resilient and Energy-Efficient City-wide Transportation Operations."
    Abstract: "PNNL, the University of California at Berkeley (UCB), Aimsun, Siemens Technology, Traffic Technology Services (TTS), and the City of Coral Gables (CCG), will combine artificial intelligence (AI), 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 real-time transportation management approach leverages emergent connected automated vehicles with varied levels of autonomy (CAVs), sensing, and signaling technologies within a unified learning, simulation, and control paradigm to improve energy efficiency by 20% or more and reduce CO2 emissions by at least 20%. We will showcase AutonomIA on a small-scale traffic network in CCG for varying CAV penetration levels to demonstrate these gains."
- Collaboration on smart mobility research with the University of Miami and their Institute of Data Science and Computing (UM IDSC). For example, situational awareness dashboards in the Coral Gables Smart City Hub public platform: www.coralgables.com/smartcity#cic
- Interactive AV system technologies at the rooftop activation for the community.

Traffic IoT sensor data analytics, predictive analytics and applied-AI for mobility, smart parking and traffic. Example: Urban Analytics AI platform dashboards in the Smart City Hub public platform: www.coralgables.com/smartcity#iot.

5. Project Readiness

The City of Coral Gables has fully committed to constructing this project. The city has solicited and engaged an engineering/design firm who has completed the Phase 1 – Pre-Design phase of the project and nearly completed the Phase 2 – Design phase of the project. A preconstruction and construction manager at risk has also been engaged to perform preconstruction services and develop a construction cost estimate.

This project has attracted a great deal of interest from a number of sources. The city is eager to begin construction as soon as may be possible.

Preliminary Schedule can be found in Section 5.2.

A copy of the conceptual designs has been included as Attachment B.

5.1 Land Ownership

All land required for this project is owned by and under the control of the City of Coral Gables.

5.2 Project Schedule

The schedule below outlines the key milestones associated with this project:

Table 3 - Project Schedule/Milestones

Milestone	Anticipated Completion Date
Design	05/2022
Permitting	08/2022
Award Notification	09/2022
Completion of NEPA	10/2022
Signed Grant Agreement	02/2023
Construction	03/2025
Grant Closeout	06/2025

5.3 Required Approvals

Environmental Permits and Reviews – National Environmental Policy Act (NEPA)

Based on the project data, the city reasonably expects the NEPA process to result in a Categorical Exclusion. The documentation required for completion of the NEPA process is being developed for submission. The public will be involved in the NEPA process to ensure that all parties are given appropriate time to comment and for those comments to be considered. It is anticipated that the NEPA process will be completed shortly after the anticipated award notice.

Environmental Permits and Reviews - State/Local

Permits from the City of Coral Gables, Miami-Dade County, and the Florida Department of Transportation will be needed to construct this project. The city is working with the project engineers to complete applications. It is anticipated that permitting will be completed in August 2022.

Federal Transportation Requirements Affecting State and Local Planning

This project as described in this application does not require approval from FHWA.

This project is consistent with the Mobility Element of the City of Coral Gables Comprehensive Plan. The Mobility Element of the plan has been included in this application as Attachment C. The entire comprehensive plan is available on the city's website at:
https://www.coralgables.com/ comprehensive-plan

Assessment of Project Risks and Mitigation Strategies

The City of Coral Gables has carefully considered risks associated with the project. The substantial amount of engineering work accomplished to date reduces the potential for unexpected technical costs to arise as the project advances. Potential escalations in costs or possible delays in materials has been taken into consideration when developing the construction cost estimate and project schedule. Should any unexpected issues arise, the City of Coral Gables has an experienced and multi-disciplinary technical team with experience in construction, maintenance, operations, accounting and financial oversight.

5.4 Benefit Cost Analysis

The Coral Gables Mobility Hub project benefits the City of Coral Gables and the greater Miami-Dade region. The Benefit Cost Analysis (BCA) compares the net present value of the quantifiable project benefits with the net costs of creating these benefits. Per the NOFO guidance, the BCA is calculated using discount rates of 3% and 7% respectively.

Table 4 - Results of Benefit Cost Analysis

Activity	**Overall**	
Increased Revenue	$121,347,113	
Reduced Energy	$246,102,106	
Reduced Emissions	$30,180,266	
Reduced Fatality/Injuries	$99,811,197	
TOTAL (Undiscounted)	$497,440,682	
	Discount Rate - 3%	**Discount Rate - 7%**
Total Benefit from the Project (NPV)	$274,515,244	$140,597,765
Total Cost of the Project (NPV)	$36,068,470	$36,254,202
Benefit-Cost Ratio	6.27	3.29

Using the RAISE guidance discount rates of 3% and 7% respectively, the Mobility Hub project will result in a positive return on investment of 3.29 to 1 at a 7% discount.

6. List of Attachments

The following is a list of the attachments referenced in this document and attached to the Grants.gov SF424 submission.

Attachment A – Design Development Plans (File Name: ADDPLANS)
Attachment B – Conceptual Plan Presentation (File Name: BCPLANPRES)
Attachment C – Comprehensive Plan-Mobility Element (File Name: CCOMOBELEM)
Attachment D – Transportation Maps (File Name: DTRANSMAPS)
Attachment E – BCA Narrative (File Name: EBCANARRAT)
Attachment F – BCA Quantitative Benefits (File Name: FBCAQANBEN)
Attachment G – 2022raiseinfoform1