



A strength of the Greater Miami & the Beaches (GM&B) region is the diversity of our urban areas set next to uniquely beautiful and ecologically valuable natural areas, from the Everglades to Biscayne Bay to the ocean reefs beyond. Although our urban centers are booming, many of our residents' struggle: the high cost of housing takes its toll as does transportation. Our burgeoning population, with its associated car ownership, can make journeys to work long and tiresome. Today those same features are vulnerable to tropical hurricanes and rising seas. While our natural environment is one of our greatest assets, it is at risk and changing, requiring our collective efforts to protect and adapt along with it.

Through our "Places" actions, we aim to address these place-based challenges, enhancing our climate resilience through design and planning for the future; creating, connecting, and improving mobility and housing options; and safeguarding our ecosystems.

WHO IS WHO?

THE PARTNERSHIP

Greater Miami & the Beaches (GM&B)

THE SUPPORTING ORGANIZATION

100 Resilient Cities (100RC)

THE STRATEGY

Resilient305

THE IMPLEMENTING TEAM

PIVOT (Progress Innovation Vision for Our Tomorrow)



**GOAL 1:
PLACES**

**OBJECTIVO 1:
LUGARES**

**OBJEKTIF 1:
PLAS**



Objective 1

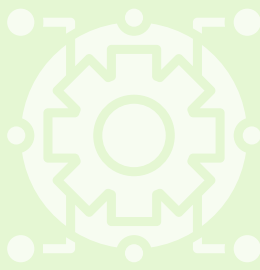
Enhance Natural Systems



- Action 1 Preserve and Restore Biscayne Bay
- Action 2 Build Reef Biodiversity and Defenses
- Action 3 Bolster Our Beaches
- Action 4 Expand Nature-Based Infrastructure
- Action 5 Integrate Resilience into Parks and Open Spaces

Objective 2

Safeguard Urban Systems



- Action 6 Reduce “Back Bay” Flooding
- Action 7 Implement Sea Level Rise Strategy
- Action 8 Develop Sea Level Rise Checklist for Capital Projects
- Action 9 Create Development Review Checklist
- Action 10 Strengthen Resilience Planning
- Action 11 Maximize Opportunity Zones

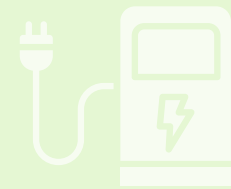


Objective 3

Create Mobility Options

Develop Mobility Hubs in the 305
Design a Better Bus Network
Drive into the Future
It's Electric

Action 12
Action 13
Action 14
Action 15



Objective 4

Increase Energy Efficiencies

Expand Renewable Energy
Building Efficiency 305

Action 16
Action 17



Objective 5

Enhance Housing Options

Stay and Live in the 305
Redeveloping Resilient Public Housing

Action 18
Action 19





OBJECTIVE 1: ENHANCE NATURAL SYSTEMS

ACTION 1: PRESERVE AND RESTORE BISCAYNE BAY

HOW THIS WILL HELP US

- ◆ Improves water quality
- ◆ Restores coastal ecology
- ◆ Attracts state and federal funding
- ◆ Creates natural habitat

PERFORMANCE METRICS

- ◆ Number of Biscayne Bay Restoration Action Plan recommendations implemented
- ◆ Number of agencies with active representation in the peer-to-peer network
- ◆ Water quality (as measured by Miami Dade County)

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ GM&B municipalities
- ◆ Local universities
- ◆ Biscayne Bay interest groups (non-governmental organizations, clubs, and business and professional organizations)

FUNDING

Funded within resources existing in participating entities



TIMEFRAME: IMMEDIATE (0-1 YEAR)

DESCRIPTION

Miami-Dade County is internationally recognized for its waters, being home to Biscayne Bay, a National Marine Sanctuary, numerous State of Florida aquatic preserves, and several water conservation areas. The Biscayne Bay wetlands project is a key coastal feature in the Comprehensive Everglades Restoration Plan (CERP). To establish a framework for coordinating and collaborating among Biscayne Bay stakeholders—county, municipal and state agencies; academia; interest groups; and the general public—two parallel partnerships will be formed: (1) the Biscayne Bay Task Force, and (2) a peer-to-peer network of natural resources managers.

The Biscayne Bay Task Force will be composed of interdisciplinary and interagency members residing in GM&B, who are nominated and chosen by the Miami-Dade Board of County Commissioners. Its overall purpose will be to advise the Board of County Commissioners on issues related to the long-term preservation and restoration of Biscayne Bay water quality and habitat. The Task Force will prepare a Biscayne Bay Restoration Action Plan for the Commissioners that will identify problem areas, prioritize projects for Biscayne Bay, and provide recommendations for state and federal legislation, activities, and appropriations.

The peer-to-peer network of natural resource managers will be created from local GM&B municipalities, Miami-Dade County, and other governmental agencies across GM&B responsible for environmental initiatives throughout the Biscayne Bay watershed. The purpose of the network is to strengthen relationships and improve communication among natural resource practitioners, build capacity across the region, and coordinate efforts related to Biscayne Bay management that accelerate action and maximize impact. The network will share best practices and align multi-jurisdictional projects related to Biscayne Bay restoration at quarterly round table meetings. Additionally, the network will create a database that includes governmental natural resource managers from the area.



ACTION 2: BUILD REEF BIODIVERSITY AND DEFENSES

OBJECTIVE 1: ENHANCE NATURAL SYSTEMS



TIMEFRAME: IMMEDIATE (0-1 YEAR)

DESCRIPTION

The only barrier reef in the continental United States, the Florida Reef tract is the third-longest coral barrier reef in the world, stretching 200 miles along the Atlantic Coast of South Florida. Its coral reefs are biodiversity hotspots. While these reefs cover only a small fraction of the ocean floor, they provide habitat for 25 percent of the world's fish species. These coral reefs adjacent to GM&B warrant further protection and enhanced restoration as part of Resilient305. Miami-Dade County, which is responsible for managing its Artificial Reef Program, will collaborate with the Southeast Florida Coral Reef Initiative, local academic institutions, and coastal GM&B municipalities on continued implementation and in identifying opportunities for expanding this important program. Using leading science and proven intervention strategies, the Artificial Reef Program will seek to further enhance nearshore recreational benefits, provide additional habitat structure, and look for opportunities to further reduce storm-related coastal impacts. In conjunction with its ongoing beach nourishment program, Miami-Dade County will perform coastal modeling to determine the feasibility of using structures, such as submerged artificial reef material, to promote greater coastal habitat and shoreline resilience.

Reefs are a \$6.3 billion Florida economic driver supporting more than 70,000 local jobs. The health of the Florida Reef tract, which serves as a coastal buffer from wave energy and storm surge (Florida Department of Environmental Protection), has been declining sharply. In some areas, the state's coral species have declined by more than 90 percent and some species have lost more than 97 percent of their populations (Mote Marine Lab). Currently, coral reef disease across the southeast coastal counties has impacted 20 of the 45 species found in Miami-Dade County.

HOW THIS WILL HELP US

- ◆ Protects against storm-related impacts
- ◆ Creates natural habitat
- ◆ Stimulates economic growth
- ◆ Restores coastal ecology
- ◆ Provides recreational opportunities

PERFORMANCE METRICS

- ◆ Updated reef master plan
- ◆ Artificial reef structure area (square feet or number)
- ◆ Reef health (e.g., fish diversity, coral diversity)

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ U.S. Army Corps of Engineers
- ◆ National Oceanic and Atmospheric Administration
- ◆ Florida Department of Environmental Protection
- ◆ Florida Fish and Wildlife Conservation Commission
- ◆ Coastal GM&B municipalities

FUNDING

Partially funded with existing program resources of collaborators



OBJECTIVE 1: ENHANCE NATURAL SYSTEMS

ACTION 3: BOLSTER OUR BEACHES

HOW THIS WILL HELP US

- ◆ Protects against storm-related impacts
- ◆ Creates natural habitat
- ◆ Improves recreational opportunities
- ◆ Stimulates economic growth
- ◆ Restores coastal ecology

PERFORMANCE METRICS

- ◆ Completed comprehensive beach management plan
- ◆ Number of regulatory permits for nourishment
- ◆ Dollar value of funding sources identified
- ◆ Platform for intergovernmental coordination created

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ U.S. Army Corps of Engineers
- ◆ Florida Department of Environmental Protection
- ◆ Municipal coastal partners: City of Miami Beach, Surfside, Bal Harbour, Sunny Isles, Key Biscayne
- ◆ Other municipal, state, and federal agency partners; private-sector partners

FUNDING

Partially funded by U.S. Army Corps of Engineers



TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

Beach nourishment provides essential economic, environmental, and recreational benefits to coastal communities. As the local sponsor for state and federal beach nourishment projects, Miami-Dade County manages its beaches, which are a vital buffer between coastal infrastructure and the impacts of wave action and surge during storm events. Miami-Dade County's beaches are the very foundation of its tourism economy. In 2016, visitors to the GM&B region identified the beaches as the area's best feature, and 77.5 percent of those tourists went to the beach (Greater Miami Convention & Visitor's Bureau, 2017). For every \$1 that the federal government spends on beach nourishment, it receives \$810 in tax revenue from tourists. Miami-Dade County will partner with U.S. Army Corps of Engineers and collaborate with coastal cities to develop a comprehensive beach management plan that supports coastal sustainability and protection.

The current 50-year federal authorizations for the Dade County Beach Erosion & Hurricane Protection Project (the Project) are set to expire in 2025 and 2038, respectively. Over the course of the next 2 years, Miami-Dade County, the City of Miami Beach, and other coastal barrier island GM&B municipalities will work with U.S. Army Corps of Engineers on a \$3 million feasibility study to prepare for reauthorization of the Project and the next 50 years of beach management. The feasibility study and future beach master plans by Miami-Dade County will provide further analysis and insight on domestic and non-domestic sand sources, and structural and non-structural solutions. The study will focus on identifying proactive strategies that help stabilize coastal beaches and minimize erosion to maximize investment. Miami-Dade County will seek to identify a dedicated funding source, a top priority for coastal municipal mayors, and blanket permits for GM&B municipalities to be more nimble as erosional hotspots arise.

U.S. Army Corps of Engineers has allocated \$158 million for beach nourishment for Project construction over the next 5 years, but Miami-Dade County will need to collaborate with coastal GM&B municipalities on identifying funding to continue implementing the beach management program over the next 50 years.





OBJECTIVE 1: ENHANCE NATURAL SYSTEMS

ACTION 4: EXPAND NATURE-BASED INFRASTRUCTURE

HOW THIS WILL HELP US

- ◆ Reduces sea level rise and coastal flooding impacts
- ◆ Restores coastal ecology
- ◆ Restores natural habitat
- ◆ Increases understanding of resilience

PERFORMANCE METRICS

- ◆ Number of prioritized projects completed
- ◆ Ecosystem services benefits identified and tracked per project

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ Coastal GM&B municipalities
- ◆ The Nature Conservancy
- ◆ Florida Department of Transportation

FUNDING

Partially funded by managing organizations

TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

GM&B partners will collaborate with local and regional partners to implement four green, blue, and hybrid infrastructure projects identified and prioritized during the Resilient305 Strategy development phase for implementation. These projects were chosen because of the different habitat types they represent, and for their various resilience benefits, pioneering designs, regional significance, educational opportunity, and potential replicability. GM&B, with The Nature Conservancy of Florida, has prioritized these four projects to highlight primary environmental typologies in the region: 1) The South Dade Wetlands Project, supporting Everglades restoration; 2) the Indian Creek Living Shoreline Project, representing urban area wetlands habitat; 3) the Arch Creek Drainage Basin Project, representing urban area uplands habitat; and 4) the Julia Tuttle Causeway Shoreline Enhancement Project, representing Biscayne Bay habitat. Demonstrating the resilience benefits and lessons learned from these four projects will be important outcomes that will be used to inform similar future projects within GM&B and in other coastal communities.



SPOTLIGHT

COLLABORATION WITH THE NATURE CONSERVANCY

The Nature Conservancy (TNC) is an important local and regional partner, providing expertise on nature-based resilience efforts, and attracting funding and additional resources to the southeast Florida region. The Florida Chapter of TNC has been engaged with the Southeast Florida Regional Climate Change Compact (Compact) since 2010, providing critical technical expertise and support for its nature-based policies and efforts, including leadership of the Compact's Regional Shoreline Resilience Workgroup. The Workgroup's products describe multiple community-engaged projects that are in development along urbanized waterways and coastal shorelines. These products provided important baseline information for GM&B's Resilient305 Strategy development phase. This inclusive engagement process will further activate the community to better comprehend future flooding risks associated with being a coastal community, and to advocate for the advancement of green infrastructure across South Florida. It is anticipated that the TNC nature-based coastal resilience project funded by the Chubb Charitable Foundation, which started in late 2018, will also help inform the design and implementation of some of the four prioritized projects.



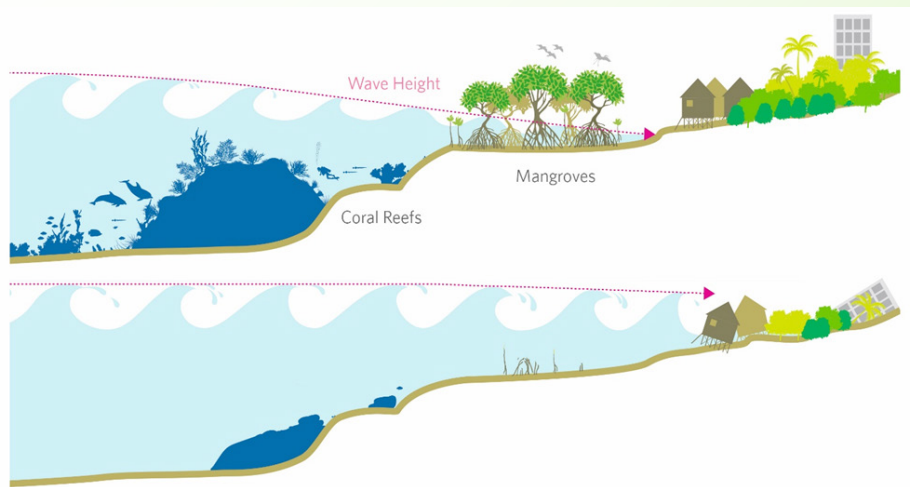


CASE STUDIES

USING SCIENCE-BASED BENEFIT-COST ANALYSES TO OPTIMIZE FLOOD PROTECTION INFRASTRUCTURE

TNC works around the world, helping communities adapt to climate change through nature-based solutions such as restored reefs, mangroves, and wetlands that reduce the impact of storms and flooding. Starting in late 2018, with the support of the Chubb Charitable Foundation, TNC identified over a dozen potential locations in Miami-Dade County where natural and hybrid infrastructure could increase resilience to storms and rising sea levels. Science-based flood modeling and cost-benefit analyses were used to identify the optimal location where people and property could benefit most from a shoreline resilience project. The project is designed to increase flood protection and serve as a model for other parts of Miami-Dade County, other cities in the United States, and globally.

Using a science-based approach that includes cost-benefit analyses allows restoration projects to be optimized for risk reduction potential. Working with institutional investors and other private-sector partners can promote investments in natural solutions; such entities can be an important complement to local governments. Identifying key steps, including performance data on natural assets, will make investing in nature as easy as it is to invest in traditional infrastructure.



FROST SCIENCE'S MUVE INITIATIVE ENGAGES COMMUNITY VOLUNTEERS IN RESTORING NATIVE COASTAL HABITATS

In October 2017, the Frost Museum of Science partnered with the City of Miami and Miami-Dade County, and received a \$287,000 National Fish and Wildlife Foundation Resilient Communities program grant, funded by Wells Fargo, to restore living shorelines on Virginia Key and in East Greynolds Park. This is the first of 100 coastal resilience demonstration sites within the GM&B region planned for the next 10 years. Coastal habitats are called living shorelines because native vegetation allays the impacts of sea level rise and climate change. For example, mangroves are adapted to salt water and their floating seeds can colonize new coastal areas, creating new habitat. Their stilt-like roots stabilize sand and slow down waves while keeping the plant above the water.

As part of the project, the museum will be creating an original exhibition about sea level rise with the help of its Museum Volunteers for the Environment (MUVE). MUVE's mission is to educate people about the environment while also empowering them to be proactive in protecting it. By acting together to help restore native habitats, MUVE volunteers are helping to create a more resilient metropolitan area. Since its inception in 2007, over 8,000 volunteers have restored 25 acres of living shorelines.



OBJECTIVE 1: ENHANCE NATURAL SYSTEMS

ACTION 5: INTEGRATE RESILIENCE INTO PARKS AND OPEN SPACES

HOW THIS WILL HELP US

- ◆ Creates natural habitat
- ◆ Provides recreational opportunities
- ◆ Restores coastal ecology
- ◆ Improves air quality
- ◆ Improves community cohesion

PERFORMANCE METRICS

- ◆ Number of pilot projects completed
- ◆ Number of parks including flood resilience measures
- ◆ Number of parks planting new native trees and vegetation
- ◆ Number of cities adopting similar guidelines
- ◆ Number of parks seeing reduced flooding

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ South Florida Parks Coalition/GM&B municipalities
- ◆ Miami-Dade Parks Foundation
- ◆ Trust for Public Land
- ◆ The Nature Conservancy

FUNDING

Partially funded through departmental budgets; grant funds and other external funds are necessary to fully implement the action



TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

Public parks and open spaces offer a large-scale opportunity to implement resilient design and innovative resilience measures at multiple scales simultaneously. GM&B will lead by example by using its own publicly owned park lands and open spaces to implement resilience best practices in three pilot projects over the next 5 years. Examples of resilience best practices that will be implemented include restoring living shorelines, increasing the number of park acres and open spaces, planting trees to mitigate increasing temperatures, using green infrastructure to manage stormwater, and restoring native habitat. Resilient park design simultaneously reduces physical vulnerabilities to environmental stressors such as flooding and the urban heat island effect while enhancing community health and resilience.

Using parks and open spaces as living classrooms and examples of resilient design provides a dynamic educational opportunity to the millions of visitors who use the parks each year. Innovative resilient design offers the thousands of school children who attend parks after school, summer, spring, and winter programs the chance to participate in living classrooms to learn about water resources, green infrastructure, and living shorelines, among other concepts. The parks can also serve as living laboratories for innovative resilience design and measures that lead the way for best practices such as Leadership in Energy & Environmental Design (LEED) site planning guidelines.

At a larger scale, the Miami-Dade County Parks and Open Space Master Plan, implemented through the South Florida Parks Coalition, provides community and ecosystem resilience by creating an integrated network of parks, open spaces, trails, civic spaces, and streets that are pedestrian- and bike-friendly. The parks departments of the GM&B are proactively improving this network by strategically targeting land acquisition programs to support transit corridors; transition redfields to greenfields; reduce social, economic, and health disparities; improve east-west and north-south connectivity to provide a seamless park system; and enhance ecosystem and watershed connectivity.



CASE STUDIES

USING SCIENCE-BASED BENEFIT-COST ANALYSES TO OPTIMIZE FLOOD PROTECTION INFRASTRUCTURE

Miami-Dade County's Matheson Hammock Park is a mostly low-lying 630-acre park owned by Miami-Dade County located along the western shoreline of Biscayne Bay in the City of Coral Gables. It is one of the few publicly accessible waterfront areas in the southern portion of the County and the only one with beach access. The park floods during high tide events, which affects its normal operations and accessibility to the park; it is expected to be increasingly impacted by sea level rise.

In 2018, Miami-Dade County funded a sea level rise flood mitigation study to help determine appropriate flood mitigation measures for different areas of the park. The study used the 2015 Southeast Florida Unified Sea Level Rise Projection, prepared by the Sea Level Rise Workgroup of the Southeast Florida Regional Climate Change Compact. The study developed flood mitigation concepts for major infrastructure components within the park out to 2100. It provided a summary of existing conditions, conceptual solutions, a suggested implementation schedule for mitigation, estimated construction costs, and guidance for the planning and design phases of the mitigation concepts. Based on preliminary cost estimates, the proposed improvements are estimated to be \$50 million to \$55 million between now and 2040. The mitigation concepts developed as a part of the study will be used in Miami-Dade County's capital programming considerations for other parks.

RESILIENCE IN PARKS—JOSE MARTI PARK

The City of Miami is working with the Van Alen Institute, a nonprofit organization that works to catalyze positive change in cities, on a climate adaptive design of Jose Marti Park in Little Havana. The park is located on the Miami River and is susceptible to flooding during high tides and heavy rain events due to its current layout, which limits drainage. The goal of this project is to redesign Jose Marti Park to be an adaptive waterfront park that enhances restorative recreation, preserves cultural heritage, improves access to green space and the water, provides solutions to flooding in the short term, and will adapt to sea level rise in the future. The Van Alen Institute will lead a participatory design process and is paying local members from the community to help define and support outreach for engagement activities. The park design will be enhanced by interdisciplinary expertise that incorporates green and gray infrastructure, holistic measures of success, and inclusivity. The design will also seek solutions to increase storm surge protection and rain storm drainage for the surrounding residential community. Final design solutions will be used to inform and inspire future projects at sites with similar conditions (at or near sea level, near a body of water, and subject to flooding).

RESILIENCE IN PARKS—500-700 ALTON ROAD PARK

The City of Miami Beach is a geographically small and dense barrier island, with very few open spaces left for conservation or adaptation. In a rather unique move, the City Commission entered into a development agreement in 2018 with a local developer who will be creating the City's first eco-park in exchange for development incentives that include increased building height allowances. The proposed 3-acre public park, funded by the developer, will include significant and measurable resilience and sustainability components, including:

- ◆ Open green space
- ◆ Florida-friendly native and naturalized plant materials that reduce water consumption and the need for fertilizer and pesticides
- ◆ Stormwater retention capabilities
- ◆ Infrastructure for treating water going to the 6th Street outfall
- ◆ Dedicated pedestrian paths
- ◆ Proposed integration and width of the perimeter sidewalks along West Avenue and Alton
- ◆ Surface lot composed of pervious pavers (no asphalt or concrete), including all parking spaces, drive aisles, and access points from the street



OBJECTIVE 2: SAFEGUARD URBAN SYSTEMS

ACTION 6: REDUCE “BACK BAY” FLOODING

HOW THIS WILL HELP US

- ◆ Protects against storm-related impacts
- ◆ Reduces sea level rise and coastal flooding impacts
- ◆ Improves natural disaster preparedness
- ◆ Improves water quality

PERFORMANCE METRICS

- ◆ Dollars secured for adaptation measures

KEY COLLABORATORS

LEAD: U.S. Army Corps of Engineers

- ◆ Miami-Dade County
- ◆ South Florida Water Management District
- ◆ GM&B municipalities
- ◆ Southeast Florida Regional Climate Change Compact

FUNDING

Study fully funded via a Congressional appropriation to U.S. Army Corps of Engineers



TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

Protecting the areas along Biscayne Bay—known also as the “Back Bay” —from storm surge is much more difficult than protecting the ocean facing portions of the GM&B region because the essential tools of beach nourishment and dunes do not apply to Biscayne Bay. U.S. Army Corps of Engineers is working with GM&B to identify appropriate protective measures that can reduce coastal flooding in those areas. To achieve this goal, U.S. Army Corps of Engineers has launched a 3-year, \$3 million Coastal Storm Risk Management Feasibility Study (CSRM) to explore measures such as upgrading the salinity control structures along the major canals to serve as storm surge barriers, acquisition of land in the floodplain, and/or restoration of mangroves and reefs. Ultimately, designing and constructing these measures could be eligible for partial federal funding if they are deemed technically feasible and cost effective. Reducing the risk of devastating coastal floods in the Biscayne area would benefit the entire GM&B region.

The Miami-Dade Back Bay CSRM will be coordinated with a multi-state coastal management strategy and the South Atlantic Coastal Study, also conducted by U.S. Army Corps of Engineers. The study will conduct regional analyses of coastal risk and identify initial measures/costs that can address vulnerabilities with emphasis on maintaining or enhancing current levels of coastal storm risk reduction. This study will be coordinated with the Southeast Florida Regional Climate Change Compact.



ACTION 7: IMPLEMENT SEA LEVEL RISE STRATEGY

OBJECTIVE 2: SAFEGUARD URBAN SYSTEMS



HOW THIS WILL HELP US

- ◆ Reduces sea level rise and coastal flooding impacts
- ◆ Reduction in sunny day flooding
- ◆ Reduces stormwater flooding
- ◆ Replaces aging infrastructure
- ◆ Protects against storm-related impacts

PERFORMANCE METRICS

- ◆ Percent of projects with funding identified
- ◆ Percent of projects implemented

KEY COLLABORATORS

- ◆ LEAD: Miami-Dade County
- ◆ GM&B Municipalities

FUNDING

Fully funded from Miami-Dade County's budget

TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

GM&B's sea level rise strategy will identify implementable, financially feasible adaptation actions that its GM&B municipalities can use to better prepare for sea level rise and coastal storms. The Strategy will include an analysis of multiple adaptation pathways that will result in improved guidance on how to implement a flexible and adaptable path forward in the face of changing sea level conditions and the associated risks faced by communities across the GM&B region. Recommendations arising from this analysis are expected to be especially useful to local governments tackling these issues.

GM&B's sea level rise strategy will evaluate the economic cost of inaction and the cost of several alternative pathways, including a heavy reliance on gray or green infrastructure. GM&B will also identify short-term capital projects to be implemented by 2022 that will increase the area's resilience to anticipated coastal flooding. GM&B's Strategy will complement other on-going initiatives such as Miami-Dade County's development of a sea level rise checklist for all County capital projects and other larger resilience efforts as highlighted in the County's budget. The GM&B municipalities will be involved during the outreach phase of implementing the sea level rise strategy.





CASE STUDY

STAKEHOLDER RESILIENCE TRAINING

Miami-Dade County provides detailed and cutting-edge skills to public and private stakeholders through training sessions that include demonstrations of online tools to help identify at-risk assets. The training focuses on how to integrate sea level rise into planning and project design as well as on broader water and energy efficiency. These popular training sessions have included:

- ◆ Geographic information systems (GIS) training co-sponsored with the National Oceanic and Atmospheric Administration (NOAA) to provide technical inundation mapping skills to local government staff, students, and private consultants (attended by over 170 individuals).
- ◆ Sea level rise projections and application of those projections to existing projects (attended by 30 transportation professionals).
- ◆ Benchmarking Training workshops to develop skills in analyzing County buildings' energy and water use over time, including comparison to other facilities.

Miami-Dade County will continue to bring national and international resilience experts to the GM&B region and will work to expand outreach efforts, particularly to under-resourced communities. Training offerings are expected to expand to meet demand, both in terms of attendance requests and topics that may arise in GM&B.





OBJECTIVE 2: SAFEGUARD URBAN SYSTEMS

ACTION 8: DEVELOP SEA LEVEL RISE CHECKLIST FOR CAPITAL PROJECTS

HOW THIS WILL HELP US

- ◆ Reduces sea level rise and coastal flooding impacts
- ◆ Streamlines government processes
- ◆ Improves natural disaster preparedness
- ◆ Reduces stormwater flooding
- ◆ Reduction in sunny day flooding

PERFORMANCE METRICS

- ◆ Number of capital projects utilizing checklist
- ◆ Number of GM&B municipalities adopting checklist

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ City of Miami
- ◆ City of Miami Beach

FUNDING

Fully funded via staff time



TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

The most cost-effective way to systematically protect infrastructure in the GM&B region is to integrate resilience considerations into the design of all new capital improvement projects as early as possible. In support of this concern, Miami-Dade County will develop a sea level rise checklist that compliments existing resilience training programs for capital planning. A previous study by engineering consultants found that an additional \$6 million investment in protective measures would prevent approximately \$24 million in losses and protect Miami-Dade County assets worth more than \$150 million. Additionally, if climate considerations are not integrated into design, key infrastructure may not last its entire design life and additional funds would be required to rebuild or modify the asset.

Miami-Dade County's checklist will help ensure that new infrastructure is built to withstand future floods and storms and that there is a consistent approach across departments to integrate climate change considerations into project designs. A checklist and a clear process will help various departments adopt consistent standards, information, and the best practices for capital projects. Miami-Dade County will convene a working group with key departments responsible for the most critical infrastructure projects to test and refine the checklist format. Miami-Dade County is currently working to create an easy-to-use online tool that provides the data necessary to complete the requested information in the checklist, such as parcel-level information about elevations and flood risk. After developing the checklist, Miami-Dade County will share it with GM&B municipalities, along with best practices, so municipal partners can adapt it to meet their unique needs.



ACTION 9: CREATE DEVELOPMENT REVIEW CHECKLIST

OBJECTIVE 2: SAFEGUARD URBAN SYSTEMS



HOW THIS WILL HELP US

- ◆ Improves natural disaster preparedness
- ◆ Streamlines government processes
- ◆ Reduces sea level rise and coastal flooding impacts

PERFORMANCE METRICS

- ◆ Number of cities who report utilizing checklist
- ◆ Number of buildings constructed using checklist

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ City of Miami
- ◆ City of Miami Beach

FUNDING

Funded through existing staff resources

TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

To minimize costs associated with disruption, factoring risk from natural hazards (such as floods) into project designs is a must in a resilient coastal community. With high development pressures, especially in the urban core, affordability and displacement must also be addressed to stabilize the economy and citizen's quality of life. Identifying concerns during the development review process and then modifying projects in the early design phase is typically the most cost-effective stage to adjust a project to improve risk reduction. GM&B will complete a Development Review Checklist and guidance document for GM&B municipalities to use in support of integrating resilience and equity into their development review processes. For instance, the City of Miami Beach has incorporated flood risk considerations into their land use board review processes as a decision-making tool for land use changes. The City of Miami has used the draft GM&B Development Review Checklist to review Special Area Plans and will integrate this resilience and equity review into their standard review processes to ensure that resilience is a consideration at the early stage of large development projects.

GM&B's resource guide, with sample checklists and application questions for development reviews, will help other communities, especially those that are resource-limited, incorporate resilience considerations into their design, planning, and development processes. This resource document will be a valuable aid in developing consistent standards, use of consistent information, and best practices for projects, and its use will facilitate decision making. Once completed, the guidance document will be shared through the Miami-Dade Planners Technical Committee.





CASE STUDY

RESILIENCE PRINCIPLES IN LAND USE DECISIONS

On July 26, 2017, the Miami Beach City Commission adopted an ordinance establishing criteria that the City's four land use boards would incorporate principles to address and plan for the effects of sea level rise and climate change. Since its adoption, over 282 items have been considered by the land use boards. The ordinance also includes separate criteria for the Planning Board when making recommendations on proposed amendments to the Land Development Regulations to the City Commission.

For new developments, applying the criteria means that climate adaptation and mitigation is considered during the review process, and subsequently at the land use board review. This process has encouraged robust dialogue between applicants and staff, informed the review process, and resulted in stronger designs. As part of an application for new development, applicants must address the criteria as part of their letter of intent to develop; as a result, new buildings in the City of Miami Beach are more resilient to extreme weather, more energy efficient, and increasingly adaptable to rising seas.

Historic structures present a unique set of challenges since many were built below current elevation standards. The criteria encourages raising these structures. If that is not feasible, floodproofing must be applied.





OBJECTIVE 2: SAFEGUARD URBAN SYSTEMS

ACTION 10: STRENGTHEN RESILIENCE PLANNING

HOW THIS WILL HELP US

- ◆ Streamlines government processes
- ◆ Improves public realm
- ◆ Reduces duplication of services

PERFORMANCE METRICS

- ◆ Number of GM&B municipalities that incorporate resilience principles in their CDMP

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ GM&B municipalities
- ◆ Southeast Florida Regional Climate Change Compact
- ◆ South Florida Regional Planning Council

FUNDING

Fully funded through staff time



TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

Potential shocks and stressors confronting the GM&B region need to be considered in all aspects of long-range planning. Therefore, resilience initiatives are addressed throughout each element of the Miami-Dade County's Comprehensive Development Master Plan (CDMP). Mandated by state law, Miami-Dade County and its cities must regularly update their CDMPs and document progress in implementing CDMP's goals, objectives, and policies. Updates to the CDMP's maps and text are performed using the Evaluation & Appraisal Report (EAR) process. In 2019, via the EAR update, Miami-Dade County will include resilience as a central principle of the update. Updates will include promoting moderate- to high-density development along transit corridors in areas less susceptible to flooding, and strong protection of the natural systems that attenuate coastal hazards. The update will also address economic resilience, including provision of housing for all income levels. As GM&B municipalities update their CDMPs, templates for resilience components—such as those related to Florida's Peril of Flood legislation—will be made available (via a new, online easy-to-use portal) to GM&B municipalities to adopt as relevant in their communities.

The City of Miami and City of Miami Beach are actively incorporating policies into their CDMPs to increase their resilience. The 2016 CDMP for the City of Miami Beach's EAR update improved policies related to stormwater management and designated the City as an Adaptation Action Area. The revised CDMP employs several strategies to ensure the City can adapt to sea level rise impacts by ensuring that the City provides protective infrastructure, accommodates anticipated future water levels, and manages and avoids development in high risk areas. Specific policies and strategies being considered include ensuring that new development adapts to the impacts of sea level rise; ensuring that greenhouse gas emissions are minimized; providing guidance for future infrastructure improvements to improve resilience; requiring additional study of the needs of historic structures; and addressing the needs of the City's most vulnerable residents.



ACTION 11: MAXIMIZE OPPORTUNITY ZONES

OBJECTIVE 2: SAFEGUARD URBAN SYSTEMS



TIMEFRAME: IMMEDIATE (0-1 YEAR)

DESCRIPTION

Sixty-seven federally designated Opportunity Zones have been mapped in Miami-Dade County to revitalize economically distressed communities using private investments. Governments, not-for-profit organizations, and civic and private groups throughout the GM&B region need to collaborate to develop more holistic strategies to guide investments in Opportunity Zones, ensure achievement of resilient outcomes, maximize the outcome of anticipated investments, and avoid creating unintentionally negative consequences in communities. To accomplish these goals, Miami-Dade County, working with the Miami-Dade Beacon Council, has prepared an Atlas of Opportunity Zones throughout the County. The Atlas includes population and economic data for each zone and will be updated based on additional collaboration with GM&B municipalities and other stakeholders. The Miami-Dade Beacon Council and Miami-Dade County will perform outreach activities, in person and online, to inform elected officials, business owners, developers, investors, and others about the Opportunity Zones. In addition, Miami-Dade Beacon Council, assisted by Miami-Dade County, will create an investment prospectus providing potential Opportunity Fund investors with information on zoning, existing and planned infrastructure, and community goals.

The Atlas of Opportunity Zones was created in response to the Federal Opportunity Zone legislation, which creates favorable tax benefits for offering Opportunity Funds in designated zones. Federal regulations guiding investment in these zones by Opportunity Funds are being finalized. To yield maximum financial benefits, the private sector will be looking to make quick decisions on where to invest. The Opportunity Zone program presents an opening for community leaders to focus on resilient strategies and work with Opportunity Funds to achieve and accelerate broad-based outcomes. The Atlas of Opportunity Zones will facilitate use of the Opportunity Funds.

HOW THIS WILL HELP US

- ◆ Improves housing quality
- ◆ Improves housing affordability
- ◆ Creates community wealth
- ◆ Streamlines government processes
- ◆ Stimulates economic growth

PERFORMANCE METRICS

- ◆ Number of resilient investments made within opportunity zones

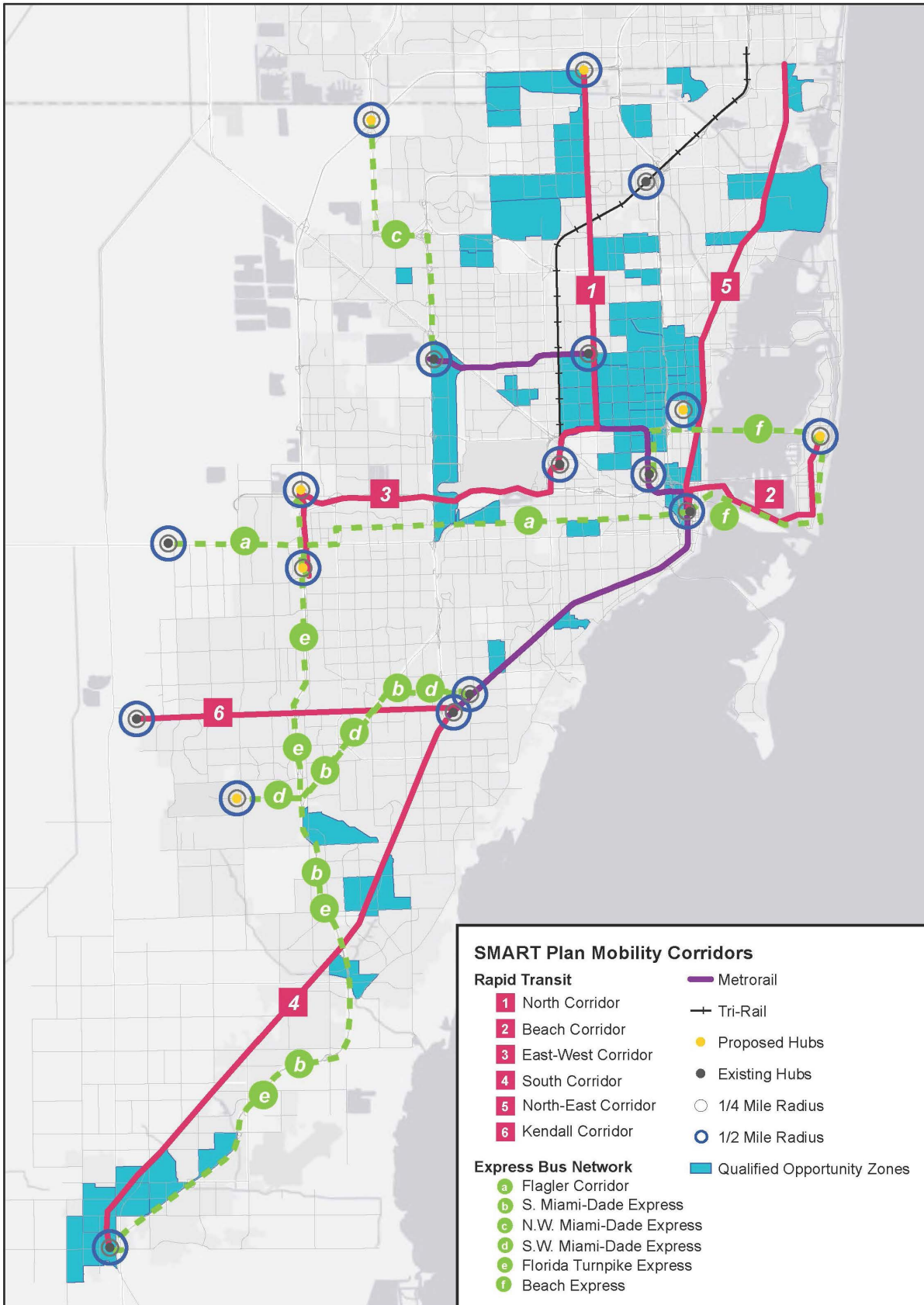
KEY COLLABORATORS

LEAD: Miami-Dade Beacon Council

- ◆ Miami-Dade County
- ◆ City of Miami and GM&B municipalities
- ◆ South Florida Regional Planning Council

FUNDING

Fully funded; coordination to be funded by participating entities





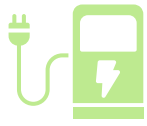
STRATEGIC MIAMI AREA RAPID TRANSIT PLAN

As Miami-Dade County continues to experience rapid growth, GM&B recognizes the need to mitigate the costs of congestion. The Strategic Miami Area Rapid Transit (SMART) Plan is a bold infrastructure program of projects that will significantly improve transportation mobility in Miami-Dade County and the South Florida Region. Once implemented, the SMART Plan will lower Miami-Dade County greenhouse gas emissions, reduce travel times, and refocus GM&B away from single occupancy vehicles.

The SMART Plan when combined with newly established Opportunity Zones will further promote economic growth and job creation, as well as increase the region's international competitiveness. The SMART Plan represents a vision for the region that is both strategic and far reaching, creating a system of multiple transportation options by leveraging existing infrastructure, and integrating technology at the highest levels. The plan is comprehensive, proactive, and supports the future population and employment growth anticipated in our region.

The SMART Plan will expand transit options in Miami-Dade County along six (6) critical corridors that are linked to regional, state, national, and global economic markets, as highlighted below. Another critical component of the SMART Plan is a network of Express Buses, known as Bus Express Rapid Transit (BERT), which will connect the SMART rapid transit corridors on limited access facilities, promoting the active expansion of South Florida's Express Lanes network. The SMART Plan will be complimented by a SMART Trails Plan to expand access non-vehicular opportunities.





OBJECTIVE 3: CREATE MOBILITY OPTIONS

ACTION 12: DEVELOP MOBILITY HUBS IN THE 305

HOW THIS WILL HELP US

- ◆ Enhances mobility options
- ◆ Decreases traffic congestion
- ◆ Reduces greenhouse gas emissions
- ◆ Improves air quality
- ◆ Improves cyclist and pedestrian safety

PERFORMANCE METRICS

- ◆ Transit mode share
- ◆ Number of last mile alternative options available

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ Miami-Dade Transportation Planning Organization
- ◆ Rail & Bus Transportation Providers

FUNDING

Partially funded by multiple transportation entities



TIMEFRAME: MID-TERM (5+ YEARS)

DESCRIPTION

Miami-Dade County will develop Mobility Hubs around current Metrorail, Metromover, and Strategic Miami Area Rapid Transit (SMART) Plan Corridor stations. Mobility Hubs consist of physical improvements that seamlessly integrate different modes of transportation together. The Mobility Hubs will enhance the reach of the current and future transportation corridors including rail and Bus Rapid Transit (BRT) stations. The program will include a design competition for current Metromover and Metrorail stations by the end of 2020 and will develop solutions for mobility providers to enhance service to and from mobility hubs.

Mobility Hubs are a crucial component of expanding access to surrounding neighborhoods that are serviced by rail and bus rapid transit (BRT). Traditionally, transit stations provide non-vehicle access within a ½ mile radius surrounding the station. Mobility hubs provide the opportunity to expand the reach of transit beyond this ½ mile and expand multimodal benefits to additional neighborhoods. Mobility Hubs will also provide opportunities to connect shared-use paths and other non-motorized facilities to the transportation stations and associated transit-oriented developments. The Mobility Hubs action is in alignment with the goal of the SMART Trails Program to identify and address First/Last Mile (FLM) connections. Improvements include:

- ◆ Technology to match trips from rail and BRT to bus, microtransit, transportation network companies, carshare, and other modes through connected real-time navigation through enhanced broadband
- ◆ Dedicated space to serve “last-mile” options, including bus, microtransit, transportation network companies, and carshare
- ◆ Human-centered design to increase safe walking and biking trips
- ◆ Supportive infrastructure to encourage electric, non-polluting transportation options
- ◆ Permeable surfaces to reduce stormwater runoff

Mobility Hubs have great potential to help transform the region and reinforce the policies developed with the current shared mobility work and will promote transit-oriented development.



CASE STUDIES

THE UNDERLINE, A 10-MILE LINEAR PARK AND LIVING ART DESTINATION

The Underline is transforming the underutilized land below Miami-Dade County's Metrorail, from the Miami River to Dadeland South Station, into a 10-mile linear park, world-class urban trail, and living art destination. This linear park will connect communities; improve pedestrian and bicyclist safety; create over 120 acres of open space with restored natural habitats; encourage a healthy lifestyle; provide an easily accessible place to exercise; create a mobility corridor that integrates transit, car, biking, and walking; provide a 10-mile canvas for artistic expression; attract development along U.S. Highway 1; and generate significant economic benefit. Much like the High Line in New York City, the Underline will be open to all and provide amenities and art connecting people to place and each other.

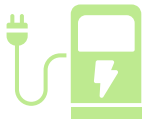
Construction of the Underline will be done in nine phases. The first phase began in November 2018. The total construction and design budget for the first phase is \$120 million, with over \$90 million in public funds already committed. The Underline is led by Friends of The Underline, a 501c3, in partnership with Miami-Dade County, with additional support from the Cities of Miami, Coral Gables, South Miami, the State of Florida, and Florida Department of Transportation. Phased completion will be done as funding becomes available.



GROWING GREEN BUS STOPS PILOT PROJECT

Growing Green Bus Stops began as pilot project created by Neat Streets Miami in partnership with O. Miami Poetry Festival. The project targeted unshaded bus stops along transit corridors throughout Miami-Dade County to mitigate the urban heat island effect and enhance the transit experience for riders. The project planted two canopy trees at 10 unshaded bus stops (20 trees total) located in different areas across Miami-Dade County. An additional component of the project was stenciling a haiku poem about trees, written by a local resident, onto the surrounding sidewalk. The resulting benefits were threefold: shade creation, beautification of roadways, and public engagement. The project demonstrated how communities can enhance the transit experience while cultivating more awareness about the benefits of trees through relatively small aesthetic and environmental investments.

The pilot project was funded from The Miami Foundation Public Space Challenge grant. Neat Streets Miami, housed in Miami-Dade County, is a multi-jurisdictional County board dedicated to the maintenance and beautification of transportation corridors, gateways, and connections.



OBJECTIVE 3: CREATE MOBILITY OPTIONS

ACTION 13: DESIGN A BETTER BUS NETWORK

HOW THIS WILL HELP US

- ◆ Decreases traffic congestion
- ◆ Enhances mobility options
- ◆ Reduces duplication of services
- ◆ Reduces greenhouse gas emissions
- ◆ Improves community cohesion

PERFORMANCE METRICS

- ◆ Number of monthly/annual bus riders (after new routes launched)

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ Transit Alliance
- ◆ GM&B municipalities with public transit programs

FUNDING

Fully funded by a \$250,000 commitment from Miami-Dade County and matching funds raised by the Transit Alliance

TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

When it comes to public transit, Metrobus is the most heavily used mode of transportation in Miami-Dade. In 2018, roughly 50 million trips were taken on Metrobus alone. However, ridership has been declining. Transit Alliance (a local public transit advocacy nonprofit) will spend the next 2 years redesigning the Metrobus route network to create a more efficient and more cohesive public transit system. GM&B will support this effort through open collaboration, data, and staff resources.

The bus system is flexible and is the best candidate for short-term improvements that could have a major, positive impact on the use of mass public transit. Ridership has been in steady decline due to increased car ownership, trolley services without fares, longer bus wait times, unreliable service, and a poorly designed route network. This reconfiguration aims to improve service on highly frequented routes; create better connections to other bus lines, trolleys, and other modes of transit; and, design more logical and intuitive route paths. These improvements will work together to enhance user experience and bring riders back to Metrobus. Transit Alliance plans to recommend a new bus route system in late 2020.



SPOTLIGHT

TRANSIT ALLIANCE

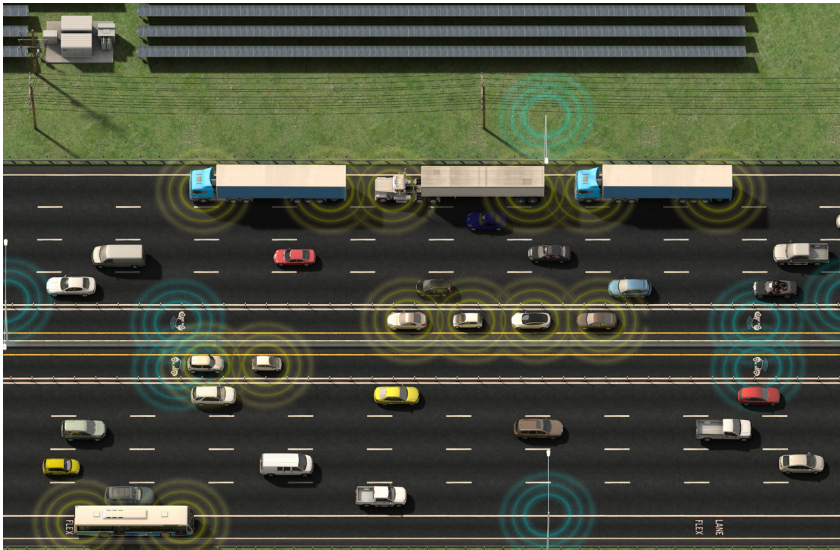
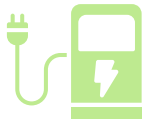
Transit Alliance is a nonprofit organization advocating for walkable streets, bikeable neighborhoods, and better public transit. Its campaigns combine data-driven research, community engagement, and policy advocacy to get residents in the GM&B region moving safer, faster, and happier.





ACTION 14: DRIVE INTO THE FUTURE

OBJECTIVE 3: CREATE MOBILITY OPTIONS



TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

Driverless cars have much to offer, including the potential of reducing greenhouse gas emissions. Reducing greenhouse gas emissions could be achieved using shared mobility services, vehicle electrification, and smart pricing while not undermining other emission-reduction strategies. As part of the (Re)Defined Mobility project, Miami-Dade County will conduct numerous public workshops to determine which new technology tools and mobility options public and private transportation system customers are comfortable using. At the same time, demonstration projects will be conducted using autonomous vehicles (AVs) and on-demand transit circulators (hail on demand) to evaluate whether these technologies can be successfully integrated into the existing transportation system.

The (Re)Defined Mobility project will bring residents of Miami-Dade County into the decision-making process and explore mobility solutions that match their needs. The project will work to: 1) develop citizen-centric solutions informed by participation in planning, design, and delivery of new mobility solutions; 2) experiment with new mobility solutions and technology with the deployment of AVs; and 3) create a digital interface to manage locations for AV drop-offs and pick-ups.

Ultimately, the project will redefine the transportation planning process by helping to better understand the public's sentiments toward mobility solutions and new technologies in Miami-Dade County. Additional benefits include reduction of greenhouse gas emissions through vehicle electrification and increased occupancy of private and public vehicles, as well as improved walkability and equal access to all residents in the GM&B region.

HOW THIS WILL HELP US

- ◆ Improves communication with residents
- ◆ Decreases traffic congestion
- ◆ Enhances mobility options
- ◆ Reduces greenhouse gas emissions

PERFORMANCE METRICS

- ◆ Number of workshops
- ◆ Number of transportation system users engaged
- ◆ Number of new mobility solutions introduced following workshops
- ◆ Metric tons of greenhouse gas emissions reduced from private cars

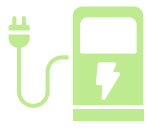
KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ Miami-Dade Transportation Planning Organization
- ◆ GM&B municipalities

FUNDING

Fully funded. The pilot project is funded by the Knight Foundation and federal grants



OBJECTIVE 3: CREATE MOBILITY OPTIONS

ACTION 15: IT'S ELECTRIC

HOW THIS WILL HELP US

- ◆ Improves air quality
- ◆ Reduces greenhouse gas emissions
- ◆ Streamlines government processes
- ◆ Improves financial planning

PERFORMANCE METRICS

- ◆ Percentage of GM&B municipalities requiring EV infrastructure in building code
- ◆ Percentage of EVs in municipal fleets
- ◆ Percentage of EV chargers countywide
- ◆ Tons of greenhouse gas emissions from private cars reduced
- ◆ Percentage of registered EVs

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ Miami-Dade County
- ◆ GM&B municipalities

FUNDING

Partially funded by Electrify America



TIMEFRAME: SHORT TERM (1-5 YEARS)

DESCRIPTION

Since 2013, electric vehicle (EV) ownership in Miami-Dade County has increased by 450 percent. After California, Florida leads the country in number of registered electric vehicles; by 2030, Florida is expected to reach 30 percent market penetration. To prepare for and catalyze the growth of the EV market, GM&B will enact policies that support development of EV infrastructure (like chargers), seek opportunities to introduce EVs into municipal fleets, and engage in knowledge sharing to create best practices and a unified network.

One perceived barrier to greater deployment and use of EVs is an inadequate network of publicly available chargers. GM&B partners will pass legislation to require EV charger capability in newly built parking structures to set the foundation for EV infrastructure growth. Additionally, GM&B municipalities with existing EV policies and fleets will share their experiences and best practices with other GM&B municipalities to reduce potential concerns and issues. Collective commitment and investment is needed to facilitate an EV transition that will not only significantly reduce vehicle emissions but also save governments and residents operations costs.



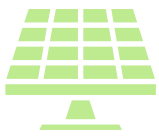
CASE STUDY

ELECTRIFYING THE FLEET

In 2015, the City of Coral Gables began drafting its 10-year Sustainability Management Plan to provide a framework for creating a more sustainable and resilient community. One of the goals established in the plan was to reduce gasoline and diesel fuel use 20 percent below 2013 levels by 2025. One way the City has focused on achieving this goal is integrating EVs into its City fleet. The City established a FY 2021 goal of 78 EVs, which represents 60 percent of their administrative fleet. The City purchases these EVs via a statewide procurement contract and has supported the fleet by installing dedicated EV support equipment at its maintenance facility, City Hall parking lot, and municipal parking garages. In 2015, the City began purchasing EVs and currently has a total of 43 EVs in its fleet, making it one of the largest government EV fleets in Florida. The City has been able to fund this through its annual vehicle replacement budget. The installation of 22 charging stations, with a goal of expanding to 43 by 2021, has enabled and inspired the community to start transitioning away from traditional gasoline powered vehicles.



Photo credit: City of Coral Gables



OBJECTIVE 4: INCREASE ENERGY EFFICIENCIES

ACTION 16: EXPAND RENEWABLE ENERGY

HOW THIS WILL HELP US

- ◆ Improves natural disaster preparedness
- ◆ Improves air quality
- ◆ Creates community wealth
- ◆ Creates job opportunities
- ◆ Reduces greenhouse gas emissions

PERFORMANCE METRICS

- ◆ kW renewable energy installed on County buildings
- ◆ Number of PV systems installed on County building
- ◆ kWh solar electricity generated
- ◆ kW renewable energy systems County-wide

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ Local Utilities such as Florida Power and Light and Others
- ◆ Solar Cooperatives
- ◆ SolSmart
- ◆ Private Industry

FUNDING

Partially funded



TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

Miami-Dade County will work with local electric utilities and other stakeholders to reduce greenhouse gas emissions within the GM&B region by implementing energy efficiency and conservation strategies, and by increasing production of renewable energy, battery storage, and similar energy storage systems and microgrids. GM&B will collaboratively implement strategies promoting solar cooperatives and national programs such as SolSmart that foster mature local solar markets. The City of Miami Beach has achieved Gold SolSmart status and Miami-Dade County has achieved Bronze SolSmart status. Miami-Dade County is working towards Gold status.

Uninterrupted access to reliable energy is critical to the GM&B region. Sustaining the region's lifestyle requires a deliberate effort to increase efficiency, use alternative sources, and improve the resilience of energy systems. Implementing these strategies focuses on reducing carbon pollution and consequent heat waves, the leading cause of weather-related deaths in the United States.



SPOTLIGHT

SOLSMART

SolSmart is a national technical assistance and designation program that guides communities in lowering the costs and barriers for community members to go solar and encourages solar energy development. The South Florida Regional Planning Council (SFRPC) recently received a technical assistance grant that provided for a SolSmart Advisor to work full-time since November 2018. The SolSmart Advisor provides expertise and dedicated support to communities within and outside of the GM&B region to encourage local solar energy growth with the goal of achieving the SolSmart designation.





ACTION 17: BUILDING EFFICIENCY 305

OBJECTIVE 4: INCREASE ENERGY EFFICIENCIES



TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

In Miami-Dade County, energy use in buildings accounts for 37 percent of the County's energy use and climate pollution; these buildings waste an average of about 30 percent of their energy and water use due to building inefficiencies. To help mitigate these issues, Miami-Dade County, in collaboration with GM&B municipalities, will implement the Building Efficiency 305 (BE 305) program. The BE 305 program will promote more efficient buildings through initiatives that improve energy and water use in large, existing buildings, both private and public. The BE 305 program includes a variety of strategies including:

- ◆ Local governments leading by example through benchmarking and improving municipal building performance
- ◆ Promoting financing mechanisms, such as PACE, to assist building owners and managers make efficiency improvements
- ◆ Enhancing building performance through code compliance education and assessments
- ◆ Establishing building performance policies to include annual benchmarking requirements for residential and non-residential buildings
- ◆ Facilitating community training and other educational opportunities focused on improving building performance

The BE 305 program is an innovative approach that uses the deployment of building performance data to drive decision making and transform the marketplace. It aligns with Miami-Dade County's vision to create jobs, enhance economic productivity, improve grid resilience, reduce the residential utility burden on low-income residents, bolster healthy and resilient communities, and initiate progress toward its resilience goals. The program's focus is county-wide implementation in collaboration with GM&B municipalities.



SPOTLIGHT

THE CITY ENERGY PROJECT

The City Energy Project (CEP) is a national initiative that provides technical and strategic assistance to local governments developing programs such as BE 305. The goal of CEP is to create healthier and more prosperous American cities by improving the efficiency of buildings. It is a joint project of the Natural Resources Defense Council (NRDC) and the Institute for Market Transformation (IMT) funded by a partnership of Bloomberg Philanthropies, the Doris Duke Charitable Foundation, and The Kresge Foundation.



HOW THIS WILL HELP US

- ◆ Improves air quality
- ◆ Improves housing affordability
- ◆ Creates community wealth
- ◆ Creates job opportunities
- ◆ Reduces water usage

PERFORMANCE METRICS

- ◆ Tons of greenhouse gas emissions reduced from buildings sector
- ◆ Dollars saved in energy/water bills
- ◆ Gallons potable water saved
- ◆ Number of buildings above 20,000 sq. ft. benchmarked

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ GM&B municipalities
- ◆ Florida Power and Light
- ◆ Building industry stakeholders
- ◆ University of Miami

FUNDING

Miami-Dade County and partially funded via grant from City Energy Project that ended in December 2018



OBJECTIVE 5: ENHANCE HOUSING OPTIONS

ACTION 18: STAY AND LIVE IN THE 305

HOW THIS WILL HELP US

- ◆ Improves housing quality
- ◆ Improves community cohesion
- ◆ Creates community wealth
- ◆ Streamlines government processes

PERFORMANCE METRICS

- ◆ Number of affordable housing units preserved/year in City of Miami and Miami-Dade County
- ◆ Number of housing units created annually in City of Miami and Miami-Dade County
- ◆ Percent rent burdened households in City of Miami and Miami-Dade County

KEY COLLABORATORS

LEAD: City of Miami

- ◆ Miami Homes for All
- ◆ FIU Metropolitan Center
- ◆ Greater Miami Chamber of Commerce - Housing Committee
- ◆ University of Miami Housing and Community Development Initiative

FUNDING

Partially funded by the Center for Community Investment

TIMEFRAME: SHORT-TERM (1-5 YEARS)

DESCRIPTION

Working towards regional replication and expanded collaboration, the City of Miami will work with Miami Homes for All to launch initiatives that leverage municipal financing to increase production of affordable housing units. As a final product, Miami Homes for All and City of Miami will prepare and release a guidance document for improved regional collaboration on affordable housing.

This work is being completed as part of the City's participation in the Connect Capital program, a 2-year initiative of the Center for Community Investment that assists communities in attracting capital at a scale to improve residents' health and access to opportunity. The Connect Capital process has helped the City establish a shared set of priorities among diverse stakeholders with strengthened the policies and practices required to achieve the outcomes. The City is working with its private-sector, university, and nonprofit partners to meet an ambitious goal of creating or preserving 12,000 housing units by 2024. In effort to meet this goal the City has identified key policies or regulations that needed to be created or modified (such as an inclusionary zoning policy being piloted in the Omni/Overtown area) and prioritizing the use of publicly owned land for new housing. Some non-policy priorities were also identified, such as improved coordination among regulatory bodies for permitting and collaboration with other governments, institutions, and nonprofits to leverage funding, financing, and/or land. By July 2020, the City of Miami hopes to have adopted a new housing master plan. It is anticipated that the guidance document will be used to develop a coordinated interagency strategy and approach related to housing needs across Miami-Dade County.



SPOTLIGHT

MIAMI HOMES FOR ALL

Since its conception, Miami Homes For All has sought to create formal alliances to break down silos within the homelessness sector and support all individuals who experience homelessness at any point in their lives. Their work concentrates on advocacy, prevention, and informational services to enhance already existing community efforts and fill identifiable gaps.





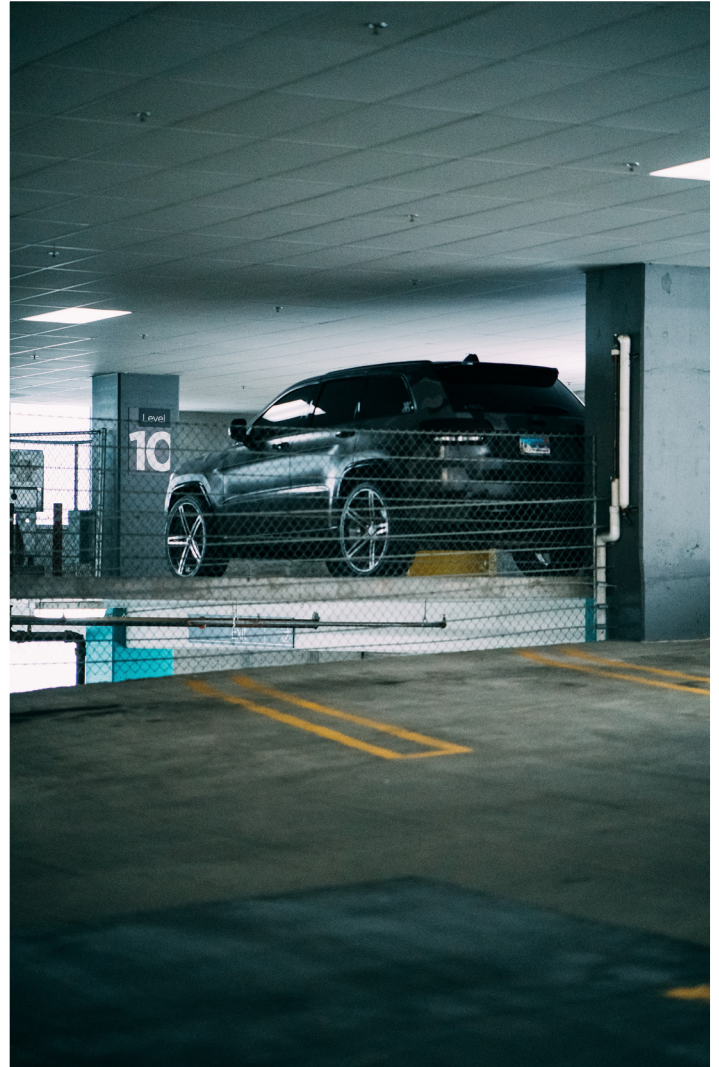
CASE STUDY

DO YOU WANT TO LIVE IN A GARAGE?

With the future of driving and parking your own car in question, the City of Miami Beach City Commission adopted a parking garage convertibility criterion in 2016. Originally conceived to address workforce housing needs, it is an excellent model for adaptive re-use advanced planning. The City of Miami Beach is already seeing a decline in garage utilization and revenue, in part due to the car share disruption created by Uber and Lyft. The criteria for designing a parking garage that could be converted to future housing units include:

- ◆ Increased floor-to-floor heights (10 feet clear floor heights to accommodate future heating, ventilation, and air conditioning (HVAC); plumbing; and electrical systems)
- ◆ Maximized flat area floor plates (keep circulation ramps outside main areas)
- ◆ Reduced vehicular ramp footprints to minimize future non-convertible areas
- ◆ Structural design to accommodate change of use (increased loading)
- ◆ Inclusion of vertical plumbing/waste chases or core for future use
- ◆ Potentially include larger elevator shafts to accommodate future cargo elevators
- ◆ Provide utility connection points for future use

Many variables apply when comparing costs of a traditional garage to convertible one - lot sizes. Zoning requirements and project scope can significantly affect estimates. The differential is in the 15 percent to 25 percent range. The City of Miami Beach is planning for two convertible garages in North Beach to meet today's need and tomorrow's reality.





OBJECTIVE 5: ENHANCE HOUSING OPTIONS

ACTION 19: REDEVELOPING RESILIENT PUBLIC HOUSING

HOW THIS WILL HELP US

- ◆ Improves housing quality
- ◆ Improves housing affordability
- ◆ Improves tenant rights
- ◆ Decreases homelessness
- ◆ Improves community cohesion

PERFORMANCE METRICS

- ◆ Number of public housing units redeveloped or constructed via RAD

KEY COLLABORATORS

LEAD: Miami-Dade County

- ◆ U.S. Department of Housing and Urban Development

FUNDING

Redevelopment of the first 2,400 units is funded and the approximate additional 6500 units will be funded via the RAD program



TIMEFRAME: SHORT TERM (1-5 YEARS)

DESCRIPTION

Miami-Dade County currently oversees 9,000 public housing units. The cost of renovating or replacing all units is \$2.6 billion. To date, 2,400 units have been redeveloped, are under construction, or closing soon with a total development cost of \$730 million. If the approximately 6,500 remaining units are redeveloped through demolition or new construction, the total cost would be approximately \$1.9 billion. To help complete renovation or replacement of these units, Miami-Dade County was approved to redevelop these under the U.S. Department of Housing and Urban Development (HUD) Rental Assistance Demonstration (RAD) plan.

Miami-Dade County plans to issue nine requests for proposals for the 1:1 redevelopment of site-specific public housing contracts by December 2019. Developers will be required to follow the County's Sustainable Buildings ordinance. Priority will be given to hardened buildings: elevated back-up generators to power common areas; use of solar power and hot water systems, when feasible; and those that ensure water and utility cost-burdens for residents are minimized. Ultimately, this redevelopment will help to fill the gap of pending renovated and updated public housing stock. Miami-Dade County has committed to maintaining the same rent for tenants returning to the redeveloped units. When stacked with additional financing incentives such as Opportunity Zones and opportunities for mixed-use development, redevelopment may even increase the number of public housing units available. Under the RAD plan, strict resident rights (such as resident notices and consultation, right-to-return after temporary relocation, and prohibition of rescreening of resident), relocation assistance, and other benefits allow for greater transparency. Implementation of the RAD planning process will be integrated into the Resilient305 when specific public housing sites are ready for redevelopment.

