

# RESILIENCE ELEMENT

## Introduction

Every community needs a plan in place to become more resilient and withstand the expected and unexpected social, economic, and physical challenges facing the world today. Transportation, affordability, economic inequality, energy supply, growing populations, cyber-attacks and the changing climate, are just some of the adversities that need to be continuously addressed in order for a city to be able to adapt to the changing conditions, withstand disruptive events, and recover quickly in the face of any abrupt crisis it can encounter and still provide basic services and needs to its residents.

100 Resilient Cities defines urban resilience as “the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.” The Village of El Portal must protect its natural and built environment and be prepared for the threat of acute shocks, such as hurricanes and flooding, and chronic stresses, such as affordability, cybersecurity, and public safety, in order to become a more resilient community.

Flood resilience is a major challenge for El Portal. One of the Village’s biggest challenges comes from the fact that the Village is uniquely situated at the drain end of the Little River watershed. The Village also sits on a porous aquifer which results in the water table in the Village being at the same level as the water level in the Little River & C-7 Canal (the “River”).<sup>1</sup> When the water level in the River rises, the water level beneath people’s homes similarly rises and rain and flood water cannot be drained off the landscape. Any change in the River results in a change in the water table in El Portal within minutes. There are also unique underground features in parts of the Village that make some areas, even at certain higher elevations, particularly dependent on the water levels in the River.

The majority of homes in the Village are on the coastal ridge with elevations above five feet. However, a number of homes are lower. For those lower homes, water levels in the River above three feet (normal high tide in Biscayne Bay) will cause flooding. The experience of tropical storm Eta showed this problem clearly, but it also provided evidence that there are means to handle this level of flooding.<sup>2</sup>

Unfortunately, tropical storm systems in and of themselves are not the major threat to flood resilience for El Portal. Rather it is when they are accompanied by torrential rainfall in the C-7 basin. This should be addressed by future planning for the C-7 basin but it also affects water levels El Portal has to plan for as it considers what recommendations of the LRAAA Plan will best meet its future resilience needs. The problem results from the possibility of torrential rainfall occurring in the larger C-7 basin that drains into the Little River and ends up in El Portal. That could potentially result in flood levels rising to a height where water begins to flow over and around the S27 structure. If debris coming down the river blocked flow under the FEC railroad bridge, flood levels would be even higher. The maximum water level would be about 8 feet above mean sea

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<sup>1</sup> <https://c7riochico.net/epfp/>

<sup>2</sup> <https://c7riochico.net/eta/>

level, the same as the much less likely highest possible storm surge in Biscayne Bay.<sup>3</sup> In the event that should happen in El Portal, evacuation would be necessary for low elevation houses, but mitigating it is critical. How that now affects El Portal has to do with preparing for raising C-7 control elevations by South Florida Water Management District ("SFWMD") as part of future measures to mitigate this kind of flooding. El Portal is grateful the County and SFWMD invited it to participate in the 2017 Flood Protection Level of Service Assessment for the C7 Basin Project.<sup>4</sup> There we learned that necessary measures to increase flood drainage through the S27 structure could entail raising the control level that flood water is allowed to go in relatively frequent flood situations. The actual level this is set at will be essential for El Portal to know as it assesses LRAAA Plan measures such as raising houses. This information is urgently needed by the Village along with much better scientific information on conditions in the aquifer.

The fact that the water levels in the Village are so closely correlated with water levels in the Little River means that in order to prevent flooding, two other things, also raised by the 2017 project, are important: 1) Retain rainfall flood water upstream to be released slowly, and 2) Remove water that does end up in the Village with pumps and other means without furthering water quality concerns.

## **Goals, Objectives, and Policies**

**Goal 1**                    The Village of El Portal shall work toward becoming a sustainable and resilient community, encourage green development practices, reduce greenhouse emissions, and minimize carbon footprint.

**Objective 1.1**            Ensure sufficient and affordable energy supply for all residents and seek opportunities to implement clean and renewable energy throughout the Village.

Policy 1.1.1              Provide adequate and dependable supply of essential services to El Portal's residents at all times, including times of disruption, to ensure everyone's basic needs are met.

Policy 1.1.2              Improve the reliability of back-up energy for critical infrastructure.

Policy 1.1.3              Provide sufficient and adequate street lighting for guidance and safety at all times and during times of disruption.

Policy 1.1.4              Review and revise renewable energy standards or ordinances to remove barriers, encourage appropriate renewable energy installations, and protect solar access and development ordinances.

**Objective 1.2**            Improve affordability in the Village of El Portal for all residents.

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<sup>3</sup> <https://www.nhc.noaa.gov/nationalsurge/>

<sup>4</sup> <https://c7riochoico.net/communitymapping/c7adaptation/FloodProtectionLevelofServiceAssessmentC7.pdf>

- Policy 1.2.1 Incentivize energy-efficient homes to reduce monthly costs for utilities and make homes more comfortable and durable by considering energy-efficient appliances and home electronics, insulation and air sealing, space heating and cooling, water heating, windows, doors, and skylights.
- Policy 1.2.2 Foster accessibility and mobility to all to decrease auto-dependence so that reduced costs for energy-efficient homes are not wasted with high transport costs.
- Policy 1.2.3 When appropriate allow for greater density and smaller unit sizes for affordable housing.
- Objective 1.3** Reduce greenhouse gas emissions and reduce heat island effect.
- Policy 1.3.1 Work to reduce frequency of single-occupant vehicle trips.
- Policy 1.3.2 Improve mobility options to better serve all residents by investing in rapid transit and bus services and reduce reliance on personal automobiles.
- Policy 1.3.3 Encourage a variety of land uses that provide accessible services to residents within walking distance to reduce automobile trips.
- Policy 1.3.4 Mitigate heat island effect by planting trees and other vegetation into barren areas, vacant lots, and street rights-of-way.
- Policy 1.3.5 Encourage the use of innovative green spaces such as green roofs.
- Policy 1.3.6 Work toward becoming a “green city” as recognized by the Florida Green Building Coalition.
- Policy 1.3.7 Create or participate in outreach and educational programs to promote energy conservation.
- Policy 1.3.8 Reduce impervious surface area where possible and use lighter colored pavements and building materials to mitigate urban heat island effect.
- Objective 1.4** Encourage sustainable architecture and incorporate green building practices.
- Policy 1.4.1 Implement active and passive design measures that conserve energy.
- Policy 1.4.2 Promote materials for green building obtained from natural, renewable sources that have been managed and harvested in a sustainable way or obtained locally to reduce embedded energy costs of transportations.
- Policy 1.4.3 Minimize water use by encouraging rainwater harvesting.

**Objective 1.5** Improve the Village of El Portal’s preparedness for natural disasters to cause fewer disruptions and less destruction in the community in the face of disasters such as hurricanes.

Policy 1.5.1 Invest in mitigation measures that strengthen infrastructure and reinforce existing structures to reduce risks to the community arising from the loss of life, economic disruption, and infrastructure restoration and decrease post-disaster recovery costs after a natural disaster.

Policy 1.5.2 Rebuild better, stronger, and more resilient infrastructure to protect taxpayer investments and adequately prepare for future disasters.

Policy 1.5.3 Review operations and maintenance procedures and practices in response to climate impacts.

**Objective 1.6** Establish post-disaster procedures for immediate and long-term response to natural disasters such as hurricanes including cleanup and redevelopment.

Policy 1.6.1 Establish regulations for post-disaster temporary zoning relief to better manage response and recovery in the event of a natural disaster.

Policy 1.6.2 Prepare the following procedures to implement after a natural disaster:

- Review emergency building permits
- Prepare disaster assistance applications in coordination with federal and state officials
- Analyze and recommend hazard mitigation options including abandonment, reconstruction, or relocation of damaged public facilities to the Village Council
- Prepare a redevelopment plan
- Establish and set up emergency shelters and communication center
- Provide for the siting and acquisition of a debris removal site

Policy 1.6.3 Establish cleanup and repair actions that must receive first priority in emergency permitting decisions following a natural disaster to protect the health and safety of Village of El Portal residents including:

- Repairs to potable water, wastewater and power facilities
- Debris removal
- Removal or stabilization of structures in imminent danger of collapsing
- Repairs to make structures habitable

**Objective 1.7** Continue to encourage the conservation of water and to use it more efficiently promote Miami Dade County’s Water Conservation Program and enforce all Water use Efficiency Code requirements.

Policy 1.7.1                    Establish and encourage requirements for conserving water in landscaping for private and public properties.

Policy 1.7.2                    Support the South Florida Water Management District (SFWMD) 2018 Lower East Coast Water Supply Plan Update (LEC Update) and the Village of El Portal Water Supply Work Plan goals for water conservation.

**Policy 1.7.3**                    **Promote Miami Dade County’s Water Conservation Program and enforce all Water Use Efficiency Code requirements.**

**Objective 1.8**                    Continue to promote, encourage, and educate the community on the benefits of recycling and reusing products and waste.

Policy 1.8.1                    Create goals for solid waste reduction, recycling, composting, and organics recycling for the Village’s operations as well as residential and commercial areas.

Policy 1.8.2                    Encourage recycling and reusing equipment and electronics.

Policy 1.8.3                    Implement new programs and partners to increase recycling and conservation efforts.

Policy 1.8.4                    Provide education and incentives to residences and businesses to recycle and reduce waste.

**Objective 1.9**                    Make cybersecurity a priority for the Village of El Portal government to protect its data, public processes and services.

Policy 1.9.1                    Use shared education programs adopted appropriately for local use to help bring Village staff to appropriate levels of cyber literacy; allow for employees to receive basic education and training in cybersecurity awareness.

**Objective 1.10**                    Increase community resilience and preparedness to enable communities to withstand and adapt to weather- and climate- related impacts.

Policy 1.10.1                    Prepare to maintain public health and safety during extreme weather- and climate- related events.

Policy 1.10.2                    Ensure all residents are prepared to respond to emergency situations.

Policy 1.10.3                    Promote social connectedness, including strengthening relationships with community organizations and promoting opportunities for public engagement.

Policy 1.10.4                      Conduct education and outreach on climate-related health impacts such as air pollution, extreme heat, and vector-borne diseases.

**Objective 1.11**                      Promote redevelopment that emphasizes the concept of “Building like the Keys” more so than “Build on fill.” “Building like the Keys” refers to the practice of raising habitable levels on pilotis, or piers, pilings, or stilts in order to reduce vulnerability to storm surge, flooding, and storm surge.

Policy 1.11.1                      Pursue federal and state grants to assist with retrofit and rebuilding of the lowest lying properties in the Village.

Policy 1.11.2                      Modify land use regulations to provide incentives for building habitable levels at a higher, less vulnerable elevation.

Policy 1.11.3                      Provide technical assistance to homeowners, developers, architects, and builders regarding coordinating lot grading efforts as well as methods for raising structures.

**Objective 1.12**                      Promote development around high ground and around transit. Because the rail line follows the higher ground of the ridge, and because it may be activated as a station in the long-term future, development should be concentrated in a location that boosts ridership, reduce automobile dependency, but does so at an elevation that is less vulnerable than low-lying areas.

Policy 1.12.1                      Consider modifying land use regulations to increase development density or intensity at places in the village that are located near rail and transit corridors that are also located upon higher ground.

**Objective 1.13**                      Promote the expansion of Greenways and Blueways; Create Green and Blue Neighborhoods.

Policy 1.13.1                      Continue to identify routes that can be converted to Greenways or Habitat Corridors. Continue to pursue additional public access points to the Little River.

Policy 1.13.2                      Consider modifying Land Use Regulations to provide incentives for the creation of bioswales and low impact development. The Village will set the example by considering these strategies for the improvement of public rights-of-way.

**Objective 1.14**                      Reduce speed and volume of water entering the Village from outside the Village, especially upstream.

Policy 1.14.1                      Coordinate with South Florida Water Management District and the County to encourage the slowing, reducing, or prevention of flow into the

Little River for the benefit of the Village and communities that are located downstream.

**Policy 1.14.2**

Coordinate with Miami-Dade County in order to install a seepage barrier wall along the banks of the Little River. Emphasize the reduction of flow at lower levels rather than at the banks due to the sensitivity of ground water levels to fluctuations of the water levels in the Little River.

**Objective 1.15**

Increase the rate of removal of water that has entered the Little River area and the Village.

**Policy 1.15.1**

Coordinate with the County in order to install additional storm drains, installing additional pumps, storing more water in the streets with vaults and other technologies, installation of bioswales and water retention areas, and the retrofit of road surfaces and roadbeds to be more permeable.