



Snake Warrior Island: Flood Mitigation and Neighborhood Improvement

Full Mitigation Best Practice Story

Broward County, Florida



Snake Warrior Island, FL - Flooding has plagued many of the neighborhoods in this South Broward County, Florida, area since development in the 1940s and 1950s. The area primarily consists of single-family homes and small businesses. Prior to 1997, the subdivisions did not have an appreciable stormwater drainage system. Roadside swales were originally constructed throughout the subdivisions to collect stormwater, but they quickly became clogged with silt, rendering them no longer effective.

The primary means of stormwater runoff disposal consisted of evaporation and percolation. As a result, the residents struggled with frequent street flooding, standing water for extended periods of time, and house flooding under even normal rainfall conditions. County officials recognized that a heavy, sustained downpour from a tropical storm system could be catastrophic.

The flood mitigation initiative began with a conscientious effort to involve groups and individuals who would be most impacted by a project in both the design and implementation phases. The local homeowners associations, local political leaders, and the county commission came together to identify the primary needs and interests of the communities. A drainage project became an integral part of the larger South Broward County Neighborhood Improvement Project.

Drainage improvements were combined with beautification initiatives (e.g., neighborhood entrance signs, sidewalks, and landscaping), the construction of a limited-use recreational park, and an effort to provide a centralized sewer system. Snake Warrior's Island is an example of the multidimensional configuration of the project. At completion, the land will play multiple roles as a stormwater retention area, a State archaeological site, and as a public recreation area.

The project has divided the neighborhoods into five sections and corresponding project phases. The drainage system has been designed to internally treat and convey the runoff from low intensity storms (3.5 inches of rainfall over a 24-hour period) without discharging to the wetlands system. In more localized storms, excessive runoff would flow into a canal that drains to the ocean. In more intensive, longer duration storms that raise the height of water in the canal system to full capacity, the water is then routed to the wetland system.

At Snake Warrior Island a series of eight interconnected wetlands are being created. Native wetland species, such as fire flag, pickerel weed, arrowhead, and spikerushes have been planted to support wetland functions. Existing native vegetation is being conserved on-site, and an exotic plant removal program has been implemented.

The project has not been without serious problems. One contractor has performed poorly, and has caused long delays as work has had to be redone. As a result, the project is far behind schedule, and some residents have expressed displeasure with the disruptions caused by extended periods of construction in their neighborhoods. On the other hand, work in other sections has progressed smoothly and on time. Project officials are confident that work will proceed with fewer difficulties in the remaining sections.

The project as a whole cost \$120 million funded primarily by utility operating funds and the tax-generated general fund. More than \$4.8 million has been designated for wetlands restoration at Snake Warrior's Island and runoff retention. FEMA is providing 50 percent of the Hazard Mitigation Grant Program (HMGP) funds.

Activity/Project Location

Geographical Area: **Single County (County-wide)**

FEMA Region: **Region IV**

State: **Florida**

County: **Broward County**

Key Activity/Project Information

Sector: **Public**

Hazard Type: **Flooding**

Activity/Project Type: **Wetland Restoration**

Activity/Project Start Date: **01/1996**

Activity/Project End Date: **Ongoing**

Funding Source: **Hazard Mitigation Grant Program (HMGP); Local Sources; State sources**

Funding Recipient: **Local Government**

Funding Recipient Name: **Broward County**

Activity/Project Economic Analysis

Cost: **\$4,810,440.00 (Estimated)**

Activity/Project Disaster Information

Mitigation Resulted From Federal
Disaster? **Unknown**

Value Tested By Disaster? **Unknown**

Repetitive Loss Property? **Unknown**

Reference URLs

Reference URL 1: <http://www.floodsmart.gov/floodsmart/pages/index.jsp>

Reference URL 2: <http://floridadisaster.org/>

Main Points

- Drainage improvements were combined with beautification initiatives (e.g., neighborhood entrance signs, sidewalks, and landscaping), the construction of a limited-use recreational park, and an effort to provide a centralized sewer system.
- The flood mitigation initiative began with a conscientious effort to involve groups and individuals who would be most impacted by a project in both the design and implementation phases. The local homeowners associations, local political leaders, and the county commission came together to identify the primary needs and interests of the communities.
- The project has not been without serious problems. One contractor has performed poorly, and has caused long delays as work has had to be redone. As a result, the project is far behind schedule, and some residents have expressed displeasure with the disruptions caused by extended periods of construction in their neighborhoods.
- Work in other sections has progressed smoothly and on time. Project officials are confident that work will proceed with fewer difficulties in the remaining sections.