



## Improved Drainage Washes Away Flood Worries

### Full Mitigation Best Practice Story

#### *Bayamon Municipio, Puerto Rico*

**Bayamón, PR** - Flood-related experiences left an indelible impression on Nelson Irizarry and his family in Los Dominicos, Bayamon, Puerto Rico. Once, while taking a dinner break during the clean up of their flood damaged home, the water started rising again and they had to start all over. Because they only had a few minutes to evacuate their homes during floods, his family and neighbors created a “Neighborhood Flood Watch,” establishing shifts to keep an eye on rising waters. However, during Tropical Storm Jeanne (2004) the families in Los Dominicos were able to finally go to sleep feeling safe and secure.



“Four years ago, as soon as it started raining during any heavy rain event, we tried to put all our important and beloved things in higher places, since we normally got two to four feet of floodwater inside the house,” explained Irizarry. “However, as soon as the retention tank and the drainage system were completed, we didn’t need to worry about water coming into our house.”

Recurrent flood damages were routine for some residents of San Rafael Street in Los Dominicos. These families suffered heavy losses from repeated flooding events, not only during major storm events but during isolated heavy rainfall throughout the year as well.

The existing storm water drainage system capacities were insufficient to handle storm water runoff from heavy rains. Rapid residential development in surrounding areas considerably increased water runoff and, consequently, any significant amount of rain would exacerbate the problem.

While many of the residents of the affected area were flood insurance policy owners under the National Flood Insurance Program, most of their flood-related losses were covered by the insurance. However, because of the number of flooding events, repetitive claims were made to the flood insurance fund, highlighting the need for a mitigation measure in the area.

In 2002, the Flood Mitigation Assistance program awarded funds for the improvement of the existing storm sewer. This program is funded through flood insurance premiums to carryout projects that will reduce flood insurance claims. The Municipality of Bayamon upgraded 1,003 feet of the existing storm water system, including the installation of two additional storm water drains. In addition, a water-retention tank was constructed to control rapid water build-up in the area and provide subsequent slow discharge to a nearby creek.

Since completion of this project, two severe flooding events have affected Puerto Rico, the November 2003 floods and Tropical Storm Jeanne, and no family on the San Rafael Street in Los Dominicos suffered any damages. “The system performed excellently during these events,” explained a neighbor.

#### Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region II**

State: **Puerto Rico**

County: **Bayamon Municipio**

City/Community: **Bayamon**

## Key Activity/Project Information

Sector: **Public**  
Hazard Type: **Flooding; Hurricane/Tropical Storm**  
Activity/Project Type: **Flood Control**  
Activity/Project Start Date: **01/2002**  
Activity/Project End Date: **01/2003**  
Funding Source: **Flood Mitigation Assistance (FMA)**  
Funding Recipient: **Local Government**  
Application/Project Number: **9999**

## Activity/Project Economic Analysis

Cost: **\$453,567.00 (Actual)**

## Activity/Project Disaster Information

Mitigation Resulted From Federal Disaster? **Unknown**  
Value Tested By Disaster? **Yes**  
Tested By Federal Disaster #: **No Federal Disaster specified**  
Year First Tested: **2003**  
Repetitive Loss Property? **Unknown**

## Reference URLs

Reference URL 1: <http://www.fema.gov/about/divisions/mitigation/mitigation.shtm#5>  
Reference URL 2: <http://www.floodsmart.gov/>

## Main Points

- The existing storm water drainage system capacities were insufficient to handle storm water runoff from heavy rains Bayamón, Puerto Rico. Rapid residential development in surrounding areas considerably increased water runoff.
- The Municipality of Bayamon upgraded 1,003 feet of the existing storm water system, including the installation of two additional storm water drains. In addition, a water retention tank was constructed to control rapid water build-up in the area and provide subsequent slow discharge to a nearby creek.
- Since completion of this project, two severe flooding events have affected Puerto Rico, the November 2003 floods and Tropical Storm Jeanne, and no family on the San Rafael Street in Los Dominicos suffered any damages.



Aboveground view of water retention tank.



Nelson Irizarry points to the water retention tank.