



Town of Cutler Bay

## Floodplain Mitigation Plan Technical Advisory Committee

### Mission Statement:

The mission of the Flood Mitigation Plan Technical Advisory Committee is to guide and assist the community in the development of the Town's "Floodplain Mitigation Plan."

### Goals:

Goal 1: To recommend policies to reduce flood losses, improve local hazard mitigation capability, increase public and private sector awareness, and protection of the natural and cultural environment of the Town and maintenance and upgrade of existing infrastructure.

Goal 2: To develop a "Floodplain Mitigation Plan" that provides functional policies and tools to establish realistic and cost-effective measures for the community to mitigate flooding problems within a reasonable timeframe, and consistent with the Town's floodplain ordinances.

Goal 3: Development of technical and non-technical guidelines through a multi-objective management planning process for the implementation and oversight of the "Floodplain Mitigation Plan."

Goal 4: To fully integrate the public into the planning process as required by the Flood Mitigation Assistance (FMA) and Community Rating System (CRS) programs through direct participation in development of the flood mitigation plan and attending a variety of open public meetings and forums.

### Objectives:

Objective 1: To attend meetings and be active participants in public meetings.

Objective 2: To promote the "public's" interest in the outcome of the planning process.

Objective 3: To review documentation including minutes of meetings, etc. and make comments in a timely fashion.

Objective 4: To help develop a list of potential mitigation projects that best address Cutler Bay's vulnerability to the flood hazard(s).

Page 143



## Town of Cutler Bay

Objective 5: To make decisions on the planning process throughout the development of the flood mitigation plan.

Objective 6: To respond to requests for data to supplement the development of the flood mitigation plan.

Objective 7: To review and provide comments on the draft flood mitigation plan

Objective 8: To coordinate, and participate in the public input process.

Objective 9: To inform the public, local officials, outside agencies and other interested parties about the planning process.

Objective 10: To coordinate the formal adoption of the plan by the governing body of the Town.

### **Program Activities:**

- Ensure that a comprehensive review of possible activities and mitigation measures is conducted so that the most appropriate solutions are used to address the hazard.
- Ensure that the recommended activities meet the goals and objectives of the community, do not create conflicts with other activities, and are coordinated to reduce the costs of implementing individual activities.
- Educate residents about hazards, loss reduction measures, and the natural and beneficial functions of floodplains.
- Build public and political support for projects that prevent new problems, reduce losses, and protect the natural and beneficial functions of floodplains.
- Build a constituency that wants to see the plan's recommendation implemented.



**Table A-1: FMPC Meeting Dates**

Note: All FMPC Meetings were open to the public.

Meeting Type	Meeting Topic	Meeting Date	Meeting Location
FMPC #1 (Kick-off)	1) Introduction to DMA, CRS and the planning process	October 24, 2013	Town Council Chambers
	2) Organize resources: the role of the FMPC, planning for public involvement, and coordinating with other agencies and stakeholders		
	3) Introduction to hazard identification		
FMPC #2	1) Program overview/history of project	December 11, 2013	Town Center Community Room
	2) Discussion of Florida Sunshine Law		
	3) Discussion of the FMPC 's functions and responsibilities		
	4) Development of flood mitigation plan (four phases of DMA)		
	5) Overview of Program for Public Information (PPI)		
	6) Project schedule		
FMPC #3	1) Local flooding concerns	January 16, 2014	Town Center Community Room
	2) Flood protection and flood safety publications and outreach materials		
	3) Coordination with other plans, ordinances and studies		
	4) Public information needs		
	5) Coordination letter for other agencies and stakeholders and the distribution list for letter		
FMPC #4	1) Review of public survey results	February 20, 2014	Town Center Community Room
	2) Documentation of coordination with other agencies		
	3) Identification of local flooding areas		
	4) Additional assessment of public information needs		
	5) Target audiences and stakeholders for PPI		
FMPC #5	1) Discussion of Flood Risk Assessment (Assess the Hazard)	April 22, 2014	Town Center Community Room
	2) Discussion of Vulnerability Assessment (Assess the Problem)		
	3) Preliminary results from the PPI		
FMPC #6	1) Development of Goals for FMP	July 17, 2014	Town Center Community Room
	2) Development of Mitigation Strategies for FMP		
FMPC #7	1) Review "Draft" Floodplain Mitigation Plan	September 25, 2014	Town Council Chambers
	2) Solicit comments and feedback from the FMPC		



**Table A-2: FMPC Invitation List**

No.	Name	Title/Organization
1.	Joy Duperault, CFM	NFIP Program Manager - Florida Division of Emergency Management
2.	Miles Anderson	State Hazard Mitigation Officer & NFIP Coordinator
3.	Danny Hinson, CFM, FPEM, CHS-III	Florida Community Rating System Coordinator
4.	Sherry Harper, AICP, CFM	Planning Technical Coordinator ISO Community Hazard Mitigation
5.	Heidi, Liles, CFM	ISO/CRS Specialist
6.	Susan Wilson, CFM	Floodplain Management and Insurance Branch Chief - FEMA Region IV
7.	Janice Mitchell	CRS Coordinator - FEMA Region IV
7.	Jason Hunter	NFIP - FEMA Region IV
8.	Yocelyn Galiano Gomez	Village Manager - Village of Pinecrest
9.	The Honorable Jeff Porter	Mayor of Homestead
10.	Patrick Salerno	City Manager - City of Coral Gables
11.	Ron E. Lewis	Village Manager - Village of Palmetto Bay
12.	Lee Hefty	Miami-Dade Regulatory and Economic Development Agency Environmental Resources Management Department
13.	Jack Osterholt	Director - Miami-Dade County Regulatory and Economic Resources Department
14.	Armando Vilboy	Intergovernmental & Outreach Representative - South Florida Water Management District
15.	Sandy Batchelor	Governing Board Member, SFWMD
16.	Juan M. Portuondo	Governing Board Member, SFWMD
17.	Timothy Sargent	AT Large Appointee Governing Board, SFWMD
18.	Kevin Powers	Vice Chair & At Large Appointee Governing Board, SFWMD
19.	Carlos Castillo	South Florida Region of the American Red Cross
20.	Rusty Pfost	Meteorologist in Charge, National Weather Service Miami Field Office
21.	Cathie Perkins	LMS Coordinator-Planner Miami-Dade Emergency Management
22.	To Whom It May Concern	US Army Corp of Engineers - Miami Resident Office
23.	Alberto M. Carvalho	Superintendent - Miami-Dade Public Schools
24.	The Honorable Carlos A. Gimenez	Mayor of Miami-Dade
25.	Matt Johnson	Public Information Officer - Key Biscayne National Park
26.	To Whom It May Concern	Fortis College - Cutler Bay Campus
27.	To Whom It May Concern	CBT - College - Cutler Bay Campus
28.	Paul Souza	US Fish and Wildlife Service - SE Florida Ecological Field Office
29.	Tyree Davis	Information Resource Management Director - NOAA SE Fisheries Science Ctr
30.	Susan Mason	Program Manager - FL DEP - Southeast District
31.	Alina Hudak	Interim Director, Public Works and Waste Management
32.	Mr. Gus Pego	Florida Department of Transportation District 6 Office
33.	James F. Murley	Executive Director - South Florida Regional Planning Council

**FMPC Meeting Advertisements in Local Newspapers**

<p>MIAMI HERALD   MiamiHerald.com</p> <h3>NEIGHBORS CALENDAR</h3> <p>• CALENDAR, FROM 285E</p> <p>with vendors, live music and DJ. 11 a.m. Oct. 20, News Lounge, 5200 NE Fourth Ct., Upper East Side. \$70-\$75, 785-890-9299.</p> <p><b>Halloween Psychic Fair and Witch-er's Gathering:</b> Honors our ancestors and those who watch over us in the world of spirits and asks them for their empowerment and protection. Features psychic readings, dreams interpretation and spiritual healings. 1 p.m. Oct. 25, Celestial Treasures, 5444 Main Hwy, Suite 17, Coconut Grove. \$25-\$45, 325-481-2340.</p> <p><b>Happy Hour:</b> Through December, enjoy special drink and food offers Wednesdays and Sundays. 6:30 p.m. Oct. 23, Villa Azur, 529 23rd St., Miami Beach. 325-763-8888, www.villaazur.com</p> <p><b>Hispanic Heritage Month Celebration-Dolphin Mall:</b> Features 20 percent off at the mall's participating restaurants plus live performances by cultural acts representing Spain, Colombia, Mexico, Argentina, Bolivia, Venezuela, Cuba and Puerto Rico. 10 a.m. Oct. 22, Dolphin Mall, 1401 NW 17th St., Sweetwater. Free. 325-365-7545.</p> <p><b>Happy Halloween @The DRB:</b></p> <p>• TURN TO CALENDAR, 375E</p>	 <h2>Fall Arts &amp; Crafts Festival</h2> <p><b>SATURDAY, NOVEMBER 23<sup>rd</sup> (10AM-5PM)</b></p> <p><b>14601 Country Walk Drive Miami, FL 33186</b></p> <p><b>FREE ADMISSION!</b></p> <p><b>Come &amp; Enjoy: Music, Arts, Crafts, Unique One-Of-A-Kind Items &amp; Gifts, Home Décor, Handmade Jewelry, Food Trucks, Sweet Treats, Gift Ideas For The Holidays And Much More... Fun Zone For Kids - \$4.00 Each For All Day Pass</b></p> <p><small>INTERESTED IN BEING A VENDOR? WOULD YOU LIKE TO SHOWCASE YOUR ITEMS? Contact Alisa for further information at <a href="mailto:alison@countrywalkhbo.org">alison@countrywalkhbo.org</a></small></p> <p><b>Limited Space Available!</b> <b>305-238-9336 Ext. 12</b> <small>Vendor Applications available at <a href="http://www.countrywalkhbo.org">www.countrywalkhbo.org</a></small></p>	  <p><b>General - Cosmetic and Emergency Dentistry - Botox - Fillers</b></p> <h2>50% off Teeth Whitening</h2> <p>151 Giralda Avenue Coral Gables 786.452.1748 <a href="http://www.dentalcosmeticspa.com">www.dentalcosmeticspa.com</a></p>
 <h3>VILLAGE OF PINECREST Community Center Master Plan</h3> <p>The Village of Pinecrest is developing a Master Plan for the Pinecrest Community Center. This effort will culminate with a presentation to the Village Council in early 2014. Community meetings have been scheduled to solicit public input. Please join us and attend the meeting that is most convenient for you. All three meetings will include the same presentation and equal opportunity for input.</p> <ul style="list-style-type: none"> <li>Monday, October 28, 2013, 10:00 a.m. to 12:00 noon</li> <li>Monday, October 28, 2013, 7:00 p.m. to 9:00 p.m.</li> <li>Saturday, November 2, 2013, 2:00 p.m. to 4:00 p.m.</li> </ul> <p>All meetings will be at the Pinecrest Community Center, 5855 Killian Drive, Pinecrest, Florida 33156.</p> <p>In addition, a survey has been prepared to assist in gathering information for a needs assessment and the evaluation of a potential expansion to the Community Center. The survey is available online at <a href="http://www.pinecrest-fl.gov/PCCMasterPlan">www.pinecrest-fl.gov/PCCMasterPlan</a>. Paper copies of the survey can be obtained at the Pinecrest Community Center.</p> <p>Guido H. Inguanzo, Jr., CMC Village Clerk</p> <p><a href="mailto:pccmasterplan@pinecrest-fl.gov">pccmasterplan@pinecrest-fl.gov</a>   <a href="http://www.pinecrest-fl.gov">www.pinecrest-fl.gov</a></p>	 <h3>FLOODPLAIN MITIGATION PLAN NOTICE OF PUBLIC MEETING</h3> <p>The Town of Cutler Bay will hold a meeting of the Floodplain Mitigation Advisory Committee on Thursday, October 24, 2013 at 5:30 pm in the Town Council Chambers, Cutler Bay Town Centre, 10720 Caribbean Blvd., Cutler Bay, FL 33189.</p> <p>The Committee meeting will be followed at 6:30 pm by a Community Meeting to kick-off the development of the Town of Cutler Bay Floodplain Mitigation Plan and to inform property owners how the 2012 Biggert-Waters Flood Insurance Reform Act may affect them. Interested parties are invited to attend the public meetings or provide written comments to the Town.</p> <p>The public meeting documents may be inspected by the public at the Town Clerk's Office at 10720 Caribbean Boulevard, Suite 105, Cutler Bay, FL 33189. In accordance with the Americans with Disabilities Act of 1990 (ADA), persons needing special accommodations to participate in these proceedings should contact the Town Clerk's office for assistance at (305) 234-4262 no later than four (4) business days prior to such proceeding.</p> <p>Debra Eastman, MMC, Town Clerk</p>	

The Jensens Hit The  
Road Again - 5A

Revvng Up For The Races

1B



# NEWS LEADER

Vol. 101 No. 34 Friday, November 1, 2013 ♦ 101 years of service to the South Dade community ♦ Visit [www.southdadenewsleader.com](http://www.southdadenewsleader.com) 50¢

## Flood Insurance Changes Affect Locals Cutler Bay Holds Town Hall Meeting

By Chris Himmel

Concerned for the consequences that new federal flood insurance rules could have on their properties, Cutler Bay residents attended the municipality's newly formed Flood Mitigation Advisory Committee's first Town Hall Meeting on October 24th at the Cutler Bay Town Hall Council Chambers. Brought forth as a result of legislative changes in the National Flood Insurance Program (NFIP) enacted in the Biggert-Waters Flood Insurance Reform Act of 2012, Cutler Bay officials estimate that about 300 local residential property owners will be affected.

According to a presentation made by Cutler Bay Community Development Department senior staff members, the Biggert-Waters Act (signed by President Barack Obama on July 6, 2012) is designed to stabilize the National Flood Insurance

See FLOOD 2A



Members of the Cutler Bay Town Council discuss changes to flood insurance in Florida. Photo courtesy Town of Cutler Bay

## FLOOD

Continued from 1A

Program (established by the United States Congress in 1968); enabling it to exist by having actuarial soundness. The legislation reauthorizes the NFIP through September 30, 2017.

Among the Act's intended reforms are changes in flood insurance, mapping, mitigation programs, and levees. According to an April 2013 published Federal Emergency Management Agency (FEMA) document, 81% of flood insurance policy holders under the NFIP will not be impacted by the Act. Furthermore, according to the same documents the Act "encourages Program financial stability by eliminating some artificially low rates and discounts." The same documents also state that the U.S. Congress approved the Act "to make the NFIP more sustainable and financially sound over the long term."

The Cutler Bay flooding insurance Town Hall meeting arose out of portions of the Biggert-Waters Act taking effect on

October 1st. Councilmember Sue Ellen Loyzelle expressed that the Act "has a regional impact in South Dade. Just in Cutler Bay alone it will affect over 300 homes." In a reflection of the wider geographic impact, Florida State Representative Holly Raschein (South Dade and the Keys) co-authored an October 24th dated letter sent to U.S. Senate Majority Leader Harry Reid of Nevada, Senate Minority Leader Mitch McConnell of Kentucky, Speaker of the U.S. House of Representatives John Boehner of Ohio, and House Minority Leader Nancy Pelosi of California requesting that the Biggert-Waters Act "be immediately suspended until such time as a reasonable method for instituting any rate increases can be determined." In her letter Raschein noted that in "the Florida Keys, a pending home sale stalled after receiving a quoted increase of more than \$43,350 per year. At this time last year, the policy for this home was \$695 per year."

In addition to the municipal charter authorized Flood Mitigation Advisory Committee, the Town of Cutler Bay has active flood

mitigation management ordinances, participates in the NFIP Community Ratings System (which provides discounts to policy holders based on a number municipal efforts pertaining to flooding matters, Cutler Bay's rating enables at present for flood insurance policies there to get a 20% discount). As Councilmember Loyzelle noted, the Cutler Bay Town Council sent a letter to Florida Governor Rick Scott on the impact that the Act will have on Cutler Bay.

According to Cutler Bay Building and Code Compliance Division Manager Sandra Cuervo, even if they have federally subsidized rates with their premiums, residential property owners in the municipality will not have their flood insurance policies impacted by the Act if they do not sell their primary home (where they have to live 80% of the time), let their current policies lapse, do not buy new policies (after July 6th, 2012), or if they have not had a severe, repeated loss in past flood events.

Non-primary, secondary residence, investment properties, and commercial properties

flood insurance policy holders in Cutler Bay will however be immediately affected with 25% annual rate increases until their rates reflect true flood risk.

Cutler Bay residents interviewed before and after the public meeting expressed their concerns on how the Biggert-Waters Act will impact them and their local community. As he is currently paying about \$1,700 annually for flood insurance, homeowner Andy Moravec said "This will affect me drastically I've had three different claims from localized street flooding in forty years. We've had flooding that entered the garage two other times. So when it rains heavy and we don't know when that's going to be, we mitigate by picking up everything off the floor."

A Cutler Bay resident since 1959, Art Nanni expressed his concern for how the legislation will impact the local real estate market, saying "I've known realtors who've lost closings because of flood insurance costs. Something has to be done. There has to be an equitable solution for all homeowners."



**Michael Miller**  
EXECUTIVE EDITOR  
**AROUND TOWN**

We hear from Sandra Cuervo that the Town of Cutler Bay's Floodplain Mitigation Plan Advisory Committee is inviting residents to join them for a meeting to talk about what the town is doing to protect property from flooding events. The town hopes to reduce the flood insurance rates of residents in Cutler Bay by implementing a Flood Mitigation Plan.

"Property owners that currently are required to have flood insurance, have experienced property loss or damage due to flood, or simply want to be informed are encouraged to attend the meeting," says Sandra, who is the Building & Code Compliance Division Manager, Department of Community Development.

"This will be the 2nd meeting of the advisory committee, and in this meeting the committee members will be getting information on what their functions and respon-

sibilities are as members of the committee, and their schedules." The meeting is on Wednesday, December 11, from 5:30 p.m. to 7:00 p.m., in the Community Room, Suite 220, of the Cutler Bay Town Center, located at 10720 Caribbean Blvd. For information please contact Sandra Cuervo at 305-234-4262 or visit the Town's website at <[www.cutlerbay-fl.gov](http://www.cutlerbay-fl.gov)>.

Kudos to the finance department, as we hear that the Town of Cutler Bay received a Certificate of Achievement for Excellence in Financial Reporting for the sixth consecutive year in a row. The award is presented by the Government Finance Officers Association of the United States and Canada ("GFOA") for its annual Comprehensive Annual Financial Report ("CAFR") for the fiscal year ending September 30, 2012. Quite an accomplishment for a community that was incorporated in 2005.

Great job... We hear from a reliable source that Steve Zarzecki, President of the Concerned Citizens of Cutler Bay, did a great job with the December 3rd meeting at the Cutler Ridge United Methodist Church. The church's Paella Fundraiser dinner preceding the meeting was a big hit with attendees. January's meeting should

be interesting, too, with the election of officers.

Keep it up... Well, the official Small Business Saturday event has come and gone, but the idea behind it of supporting the neighborhood businesses in your community, the "mom and pop" independent stores, restaurants and services, is a great thing to do year 'round. They will appreciate your business and often provide better customer service than the big national chains. Besides, the money you spend there stays in the community and helps the local economy.

Holiday show... Those of you familiar with Actors' Playhouse at the Miracle Theatre may want to take the kids to see "Madeline's Christmas" there. There's an "All Kids Included" Sensory-Friendly Saturday Performance on Saturday, December 14, 2013 at 11 a.m., and holiday performances on Saturday, December 21 at 7 p.m. and Sunday, December 22 at 3 p.m. The book and lyrics are by Jennifer Kirkeby, music and lyrics by Shirley Mier. This holiday favorite begins with the classic storybook line, "In an old house in Paris that was covered with vines lived twelve little girls in two straight lines."



Actors' Playhouse at the Miracle Theatre

Actors' Playhouse is located at the Miracle Theatre, 280 Miracle Mile, in Coral Gables. Call 305-444-9293 for ticket info or visit their website at <[www.actors-playhouse.org](http://www.actors-playhouse.org)>.

### Thought of the Day:

*There is nothing in the world so irresistibly contagious as laughter and good humor.*  
— Charles Dickens,  
A Christmas Carol

Gary Alan Ruse contributed to this column.

Got any tips? Contact me at 305-669-7355, ext. 249, or send emails to <[Michael@communitynewspapers.com](mailto:Michael@communitynewspapers.com)>.

Remembrance  
Day - 3A



# NEWS LEADER



Aligator Mating  
Season 7A

Vol. 102 No. 7 Friday, April 25, 2014 • 102 years of service to the South Dade community • Visit [www.southdadenewsleader.com](http://www.southdadenewsleader.com)

50¢

## Farm Bureau BBQ Saturday

Bill Losner HOF Induction, Harvest Queen Crowning Highlight Events For 2014

By Sonia Colon

Every year, Dade County honors an individual who has made an impact in Miami Dade agriculture at the Annual Barbeque and Fundraiser. At the 36th Annual Barbeque on April 26, 2014, Bill Losner will be inducted into the Hall of Honor for his outstanding contributions to agriculture. Dade County Farm Bureau is thankful to have had Bill Losner as an advocate for agriculture for so many years.

Bill Losner is a third generation Homestead resident. His grandfather, Max Losner helped open First National Bank in 1932 and became the bank president Bill followed in the footsteps of his grandfather and father and became a banker after graduating from South Dade High School in 1956.

His grandfather urged him to work in banking even though he initially wasn't interested in getting into the family business. However, he began working as a teller at 1st National Bank of South Florida. Glad he took his grandfather's



Jade Sanders will perform live at the annual Dade County Farm Bureau BBQ.

advice, Bill Losner moved on to work for the Bank of Perrine and becoming president of the bank in 1974. After Bill's father retired from 1st National Bank in 1980, Bill Losner became president of the bank.

Bill Losner has been actively volunteering for the community his entire life. He is a member of Dade County Farm

Bureau, Homestead/ Florida City Chamber of Commerce, and Rotary Club just to name a few. He has taken a particular interest in helping the farmers of Miami Dade County with several issues that have plagued the farming industry over the years.

"Everyone I grew up with was involved

See BBQ 2A

## Weathering The Rising Tide Federal Flood Insurance Changes Impact South Florida Residents

By Chris Himmel

The Town of Cutler Bay Floodplain Mitigation Plan Advisory Committee held its fifth meeting in on April 22nd at the Cutler Bay Town Center. The group organized in October 2013 is part of the municipality's efforts following Federal Emergency Management Agency (FEMA) requirements that ultimately can enable residential property holders discounts on insurance policies in the National Flood Insurance Program (NFIP). Points given by FEMA include municipal public outreach efforts.

See FLOOD 2A



David A. Stroud discusses Cutler Bay's flood mitigation plan at a recent Advisory Committee meeting. Photo by Chris Himmel

Coming Of Age

## Some Seniors Don't Slow Down

By Marion Callahan and Gwen Shrift, Calkins Media

my body working." Arbani said minutes after she finished taking a Zumba dance class.

## Baynanza Returns Yearly Park Cleanup Enters 32nd Year of Service

By Denise Sleeper

Baynanza is Miami-Dade's way of celebrating one of the

suffering from pollution and the marine environment was in extreme decline. Every April, for the past 32 years,

and Economic Resources (RER) and the Division of Environmental Resources Management (DERM) have organized Baynanza with contributions from sponsors

brations.

This year's Baynanza began March 16th at the Biscayne National Park Dante Fascell Visitor Center and has included over 30 activities that will

## FLOOD

Continued from 1A

Among the target audiences that will be reached out are the greater Cutler Bay community, developers and general contractors, homeowners associations, insurance/real estate agents, repetitive loss properties owners, school children, and Spanish language speakers (the Town has a significant Latin-American population). Stakeholders that will be reached out include Biscayne National Park, FEMA, Miami-Dade County, and the South Florida Water Management District. A Program for Public

Information (PPI) is also planned.

According to Cutler Bay Mayor Edward P. MacDougall, the municipality has also received points for storm drainage improvements and elevation for homes built 2012 onwards from ten to eleven feet. As Mayor MacDougall commented, "In terms of Cutler Bay it's important that we get our homeowners the 20-25% premiums. It's a quality of life issue."

An example of the Town's outreach was evident in Cutler Bay residents Lloyd and Paulette Kossally's attendance. It was the S.W. 185th Terrace and S.W. 79th Court neighborhood residents' first

time at the meetings.

"Neighbors have told us about the flooding that occurs at an adjoining lot. We have experienced it just after a heavy rain shower," Mr. Kossally expressed in an interview after the meeting's conclusion. Mrs. Kossally added "I found it very informative. It reinforced the need of having flood insurance where we are."

As the Cutler Bay Town Council's Liaison to the Committee, Councilmember Mary Ann Mixon expressed "It's going quite well. We're moving along, moving forward." Councilmember Mixon will report the Committee's April meeting to the Council at its May 21st

meeting.

As the meeting approached its conclusion Consultant and Facilitator to the Committee David A. Stroud, a Certified Floodplain Manager at AMEC, stated that the next meeting would include mitigation strategies, as he specified "What can we do as a community to mitigate flood damage."

Following the meeting, in an interview Mr. Stroud expressed, "We're going through a strategic planning process to developing the Flood Mitigation Plan and we're basically in the middle stages of the ten step CRS (Community Rating System, part of the NFIP) and we're at this point presenting the

Risk Assessment which identifies the flood hazards and the impact the hazards have on the community. We're looking at a finish in August 2014 for the final Flood Mitigation Plan."

Commenting on recent United States Congress passed revisions to the Biggest-Waters Flood Insurance Reform Act of 2012, Mayor MacDougall expressed "It's a good move, but after four years (2018) from now, it will be a full increase (for the residential properties)." Essentially, he sees the revisions as just delaying the flood insurance policies increase. He does see that actions such as Cutler Bay's are helpful in finding a

final solution to the pending flood insurance crisis for owners of primary residences.

As the Cutler Bay Floodplain Mitigation Plan Advisory Committee continues its work, Cutler Bay Building and Code Compliance Division Manager Sandra Cuervo pointed out its function

"This is our fifth meeting. The main purpose is to develop a flood mitigation plan for which we received a Flood Mitigation Assistance (FMA) Grant, a FEMA grant administered by the State of Florida."

**FMPC Meeting Pictures, Minutes and Sign-in Sheets**



*FMPC Meeting - October 24, 2013*



*FMPC Meeting - December 11, 2013*



*FMPC Meeting - February 20, 2014*



*FMPC Meeting - April 22, 2014*



*FMPC Meeting - July 17, 2014*

**Planning Step 2: Involve the Public**

**Table A-3: Public Meeting Dates**

Meeting Type	Meeting Topic	Meeting Date	Meeting Locations
Public Meeting #1	1) Introduction to DMA, CRS and the planning process	October 24, 2013	Town Hall
	2) Overview of BW-12 and NFIP		
Public Meeting #2	1) Overview of purpose of risk assessment	April 23, 2014	Cutler Ridge Park
	2) Presentation of risk assessment		
	3) Presentation of vulnerability assessment		
Public Meeting #3	1) Review "Draft" Floodplain Mitigation Plan	September 25, 2014	Town Hall
	2) Solicit comments and feedback from the public		
Public Meeting #4	3) Review "Draft" Floodplain Mitigation Plan	October 1, 2014	Town Council Chambers
	4) Solicit comments and feedback from the public		



*Public Meeting – April 23, 2014*



*Public Meeting – October 1, 2014*



## Public Meeting Advertisements in Local Newspapers

### **Miami Herald**

Posted on Tue, Oct. 22, 2013

#### **Cutler Bay to hold meeting on rising flood-insurance rates**

By Alex Butler  
The Miami Herald

Cutler Bay officials are looking for residents' input as they work on a plan to reduce flooding in the town.

The town's anti-flooding efforts come after last year's passage of a new federal law governing flood insurance. The [Biggert-Waters Flood Insurance Act](#) aims to reduce government subsidies that now pay part of the cost of flood insurance for many property owners. The law will not immediately affect primary residences, unless the homeowner moves, has a major claim, or changes insurance. Also, according to the Federal Emergency Management Agency, only about 20 percent of properties were subsidized to begin with.

"Homeowners who have lived in their home, are current with their flood insurance and do not let it lapse, will not see an impact," said Sandra Cuervo, building and code compliance manager for the town of Cutler Bay. "But the moment that the homeowner doesn't renew a flood policy and goes to get flood insurance again, they will see the true flood risk."

But owners of vacation or investment homes, business properties with subsidized premiums, and properties with multiple large flood claims will see an increase of 25 percent in premium rates each year until those premiums reflect full-risk rates.

The town had formed a Flood Mitigation Plan Advisory Committee to try and offset the rate hikes by improving drainage.

Now, Cutler Bay property owners get a 20 percent discount based on the town's rating of 6 under the FEMA's Community Rating System, or CRS. If the rating lowers to 5, the new discount would be 25 percent and could be effective by the end of 2014.

"Because of all of the issues with flooding in the area, we were able to qualify for a grant to get a flood mitigation plan," said Sandra Cuervo, building and code compliance manager for the town of Cutler Bay. "We need to figure out what we can do and what areas can be improved to mitigate any potential flood hazards."

The five-member committee, which includes specialists in real estate, public works and insurance, will hold its first public meeting at 6:30 p.m. Thursday, Oct. 24, at Town Hall, 10720 Caribbean Blvd.

More than 268,000 Florida homeowners will see an increase in flood insurance rates as a result of the act. Residents of older homes and residents of non-elevated structures will see the largest impact as they are at a higher level of flood risk.

"We want to analyze and determine what we are doing in CRS and what is going on as far as areas that have more prone to flooding and figure out what can be done and what kind of projects need to be spelled out and what we can do to reduce our flood risk.

"I think there are several goals," Cuervo said. "It will tie in to CRS and try to see if we can improve our rating so that our discount is higher but that is just one component. It's how we can improve what we are doing right now so that we are not exposed. It's about preparing and being able to plan short- and long-term for any flooding event."

© 2013 Miami Herald Media Company. All Rights Reserved.  
<http://www.miamiherald.com>

# Floodplain Mitigation Plan Workshop is October 1



**Concerned about flood insurance rates?** We hear from the office of Sandra Cuervo, CFM Building & Code Compliance Division Manager of the Town of Cutler Bay's Department of Community Development, that a Floodplain Mitigation Plan Workshop is scheduled for Wednesday October 1 in the Town Hall Council Chambers at 5:00 p.m. Residents are invited to attend.

The town has been working on a flood mitigation plan for some months now with the hopes of reducing the flood insurance rates of residents in Cutler Bay. A committee comprised of town residents and business owners with expertise in real estate, water management, flood insurance, construction and other areas was formed and the committee members have attended six meetings thus far with AMEC, the town consultant for the project, members of the town staff and town liaison Council Member Mary Ann Mixon. The idea is that by identifying, assessing



Council Member Mary Ann Mixon (right side) and members of the Floodplain Mitigation Advisory Committee discuss the proposed Flood Mitigation Plan.

and mitigating flood risk in the town, and coming up with safety measures that will reduce hazards during storm and other disaster caused flooding, there may be savings in insurance costs. The most recent meeting took place on Thursday, September 25.

For those interested in attending the October 1 workshop, Town Hall is located at

10720 Caribbean Blvd. Suite 220 in Cutler Bay. For more information, please contact Sandra Cuervo at 305-234-4262 or visit the town's website at <[www.cutlerbay-fl.gov](http://www.cutlerbay-fl.gov)>.

**And by the way...** Speaking of Town Hall, which is in the Cutler Bay Town Center there at 10720 Caribbean Boulevard, they still have some office space for lease in that big multisto-

ry building there behind Southland Mall. If you're interested you can find the details at <[www.cutlerbaytowncenter.com](http://www.cutlerbaytowncenter.com)>.

**New restaurant...** Miami Grill, which is a re-branding of the original Miami Subs, opened in Cutler Bay the beginning of September with a crowd of folks eager to get their favorite sandwiches, gyros and seasoned fries again. It's located at 118660 South Dixie Highway, on the west side of the street. Call them at 305-251-5816.

**Don't miss this!** The Cutler Ridge Woman's Club is having their Autumn Bunco Party on October 11th at 10:00 a.m., with lunch at noon. This is their charitable fundraiser, with door prizes, an auction table, bake sale, books, a treasure table and more. The cost is \$17. Location is at Cutler Ridge Park, 10100 SW 200 Street. For reservations or questions please call Carol Ponzini at 305-233-3965.

**Thought of the Day:**

*If we were meant to talk more than listen,  
we would have two mouths and one ear.*  
— Mark Twain

Gary Alan Ruse contributed to this column.

Got any tips? Contact me at 305-669-7355, ext. 249, or send emails to <[Michael@communitynewspapers.com](mailto:Michael@communitynewspapers.com)>.



The Town of Cutler Bay distributed a public survey written in both English and Spanish that requested public input into the flood mitigation plan planning process and the identification of mitigation activities that could lessen the risk and impact of future flood hazard events. The survey was provided on the Town website as well as distributed at community events as detailed in Section 2.

The screenshot shows the Town of Cutler Bay website. At the top, there is a banner with the text "Cutler Bay an excellent place to live, work and play" and the town logo. Below the banner, there are navigation links: "Home | Contact Us | Service Request" and "The Official Town Website". On the left side, there is a sidebar with several sections: "Your Government" (listing Mayor, Vice Mayor, Town Council, etc.), "Town Departments" (listing Finance, Parks & Recreation, etc.), and "Government Services" (listing Agendas & Minutes, Resolutions & Ordinances, etc.). The main content area is titled "News and Announcements" and contains three items:

- February 28th 2014- Caribbean Blvd Road Closures and Detour**  
Road Closure and Temporary Detour Route Map from March 5, 2014 through April 30, 2014, see attached map  
[Planned Detour](#)
- January 23rd 2014- Public Survey Flood Mitigation Plan**  
[Cutler Bay Floodplain Mitigation Plan Survey - English](#)  
[Cutler Bay Floodplain Mitigation Plan Survey - Spanish](#)  
Flood Mitigation Plan Public Survey  
The Town received a federal grant to prepare a flood mitigation plan which will assess our community's flood hazards and risks and determine how to best minimize the risks and ways to communicate those risks. Please take the survey to assist us in the planning process and help lead us to mitigation activities that should lessen the impacts of future hazard events. If you have any difficulties with the survey, please contact Sandra Cuervo at [scuervo@cutlerbay-fl.gov](mailto:scuervo@cutlerbay-fl.gov)
- January 15th 2014- Cutler Bay Senior Games**  
**MARCH 17 - 22, 2014**  
Cutler Bay Senior Games are open to any adult ages 50 and over.  
See attached flyer and registration form.  
[Senior Gamers Registration Form](#)   
[Senior Games Flyer](#)   
[Rules and Schedule](#)

The Town received 73 completed surveys. The following is a summary of combined survey responses received either via hard copy at community events or through the Town's website.



**Q1: Where do you live?**

Answered: 59

Skipped: 14

Answer Choices	Percentage	Number Responding
Cutler Bay	100.0	59
Other	0.00	0
<b>Total</b>	<b>100.0</b>	<b>59</b>

**Q2: Have you ever experienced or been impacted by high water or flooding in Cutler Bay?**

Answered: 73

Skipped: 0

Answer Choices	Percentage	Number Responding
Yes	50.7	37
No	49.3	36
<b>Total</b>	<b>100.0</b>	<b>73</b>

**Q3: How concerned are you about the possibility of your community being impacted by flooding?**

Answered: 69

Skipped: 4

Answer Choices	Percentage	Number Responding
Extremely concerned	33.3	23
Somewhat concerned	42.0	29
Not concerned	24.6	17
<b>Total</b>	<b>99.9</b>	<b>69</b>

**Q4: Is your home located in a Federal Emergency Management Agency (FEMA) floodplain?**

Answered: 67

Skipped: 6

Answer Choices	Percentage	Number Responding
Yes	50.7	34
No	23.9	16
I don't know	25.4	17
<b>Total</b>	<b>100.0</b>	<b>67</b>

**Q5: Do you have flood insurance for your home/personal property?**

Answered: 68

Skipped: 5

Answer Choices	Percentage	Number Responding
Yes	67.6	46
No	30.9	21
I don't know	1.5	1
<b>Total</b>	<b>100.0</b>	<b>68</b>



**Q6: If “no” to previous question, why not?**

Answered: 24

Skipped: 52

Answer Choices	Percentage	Number Responding
My home is not located in a floodplain	33.3	8
I rent	16.7	4
It's too expensive	16.7	4
I don't need it because it never floods	8.3	2
I don't need it because my home is elevated or otherwise protected	12.5	3
I never really considered it	0	0
Other	12.5	3
<b>Total</b>	<b>100.0</b>	<b>24</b>

**Q7: Have you taken any actions to protect your home from flood damage?**

Answered: 68

Skipped: 5

Answer Choices	Percentage	Number Responding
Yes	17.6	12
No	82.4	56
<b>Total</b>	<b>100.0</b>	<b>68</b>

**Q8: Do you know what government agency/office to contact regarding the risks associated with flooding?**

Answered: 70

Skipped: 3

Answer Choices	Percentage	Number Responding
Yes	44.3	31
No	55.7	39
<b>Total</b>	<b>100.0</b>	<b>70</b>

**Q9: What is the most effective way for you to receive information about how to make your home or neighborhood more resistant to flood damage?**

Answered: 70

Skipped: 3

Answer Choices	Percentage	Number Responding
Newspaper	17.1	12
Television advertising or programs	20.0	14
Radio advertising or programs	2.9	2
Internet	27.1	19
Email	45.7	32
Mail	42.9	30
Public workshops/meetings	11.4	8
School meetings	2.9	2
Other	0	0
<b>Total</b>	<b>170.0*</b>	<b>119*</b>

\*Note: Respondents were able to choose more than one answer choice



**Q10: In your opinion, what are some steps your local government could take to reduce the risk of flooding in your neighborhood?**

Below is a sample of responses received to Question 10

*“Place larger pipes to redirect water that fills in certain neighborhoods which are clearly shown in the FEMA flood zone chart for Cutler Bay. Also, put more water holding drain tanks along the path of where the water will finally settle. This will elevate the amount of water that settles in its final destination above ground, and more periodic removal of water from the drains that are already in place.”*

*“Better storm drainage. There are limited storm drains located throughout the area; they are clogged, not maintained...”*

*“Improve drainage in low lying areas. Also, pinpoint the specific areas in Cutler Bay that are prone to flooding and create a way of educating those citizens in prevention and preparation in the event of a flood.”*

*“1) Have emergency plan and supplies (i.e. pumps) 2) Have resident emergency supplies available (i.e. Sandbags) 3) Continue to improve drainage management and infrastructure 4) Have plan to direct traffic from flooded areas (I've seen many stalled cars on roadways that should have been blocked off and re-directed) 5) Establish communication link with residents for warning and updates.”*

*“Restore natural areas to absorb flooding. Keep gullies free of debris.”*

*“Draining in this neighborhood is inadequate and needs updating.”*

*“Survey for known flood-prone streets and intersections, and then provide adequate drains...”*

*“Plant more trees and shrubs.”*

*“Make sure all drains are clean and working. Improve drainage in areas that flood.”*

*“Provide information on how to reduce risk of flooding.”*

*“Install more efficient drainage systems.”*

*“Better planning and educate the public on climate change.”*

*“Construct new homes at higher elevations.”*



The Town of Cutler Bay posted the Draft Risk Assessment for public review and comment on the Town's website.

**June 19, 2014 Posting**

The screenshot shows the Cutler Bay website with a navigation menu on the left and a news section on the right. The navigation menu includes 'Your Government' (Mayor, Vice Mayor, Town Council, Town Manager, Town Clerk, Town Attorney, Town Charter, Elections, Hurricane Preparedness, Kids, Going Green, Press Releases, News and Announcements, Community Activities) and 'Town Departments' (Finance, Parks & Recreation, Community Development, Police, Public Works). The news section features two main items: 'June 20th 2014- Caribbean Blvd Roadway Improvement Project Update' and 'June 19th 2014- Wanted Public Input for the Floodplain Mitigation Plan'. The second item includes a detailed paragraph about the floodplain mitigation plan and a link to the 'Risk Assessment Section'.



The Town of Cutler Bay posted the entire Draft Floodplain Mitigation Plan for public review and comment on the Town's website.

**September 24, 2014 Posting**

The screenshot shows the website <http://www.cutlerbay-fl.gov/>. The main header features the Cutler Bay logo and the tagline "an excellent place to live, work and play". Below the header, there are navigation links for Home, Contact Us, and Service Request. The main content area is titled "News and Announcements" and contains the following text:

**September 24th 2014- Wanted Public Input for the Floodplain Mitigation Plan**

The Town is requesting public comments and/or suggestions for the Floodplain Mitigation Plan which is being funded by a State of Florida Grant. The Town would like to receive the public's input for the Draft of the Floodplain Mitigation Plan, which can be viewed in the attached document. Please submit any comments and/or suggestions in writing to [scuervo@cutlerbay-fl.gov](mailto:scuervo@cutlerbay-fl.gov) on or before October 8, 2014.

If you have any questions or require additional information, contact Sandra Cuervo, Building and Code Compliance Division manager at (305) 234-4262. Thank you.

Below the main announcement, there are several other news items and sections:

- September 22nd 2014- Committee Members Wanted**: The Town of Cutler Bay will hold a General Election for the positions of both Mayor and Town Council Seat 1 on November 4, 2014.
- September 17th 2014- Caribbean Boulevard Roadway Improvement Project Update 091714**: Includes links for "Sept Caribbean Blvd Update" and "Sept Project Update".
- Community News**: Includes "Lobbyists Registered with Town for 2014", "Zoning Information", "2013 Land Development Regulations", "Code Compliance Map 081214", and "Cutler Bay Number 7 in the Top 10 Cities on the Rise in Florida".
- Calendar of Meetings and Events**: Includes "Floodplain Mitigation Plan Committee Public Hearing", "September 2014 Town Committee Meetings", and "2014 Regular Town Council Meeting Schedule Updated".

The left sidebar contains navigation menus for "Your Government", "Town Departments", "Government Services", and "Your Community".



### **Planning Step 3: Coordinate**

This planning step credits the incorporation of other plans and other agencies' efforts into the development of the floodplain mitigation plan. Other agencies and organizations must be contacted to determine if they have studies, plans and information pertinent to the floodplain management plan, to determine if their programs or initiatives may affect the community's program, and to see if they could support the community's efforts. Coordination efforts with other agencies are documented in the invitation letters below.



# Appendix B



# APPENDIX B

## Appendix B: Mitigation Strategy

### Hazard Identification & Profiles

**Table B.1 Hazard Summary for the Town of Cutler Bay**

Hazard	Frequency of Occurrence	Spatial Extent	Potential Magnitude	Significance
Climate Change and Sea Level Rise	Occasional	Limited	Limited	Low
Coastal/Canal Bank Erosion	Likely	Limited	Limited	Low
Dam/Levee Failure	Unlikely	Limited	Negligible	Low
Flood: 100-/500-year	Likely	Extensive	Catastrophic	High
Flood: Stormwater/Localized Flooding	Highly Likely	Significant	Limited	Medium
Hurricane and Tropical Storms (including Storm Surge)	Likely	Extensive	Catastrophic	High
<p><b>Guidelines:</b></p> <p><b>Frequency of Occurrence:</b>            Highly Likely: Nearly 100% probability within the next year.            Likely: Between 10 and 100% probability within the next year.            Occasional: Between 1 and 10% probability within the next year.            Unlikely: Less than 1% probability within the next year.</p> <p><b>Potential Magnitude:</b>            Catastrophic: More than 50% of the area affected.            Critical: 25 to 50% of the area affected.            Limited: 10 to 25% of the area affected.            Negligible: Less than 10% of the area affected.</p> <p><b>Spatial Extent:</b>            Limited: Less than 10% of planning area.            Significant: 10-50% of planning area.            Extensive: 50-100% of planning area.</p> <p><b>Significance:</b>            Low            Medium            High</p>				



## B.1 Risk Assessment Methodology

---

### B.1.1 Calculating Likelihood of Future Occurrence

The frequency of past events is used in this section to gauge the likelihood of future occurrences. Based on historical data, the likelihood of future occurrence is categorized into one of the following classifications:

**Highly Likely:** Near 100% chance of occurrence in next year, or happens every year.

**Likely:** Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.

**Occasional:** Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.

**Unlikely:** Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

### B.1.2 Calculating Vulnerability

Vulnerability is measured in general, qualitative terms, and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential:

**Extremely Low:** The occurrence and potential cost of damage to life and property is very minimal to non-existent.

**Low:** Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.

**Medium:** Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.

**High:** Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have already occurred in the past.

**Extremely High:** Very widespread and catastrophic impact.

### B.1.3 Defining Significance (Priority) of a Hazard

Defining the significance or priority of a hazard to a community is based on a subjective analysis of several factors. This analysis is used to focus and prioritize hazards and associated mitigation measures for the plan. These factors include the following:

**Past Occurrences:** Frequency, extent, and magnitude of historic hazard events.

**Likelihood of Future Occurrences:** Based on past hazard events.

**Ability to Reduce Losses through Implementation of Mitigation Measures:** This looks at both the ability to mitigate the risk of future occurrences as well as the ability to mitigate the vulnerability of a community to a given hazard event. It also considers the extent to which existing mitigation measures are in place to adequately address the hazard.



## **B.1.4 Town of Cutler Bay Hazard ID/Vulnerability/Priority Summary**

### **Climate Change and Sea Level Rise**

- Data shows climate change and seal level rise issues are affecting the Cutler Bay planning area.
- LOFO: Occasional
- Vulnerability: Low
- Priority Hazard

### **Coastal/Canal Bank Erosion**

- Data shows coastal erosion is a problem in areas adjacent to the Cutler Bay planning area, but not within Cutler Bay itself. There are known local instances of canal bank erosion.
- LOFO: Likely
- Vulnerability: Low
- Priority Hazard

### **Dam/Levee Failure**

- 38 dams are located within Miami-Dade County; no dams are located within Cutler Bay.
- The L-31 East levee is located within Cutler Bay.
- There are no recorded dam breaches or levee failures within Miami-Dade County.
- LOFO: Unlikely
- Vulnerability: Low
- Non-Priority Hazard

### **Flood: 100-/500-year**

- Extensive 100-yr floodplain coverage within Cutler Bay
- 50 flooding records for Miami-Dade County in NCDC; 24 flooding records for Miami-Dade County in SHEDLUS
- LOFO: Likely
- Vulnerability: High
- Priority Hazard

### **Flood: Stormwater/Localized Flooding**

- Localized flooding also occurs at various times throughout the year with several areas of primary concern to the Town. Localized flooding and ponding affect streets and property.
- LOFO: Highly Likely
- Vulnerability: Medium
- Priority Hazard



### **Hurricane and Tropical Storm (including Storm Surge)**

- 5 Hurricane Disaster Declarations for Miami-Dade County (1960-2014)
- NCDC reports 31 hurricane and tropical storm occurrences for Miami-Dade County over a period of 16 years (1996- 2012)
- NCDC reports 5 records for coastal storm surge over a period of seven years (2005-2012)
- LOFO: Likely – Hurricane; Likely – Storm Surge
- Vulnerability: High
- Priority Hazard

### **B.1.5 Town of Cutler Bay Priority Hazards**

#### **Priority Hazards**

- Climate Change and Sea Level Rise
- Coastal/Canal Bank Erosion
- Flood: 100/500 year
- Flood: Stormwater/ Localized Flooding
- Hurricane and Tropical Storms (including Storm Surge)

#### **Non-Priority Hazards**

- Dam/Levee Failure



## B. 2 Mitigation Goals Development

---

### B.2.1 Formulating Mitigation Goals

The FMPC collected and provided data for the Town of Cutler Bay Floodplain Mitigation Plan. From this information, a Risk Assessment was developed that describes the risk and vulnerability of the Town to identified hazards and includes an assessment of the area's current capabilities for countering these threats through existing policies, regulations, programs, and projects.

This analysis identifies areas where improvements could or should be made. Formulating Goals leads to incorporating these improvements into the Mitigation Strategy portion of the plan. The planning goals should provide direction for what should be done to make the planning area more disaster resistant.

**GOALS:** Goals are stated without regard for implementation, that is, implementation cost, schedule, and means are not considered. Goals are defined before considering how to accomplish them so that the goals are not dependent on the means of achievement. Goals are public policy statements that:

- Represent basic desires of the jurisdiction;
- Encompass all aspects of planning area, public and private;
- Are nonspecific, in that they refer to the quality (not the quantity) of the outcome;
- Are future-oriented, in that they are achievable in the future; and
- Are time-independent, in that they are not scheduled events.

### B.2.2 Goal Development

The Cutler Bay FMPC conducted an exercise to outline its goals for this flood mitigation plan. The goal setting exercise is covered in detail in Section 4. At the end of the exercise, the FMPC agreed upon four general goals for this planning effort. The goals were refined and include:

- Goal 1:** Protect the health, safety and welfare of the citizens of Cutler Bay from the effects of flooding
- Goal 2:** Promote a public education program to encourage residents to undertake mitigation measures that reduce the effects of flood damage on private property
- Goal 3:** Protect critical and essential facilities from flood damage
- Goal 4:** Reduce the number of repetitively flooded structures

The FMPC also included objectives in support of the goals. The FMPC developed ten objectives in for implementing each goal. The objective numbers relate to the goal numbers above. The objectives include:

- Objective 1.1:** Reduce flood damage to insurable buildings and public infrastructure through stormwater improvement projects
- Objective 1.2:** Preserve open space areas, especially where there are sensitive natural areas
- Objective 1.3:** Promote higher development and design standards to protect new buildings from flood damage



- Objective 2.1:** Encourage residents to assume an appropriate level of responsibility for their own flood protection
- Objective 2.2:** Promote flood insurance as a property protection measure against potential flood damage
- Objective 2.3:** Develop a public education program for the local schools
- Objective 3.1:** Seek county, state and federal support for mitigation projects
- Objective 3.2:** Prioritize critical and essential facilities in need of protection from potential flood damage
- Objective 4.1:** Leverage local, state and federal grant funding to facilitate mitigation actions such as elevation, acquisition, or floodproofing
- Objective 4.2:** Target repetitive loss properties for implementation of mitigation projects

### **B.3 Categories of Mitigation Measures Considered**

---

The following categories are based on the Community Rating System.

- Prevention
- Property Protection
- Natural Resource Protection
- Emergency Services
- Structural Projects
- Public Information

### **B.4 Alternative Mitigation Measures per Category**

---

Note: the CRS Credit Sections are based on the 2013 CRS Coordinator's Manual.

#### **B.4.1 Preventative and Regulatory Measures**

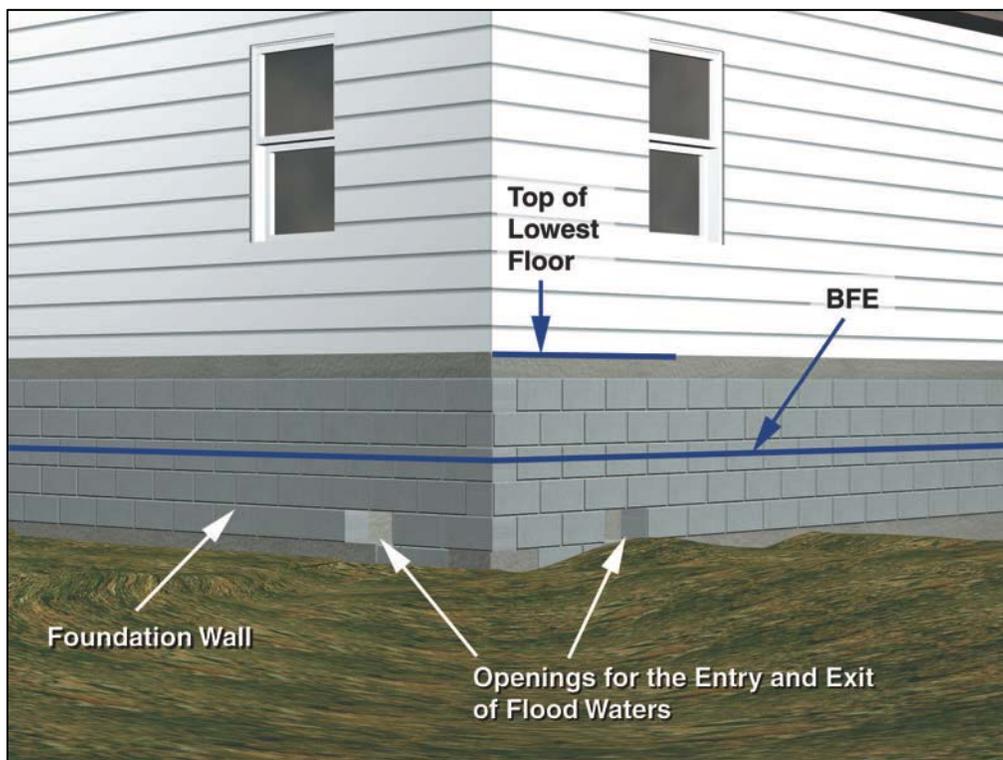
Preventive measures are designed to keep a problem - such as flooding - from occurring or from getting worse. The objective of preventive measures is to ensure that future development is not exposed to damage and does not cause an increase in damages to other properties. Building, zoning, planning and code enforcement offices usually administer preventive measures. Some examples of types of preventive measures include:

- Building codes
- Planning and zoning
- Open space preservation
- Floodplain regulations
- Stormwater management

## Building Codes

Building codes provide one of the best methods of addressing natural hazards. When properly designed and constructed according to code, the average building can withstand many of the impacts of natural hazards. Hazard protection standards for all new and improved or repaired buildings can be incorporated into the local building code. Building codes can ensure that the first floors of new buildings are constructed to be higher than the elevation of the 100-year flood (the flood that is expected to have a one percent chance of occurring in any given year). This is shown in Figure B.1.

Just as important as having code standards is the enforcement of the code. Adequate inspections are needed during the course of construction to ensure that the builder understands the requirements and is following them. Making sure a structure is properly elevated and anchored requires site inspections at each step.



Source: FEMA Publication: *Above the Flood: Elevating Your Floodprone House, 2000*

**Figure B.1 – Building Codes and Flood Elevations**

### **Local Implementation**

The Town of Cutler Bay has adopted the *2010 Florida Building Code*. Cutler Bay has a 1 foot freeboard requirement and might consider adding an additional foot of freeboard.

### **Reducing Future Flood Losses**

Future flood losses in the Town of Cutler Bay will be reduced through the implementation of the 2010 Florida Building Code with the sloping requirement of grade away from buildings. Further implementation of a 1 foot freeboard requirement will provide an extra level of protection to buildings constructed in the Town.



### **CRS Credit**

The CRS encourages strong building codes. It provides credit in two ways: points are awarded based on the community's Building Code Effectiveness Grading Schedule (BCEGS) classification and points are awarded for adopting the International Code series. Cutler Bay's BCEGS rating is a Class 4 for both residential and commercial. The Town of Cutler Bay has adopted the *2010 Florida Building Code* which is based on national model building codes and national consensus standards which are amended where necessary for Florida's specific needs. The Florida Building Code is updated every three years. Cutler Bay currently receives credit for Activity 430 – Higher Regulatory Standards.

### **Planning and Zoning**

Building codes provide guidance on how to build in hazardous areas. Planning and zoning activities direct development away from these areas, particularly floodplains and wetlands. They do this by designating land uses that are compatible with the natural conditions of land that is prone to flooding, such as open space or recreation. Planning and zoning activities can also provide benefits by simply allowing developers more flexibility in arranging improvements on a parcel of land through the planned development approach.

### **Local Implementation**

#### **Comprehensive Plan**

The Town of Cutler Bay Comprehensive Growth Management Plan was adopted in April 2008. A Comprehensive Plan, in broad terms, is a policy statement to guide the future placement and development of community facilities. It is the basis for a community's zoning, subdivision and design regulations and a community's official maps and amendments to the zoning, subdivision and design ordinances. The future land use element of the plan represents the Town's vision for its development and redevelopment during the five, 10 and 15 year planning periods. The future land use maps and districts will serve as the foundation for subsequent development of more detailed Land Development Regulations and special area plans. These regulations and plans must be consistent with and further the implementation of the future land use element of the Comprehensive Growth Management Plan and its goals, objectives and policies in accordance with the Town's master planning document.

#### **Zoning and Subdivision Regulations**

The Town of Cutler Bay's Land Development Regulations were adopted in June 2012. The purpose of the Town's Land Development Regulations is to provide the minimum regulations necessary to facilitate safe and orderly growth, and to also ensure that growth forms an integral part of a community of functional neighborhoods, retail and commercial centers; increases collective security and community identity to promote civic awareness and responsibility; and enhances the quality of life for the entire Town to ensure the greatest possible economic and social benefits for all residents. These regulations are intended to promote consistency with the goals, objectives and policies of the Town's Growth Management Plan.

#### **Capital Improvement Plan**

The Town of Cutler Bay Stormwater Master Plan identified 17 priority sub-basins that were ranked from worst to best according to current performance against established Plan goals. The Capital Improvement Program is based on the results of the 17 priority sub-basin studies. Recommended improvements to achieve the stated performance goals were identified for each basin, and a ten-year CIP summary (2008-2018) including preliminary budgets has been prepared for each basin.



### ***Reducing Future Flood Losses***

Zoning and comprehensive planning can work together to reduce future flood losses by directing development away from hazard prone areas. The Town of Cutler Bay has a large wetland or natural area on the east side of town which is designated as “conservation” under the Town’s Growth Management Plan.

### **Open Space Preservation**

Keeping the floodplain and other hazardous areas open and free from development is the best approach to preventing damage to new developments. Open space can be maintained in agricultural use or can serve as parks, greenway corridors and golf courses.

Comprehensive and capital improvement plans should identify areas to be preserved by acquisition and other means, such as purchasing an easement. With an easement, the owner is free to develop and use private property, but property taxes are reduced or a payment is made to the owner if the owner agrees to not build on the part set aside in the easement.

Although there are some federal programs that can help acquire or reserve open lands, open space lands and easements do not always have to be purchased. Developers can be encouraged to dedicate park land and required to dedicate easements for drainage and maintenance purposes. These are usually linear areas along property lines or channels. Maintenance easements also can be donated by streamside property owners in return for a community maintenance program.

### ***Reducing Future Flood Losses***

Creating or maintaining open space is the primary way to reduce future flood losses. The Town of Cutler Bay has many open space and natural parcels which serve to reduce future flood losses by remaining open. These parks and natural preserved areas create opportunities for the public to benefit from education and recreation while eliminating potential for future flooding.

### ***Local Implementation***

The Town currently preserves approximately 1,904 acres in the SFHA as open space. Credit is also provided for open space that is deed restricted and preserved in a natural state.

### ***CRS Credit***

Cutler Bay currently receives credit for Activity 420 – Open Space Preservation. Preserving flood prone areas as open space is one of the highest priorities of the Community Rating System. The credits in the 2013 manual have doubled for OSP (Open Space Preservation). Credit is based on the area of the floodplain that is designated as public undeveloped properties, parks, wildlife refuges, golf courses, or other uses that can be kept vacant through ownership or regulations.

### **Floodplain Regulations**

The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA). As a condition of making flood insurance available for their residents, communities that participate in the NFIP agree to regulate new construction in the area subject to inundation by the 100-year (base) flood. The floodplain subject to these requirements is shown as an A or V Zone on the Flood Insurance Rate Map (FIRM).

### ***Reducing Future Flood Losses***

The following regulatory requirements help Cutler Bay reduce future flood losses especially through freeboard and requiring regulatory permitting for floodplain construction. Additional higher standards can also help prevent future flood losses in Cutler Bay.



There are five major floodplain regulatory requirements. Additional floodplain regulatory requirements may be set by state and local laws.

- 1) All development in the 100-year floodplain must have a permit from the community. The NFIP regulations define "development" as any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.
- 2) Development along a river or other channel cannot obstruct flows so as to cause an increase in flooding on other properties. An analysis must be conducted to demonstrate that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.
- 3) New buildings may be built in the floodplain, but they must be protected from damage from the base flood. In riverine floodplains, the lowest floor of residential buildings must be elevated to be at or above the base flood elevation (BFE). Nonresidential buildings must be either elevated or floodproofed.
- 4) Under the NFIP, a "substantially improved" building is treated as a new building. The NFIP regulations define "substantial improvement" as any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the start of construction of the improvement. This requirement also applies to buildings that are substantially damaged.
- 5) Communities are encouraged to adopt local ordinances that are more comprehensive or provide more protection than the federal criteria. The NFIP's Community Rating System provides insurance premium credits to recognize the additional flood protection benefit of higher regulatory standards.

#### **Local Implementation**

The Town of Cutler Bay has many higher standards in place including 1 foot of Freeboard and may consider other options for additional higher standards for its 2015 Cycle Visit.

#### **Manufactured Homes**

Manufactured or mobile homes are usually not regulated by local building codes. They are typically built in a factory in another state and are shipped to a site. They do have to meet construction standards set by the U.S. Department of Housing and Urban Development. All mobile homes constructed after 1976 must comply with HUD's National Manufactured Home Construction and Safety Standards. These standards apply uniformly across the country and it is illegal for a local unit of government to require additional construction requirements. Local jurisdictions may regulate the location of these structures and their on-site installation.

The NFIP allows communities to exempt mobile homes in existing mobile home parks from some of the flood protection requirements. Cutler Bay's Floodplain Management Ordinance requires the following for manufactured homes:

- a. All manufactured homes that are placed, or substantially improved with Zones A1-30, AH, and AE, on sites (i) outside of an existing manufactured home park or subdivision, (ii) in a new manufactured home park or subdivision, (iii) in an expansion to an existing manufactured home park or subdivision, or (iv) in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood, the lowest flood be elevated on a permanent foundation to no lower than one foot above the base flood elevation,



beginning March 1, 2009, and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

- b. All manufactured homes to be placed or substantially improved in an existing manufactured home park or subdivision within Zones A-1, AH, and AE, that are not subject to the provisions of paragraph (a) above, must be elevation so that either:
  - i. The lowest floor of the manufactured home is elevated to no lower than one foot above the base flood elevation, or
  - ii. The manufactured home chassis is supported by reinforced piers or other foundation elements of at least an equivalent strength that are no less than 48 inches in height above the grade and securely anchored to an adequate foundation system to resist flotation, collapse and lateral movement.
- c. Placement of manufactured homes is prohibited within the regulatory floodway, except in an existing manufactured home park or subdivision.

There are additional requirements for recreational vehicles.

#### **Residential Construction (Reduce Future Flood Losses - Regulatory)**

The Town's Floodplain Management Ordinance requires that all new residential construction or substantial improvement shall have the lowest floor, including the basement, elevated to no lower than one foot above the base flood elevation. Should solid foundation perimeter walls be used to elevate a structure, openings sufficient to facilitate automatic equalization of flood hydrostatic forces on both sides of the exterior walls shall be provided.

#### **Non-Residential Construction (Reduce Future Flood Losses- Regulatory)**

For non-residential new construction or substantial improvement, the Town's Code requires that the lowest floor, including the basement, be elevated to no lower than one foot above the base flood elevation. All buildings located in A-Zones may be flood-proofed, in lieu of being elevated, provided that all areas of the building components below the base flood elevation plus one foot are water tight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy.

#### **Reduce Future Flood Losses**

In addition to residential construction, non-residential construction and substantial improvements, all standards shall be:

- Designed or modified and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy
- Constructed in ways that minimize flood damage
- Constructed with materials resistant to flood damage
- Constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities, designated or located so as to prevent water from entering or accumulating within components during flooding

#### **CRS Credit**

Cutler Bay currently receives credit for Activity 430 – Higher Regulatory Standards. The Town receives credit for enforcing regulations that require freeboard for new and substantial improvement construction, cumulative substantial improvement, lower substantial improvement, other higher regulatory standards, and state mandated regulatory standards. Credit is also provided for a BCEGS



classification of 4/4 and for staff education and certification as a floodplain manager. The Town of Cutler Bay has several CFMs on staff and is trying to add more.

### **Stormwater Management**

Stormwater runoff is increased when natural ground cover is replaced by urban development. Development in the watershed that drains to a river can aggravate downstream flooding, overload the community's drainage system, cause erosion, and impair water quality.

There are three ways to prevent flooding problems caused by stormwater runoff:

- 1) Regulating development in the floodplain to ensure that it will be protected from flooding and that it won't divert floodwaters onto other properties, and
- 2) Regulating all development to ensure that the post-development peak runoff will not be greater than it was under pre-development conditions.
- 3) Set construction standards so buildings are protected from shallow water.

### **Local Implementation**

The Town's Stormwater Master Plan created in March 2008 identifies opportunities to protect surface water quality and reduce flooding within the Town limits. The Stormwater Master Plan includes the following components:

- A review of existing stormwater and drainage data, reports and plans available through SFWMD, Miami-Dade County and Town sources
- A field inventory of existing drainage structures
- A drainage atlas including the type, size and general location of drainage infrastructure elements
- Basin and sub-basin delineations based on available survey data and other sources
- Hydrologic and hydraulic modeling analysis of the existing systems and their capacity to handle the 5-year/24-hour, 10-year/24-hour, 25-year/72-hour, 50-year/72-hour, and 100-year/72-hour storm events
- Identification and analysis of alternatives for improvements needed to alleviate deficiencies identified in the hydrologic and hydraulic modeling phase
- Development of an optional Capital Improvement Plan (CIP) to implement the identified improvements

The performance goals representing the minimum standards for sub-basin performance are as follows:

- During the five-year return design storm event, flooding in local and collector roadways travel lanes should not exceed the edge of the roadway pavement. This goal is consistent with SFWMD and Miami-Dade County requirements.
- During the 10-year return design storm event, flooding in roadway travel lanes should be below the crown of the roadway. This goal is consistent with Miami-Dade County requirements.
- During the 100-year return design storm event, flooding should be below the building finish floor elevations. This goal is consistent with Miami-Dade County requirements.
- Drainage sub-basins which discharge directly into canals should have water quality pre-treatment for the first one inch of runoff. This standard is consistent with federal, state and county water quality treatment requirements.
- Drainage sub-basins which discharge directly into lakes or drainage wells should have water quality pre-treatment for the first one-half inch of runoff. This standard is consistent with federal, state and county water quality treatment requirements.



### **Reducing Future Flood Losses**

Stormwater management and the requirement that post development runoff cannot exceed pre-development conditions is a great way to prevent future flood losses. Because Miami-Dade County has similar stormwater requirements, Cutler Bay benefits by having no one up stream controlling runoff from development in a different manner. Retention and detention requirements help to reduce future flood losses.

### **CRS Credit**

Cutler Bay currently receives credit for Activity 450 – Stormwater Management. The community enforces regulations for stormwater management, freeboard in non-SFHA zones, soil and erosion control and water quality.

### **Conclusions (Adoption or revisions of such plans and ordinances)**

- State administration of mobile or manufactured homes does not guarantee that they will be adequately tied down or protected from flooding or other hazards
- Most zoning ordinances don't designate floodplain as a special type of district
- It is not feasible for a local community to exceed state building code requirements

### **Recommendations**

- The Town of Cutler Bay should continue to implement activities in the CRS Program under the guidance of the 2013 CRS Coordinator's Manual
- Cutler Bay should consider adding one additional foot of Freeboard
- Cutler Bay should not consider changing its Growth Management Plan as the largest open space tract of land within the Town is already identified as "conservation" with no development allowed.

## **B.4.2 Property Protection Measures**

Property protection measures are used to modify buildings or property subject to damage. Property protection measures fall under three approaches:

- Modify the site to keep the hazard from reaching the building,
- Modify the building (retrofit) so it can withstand the impacts of the hazard, and
- Insure the property to provide financial relief after the damage occurs.

Property protection measures are normally implemented by the property owner, although in many cases technical and financial assistance can be provided by a government agency.

### **Keeping the Hazard Away**

Generally, natural hazards do not damage vacant areas. As noted earlier, the major impact of hazards is to people and improved property. In some cases, properties can be modified so the hazard does not reach the damage-prone improvements. For example, a berm can be built to prevent floodwaters from reaching a house.

### **Flooding**

There are five common methods to keep a flood from reaching and damaging a building:

- Erect a barrier between the building and the source of the flooding.
- Move the building out of the floodprone area.



- Elevate the building above the flood level.
- Demolish the building.
- Replace the building with a new one that is elevated above the flood level.

### **Barriers**

A flood protection barrier can be built of dirt or soil (a "berm") or concrete or steel (a "floodwall"). Careful design is needed so as not to create flooding or drainage problems on neighboring properties. Depending on how porous the ground is, if floodwaters will stay up for more than an hour or two, the design needs to account for leaks, seepage of water underneath, and rainwater that will fall inside the perimeter. This is usually done with a sump or drain to collect the internal groundwater and surface water and a pump and pipe to pump the internal drainage over the barrier.

Barriers can only be built so high. They can be overtopped by a flood higher than expected. Barriers made of earth are susceptible to erosion from rain and floodwaters if not properly sloped, covered with grass, and properly maintained. A berm can also settle over time, lowering its protection level. A floodwall can crack, weaken, and lose its watertight seal. Therefore, barriers need careful design and maintenance (and insurance on the building, in case of failure).

### **Relocation**

Moving a building to higher ground is the surest and safest way to protect it from flooding. While almost any building can be moved, the cost increases for heavier structures, such as those with exterior brick and stone walls, and for large or irregularly shaped buildings. However, experienced building movers can handle any job. In areas subject to flash flooding, deep waters, or other high hazard, relocation is often the only safe approach. Relocation is also preferred for large lots that include buildable areas outside the floodplain or where the owner has a new flood-free lot (or portion of the existing lot) available.

### **Building Elevation**

Raising a building above the flood level can be almost as effective as moving it out of the floodplain. Water flows under the building, causing little or no damage to the structure or its contents. Raising a building above the flood level is cheaper than moving it and can be less disruptive to a neighborhood. Elevation has proven to be an acceptable and reasonable means of complying with floodplain regulations that require new, substantially improved, and substantially damaged buildings to be elevated above the base flood elevation.

### **Demolition**

Some buildings, especially heavily damaged or repetitively flooded ones, are not worth the expense to protect them from future damages. It is cheaper to demolish them and either replace them with new, flood protected structures, or relocate the occupants to a safer site. Demolition is also appropriate for buildings that are difficult to move - such as larger, slab foundation or masonry structures - and for dilapidated structures that are not worth protecting. Generally, demolition projects are undertaken by a government agency, so the cost is not borne by the property owner, and the land is converted to public open space use, like a park.

### **Pilot Reconstruction**

If a building is not in good shape, elevating it may not be worthwhile or it may even be dangerous. An alternative is to demolish the structure and build a new one on the site that meets or exceeds all flood protection codes. FEMA funding programs refer to this approach as "pilot reconstruction." It is still a pilot program, and not a regularly funded option. Certain rules must be followed to qualify for federal funds for pilot reconstruction:



- Pilot reconstruction is only possible after it has been shown that acquisition or elevation are not feasible, based on the program's criteria.
- Funds are only available to people who owned the property at the time of the event for which funding is authorized.
- It must be demonstrated that the benefits exceed the costs.
- The new building must be elevated to the advisory base flood elevation.
- The new building must not exceed more than 10% of the old building's square footage.
- The new building must meet all flood and wind protection codes.
- There must be a deed restriction that states the owner will buy and keep a flood insurance policy.
- The maximum federal grant is 75% of the cost, up to \$150,000. FEMA is developing a detailed list of eligible costs to ensure that disaster funds are not used to upgrade homes.
- 

### ***Local Implementation***

The Town of Cutler Bay does not currently receive credit for Activity 520 – Acquisition and Relocation or Activity 530 – Flood Protection.

### ***CRS Credit***

The CRS provides the most credit points for acquisition and relocation under Activity 520, because this measure permanently removes insurable buildings from the floodplain. The CRS credits barriers and elevating existing buildings under Activity 530. Elevating a building above the flood level will also reduce the flood insurance premiums on that individual building. Because barriers are less secure than elevation, not as many points are provided. Higher scores are possible, but they are based on the number of buildings removed compared to the number remaining in the floodplain.

### **Retrofitting**

An alternative to keeping the hazard away from a building is to modify or retrofit the site or building to minimize or prevent damage. There are a variety of techniques to do this, as described below.

#### ***Dry Floodproofing***

Dry floodproofing means making all areas below the flood protection level watertight. Walls are coated with waterproofing compounds or plastic sheeting. Openings, such as doors, windows and vents, are closed, either permanently, with removable shields, or with sandbags. Dry floodproofing of new and existing nonresidential buildings in the regulatory floodplain is permitted under state, FEMA and local regulations. Dry floodproofing of existing residential buildings in the floodplain is also permitted as long as the building is not substantially damaged or being substantially improved. Owners of buildings located outside the regulatory floodplain can always use dry floodproofing techniques.

Dry floodproofing is only effective for shallow flooding, such as repetitive drainage problems. It does not protect from the deep flooding along lakes and larger rivers caused by hurricanes or other storms.

#### ***Wet Floodproofing***

The alternative to dry floodproofing is wet floodproofing: water is let in and everything that could be damaged by a flood is removed or elevated above the flood level. Structural components below the flood level are replaced with materials that are not subject to water damage. For example, concrete block walls are used instead of wooden studs and gypsum wallboard. The furnace, water heater and laundry facilities are permanently relocated to a higher floor. Where the flooding is not deep, these appliances can be raised on blocks or platforms.



### ***Local Implementation***

The Town of Cutler Bay does not currently receive credit for Activity 530 – Flood Protection.

### ***CRS Credit***

The credit for Activity 530 is based on the combination of flood protection techniques used and the level of flood protection provided. Points are calculated for each protected building. Bonus points are provided for the protection of repetitive loss buildings and critical facilities.

### **Insurance**

Technically, insurance does not mitigate damage caused by a natural hazard. However, it does help the owner repair, rebuild, and hopefully afford to incorporate some of the other property protection measures in the process. Insurance offers the advantage of protecting the property, as long as the policy is in force, without requiring human intervention for the measure to work.

### ***Private Property***

Although most homeowner's insurance policies do not cover a property for flood damage, an owner can insure a building for damage by surface flooding through the NFIP. Flood insurance coverage is provided for buildings and their contents damaged by a "general condition of surface flooding" in the area. Most people purchase flood insurance because it is required by the bank when they get a mortgage or home improvement loan. Usually these policies just cover the building's structure and not the contents. Contents coverage can be purchased separately. Renters can buy contents coverage, even if the owner does not buy structural coverage on the building. Most people don't realize that there is a 30-day waiting period to purchase a flood insurance policy and there are limits on coverage.

### ***Public Property***

Governments can purchase commercial insurance policies. Larger local governments often self-insure and absorb the cost of damage to one facility, but if many properties are exposed to damage, self-insurance can drain the government's budget. Communities cannot expect federal disaster assistance to make up the difference after a flood.

Under Section 406(d) of the Stafford Act:

"If an eligible insurable facility damaged by flooding is located in a [mapped floodplain] ... and the facility is not covered (or is underinsured) by flood insurance on the date of such flooding, FEMA is required to reduce Federal disaster assistance by the maximum amount of insurance proceeds that would have been received had the buildings and contents been fully covered under a National Flood Insurance Program (NFIP) standard flood insurance policy. [Generally, the maximum amount of proceeds for a non-residential property is \$500,000.]

[Communities] Need to:

- Identify all insurable facilities, and the type and amount of coverage (including deductibles and policy limits) for each. The anticipated insurance proceeds will be deducted from the total eligible damages to the facilities.
- Identify all facilities that have previously received Federal disaster assistance for which insurance was required. Determine if insurance has been maintained. A failure to maintain the required insurance for the hazard that caused the disaster will render ineligible for Public Assistance funding...
- [Communities] must obtain and maintain insurance to cover [their] facility - buildings, equipment, contents and vehicles - for the hazard that caused the damage in order to receive Public Assistance funding. Such coverage must, at a minimum, be in the amount of the eligible



project costs. FEMA will not provide assistance for that facility in future disasters if the requirement to purchase insurance is not met. - FEMA Response and Recovery Directorate Policy No. 9580.3, August 23, 2000

- In other words, the law expects public agencies to be fully insured as a condition of receiving federal disaster assistance.

### ***Local Implementation***

Flood insurance information for the Town is provided in Section 3.2.4. A Program for Public Information is currently under development.

### ***CRS Credit***

There is no credit for purchasing flood insurance, but the CRS does provide credit for local public information programs that explain flood insurance to property owners. The CRS also reduces the premiums for those people who do buy NFIP coverage. The Town of Cutler Bay currently receives credit for Activity 330 – Outreach Projects.

### **Conclusions**

- There are several ways to protect properties from flood damage. The advantages and disadvantages of each should be carefully examined for that particular situation
- Property owners can implement some property protection measures at little cost, especially for sites in areas of low level flooding
- Approximately 25% of properties in Cutler Bay have a flood insurance policy
- The local government can promote and support property protection through outreach and financial incentives
- Property protection measures can protect the most flood-prone buildings in the Town such as those which are repetitively flooded

### **Recommendations**

- Encourage homeowners to take responsibility for protecting their own properties by providing retrofitting advice and assistance
- Encourage the promotion of flood insurance to increase the policy base in Cutler Bay
- Target Repetitive loss properties by leveraging, local, state, and federal funding opportunities

### **B.4.3 Natural Resource Protection**

Resource protection activities are generally aimed at preserving (or in some cases restoring) natural areas. These activities enable the naturally beneficial functions of fields, floodplains, wetlands, and other natural lands to operate more effectively. Natural and beneficial functions of watersheds, floodplains and wetlands include:

- Reduction in runoff from rainwater and snow melt in pervious areas
- Infiltration that absorbs overland flood flow
- Removal and filtering of excess nutrients, pollutants and sediments
- Storage of floodwaters
- Absorption of flood energy and reduction in flood scour
- Water quality improvement
- Groundwater recharge
- Habitat for flora and fauna
- Recreational and aesthetic opportunities



As development occurs, many of the above benefits can be achieved through regulatory steps for protecting natural areas or natural functions. This section covers the resource protection programs and standards that can help mitigate the impact of natural hazards, while they improve the overall environment. Seven areas are reviewed:

- Wetland protection
- Erosion and sedimentation control
- River restoration
- Best management practices
- Dumping regulations
- Urban forestry
- Farmland protection

### **Wetland Protection**

Wetlands are often found in floodplains and topographically depressed areas of a watershed. Many wetlands receive and store floodwaters, thus slowing and reducing downstream flows. They also serve as a natural filter, which helps to improve water quality, and they provide habitat for many species of fish, wildlife and plants.

#### ***Local Implementation***

According to the Town's Comprehensive Growth Management Plan, the Town contains significant coastal wetlands adjacent to Biscayne National Park. These wetlands are an important component of South Florida's ecosystem, and will be conserved and, where appropriate, restored. Approximately 1,430 acres of these wetlands are in public ownership, and all are designated for Conservation purposes.

The Comprehensive Everglades Restoration Plan (CERP) is a plan to restore and preserve the Everglades, enhance water supplies, and maintain flood protection. The U.S. Army Corps of Engineers has partnered with the South Florida Water Management District and numerous other local, state, tribal and federal partners to reach a common goal based on a "vision" for the future quality of the natural and human systems in South Florida. The Biscayne Bay Coastal Wetlands phase of CERP is located along the undeveloped lands that make up the south and eastern areas of the Town of Cutler Bay. The project benefits will include restoring Biscayne Bay which includes Biscayne National Park.

Objective C-6 in the Town's Comprehensive Growth Management Plan is to ensure that identified wetlands under county, regional, state or federal jurisdiction are protected from unlawful, intrusive actions that could result in environmental damage or degradation.

#### ***CRS Credit***

There is credit for preserving open space in its natural condition or restored to a state approximating its natural condition. The credit is based on the percentage of the floodplain that can be documented as wetlands protected from development by ownership or local regulations. The Town of Cutler Bay currently receives credit for Activity 420 – Open Space Preservation.

### **Erosion and Sedimentation Control**

Farmlands and construction sites typically contain large areas of bare exposed soil. Surface water runoff can erode soil from these sites, sending sediment into downstream waterways. Erosion also occurs along stream banks and shorelines as the volume and velocity of flow or wave action destabilize and wash away the soil.



Sediment suspended in the water tends to settle out where flowing water slows down. This can clog storm drains, drain tiles, culverts and ditches and reduce the water transport and storage capacity of river and stream channels, lakes and wetlands. When channels are constricted and flooding cannot deposit sediment in the bottomlands, even more sediment is left in the channels. The result is either clogged streams or increased dredging costs.

Not only are the drainage channels less able to perform their job, but the sediment in the water reduces light, oxygen and water quality, and often carries chemicals, heavy metals and other pollutants. Sediment has been identified by the US EPA as the nation's number one nonpoint source pollutant for aquatic life.

There are two principal strategies to address these problems: minimize erosion and control sedimentation. Techniques to minimize erosion include phased construction, minimal land clearing, and stabilizing bare ground as soon as possible with vegetation and other soil stabilizing practices.

If erosion occurs, other measures are used to capture sediment before it leaves the site. Silt fences, sediment traps and vegetated filter strips are commonly used to control sediment transport. Runoff from the site can be slowed down by terraces, contour strip farming, no-till farm practices, hay or straw bales, constructed wetlands, and impoundments (e.g., sediment basins and farm ponds). Slowing surface water runoff on the way to a drainage channel increases infiltration into the soil and reduces the volume of topsoil eroded from the site.

Erosion and sedimentation control regulations mandate that these types of practices be incorporated into construction plans. The most common approach is to require applicants for permits to submit an erosion and sediment control plan for the construction project. This allows the applicant to determine the best practices for the site.

### ***Local Implementation***

Cutler Bay's ordinances do include standards for erosion and sedimentation control and Cutler Bay does currently receive credit for Activity 450 – Stormwater Management.

### ***CRS Credit***

Credit is available for the Erosion and Sediment Control (ESC) element under Activity 450 for regulating activities throughout the watershed to minimize erosion on construction sites that result could in sedimentation and water pollution.

### **Stream Restoration**

There is a growing movement that has several names, such as "stream conservation," "bioengineering," or "riparian corridor restoration." The objective of these approaches is to return streams, stream banks and adjacent land to a more natural condition, including the natural meanders. Another term is "ecological restoration," which restores native indigenous plants and animals to an area.

A key component of these efforts is to use appropriate native plantings along the banks that resist erosion. This may involve retrofitting the shoreline with willow cuttings, wetland plants, or rolls of landscape material covered with a natural fabric that decomposes after the banks are stabilized with plant roots.

In all, restoring the right vegetation to a stream has the following advantages:

- Reduces the amount of sediment and pollutants entering the water
- Enhances aquatic habitat by cooling water temperature
- Provides food and shelter for both aquatic and terrestrial wildlife



- Can reduce flood damage by slowing the velocity of water
- Increases the beauty of the land and its property value
- Prevents property loss due to erosion
- Provides recreational opportunities, such as hunting, fishing and bird watching
- Reduces long-term maintenance costs

### ***Local Implementation***

The following restoration based objectives and policies can be found in the Town's Comprehensive Growth Management Plan. Each objective has supporting policies upon which Town regulations can be based:

#### Coastal Management

- Protect, conserve and enhance coastal wetlands and living marine resources within the coastal area of the Town of Cutler Bay.
- The Town will support Miami-Dade County to reduce the number of instances water quality standards are exceeded for coastal and estuarine waters.
- The Town shall minimize the disturbance of natural shorelines that provide stabilization and protect landward areas from storm impacts.
- Areas that are used for nesting, feeding or congregation by endangered and threatened species shall be protected from alteration and human activities that would further imperil those species.

#### Conservation

- The Town will conserve and protect the remaining natural systems of Cutler Bay in recognition of the inherent values of these areas left in their natural state.
- The Town will set management standards in the Land Development Regulations for environmentally sensitive natural systems. The standards will cover water resources, wetlands, and native habitats of flora and fauna.
- The Town will protect and conserve remaining coastal wetlands, living marine resources and wildlife habitats as evident within the coastal areas of Cutler Bay through policies outlined in the Coastal Management Element of the Comprehensive Growth Management Plan.
- The Town will ensure that wildlife and plant species listed as endangered, threatened, or of special concern that inhabit the environments in Cutler Bay are protected and enhanced where possible.
- The Town will require the preservation of native trees during development or redevelopment wherever possible and if any native trees must be removed, the same type of native trees shall be planted to replace the removed tree. More than one replacement tree shall be planted for every single tree that is removed.

### ***CRS Credit***

The Town of Cutler Bay currently receives credit for Activity 420 – Open Space Preservation. The CRS provides credit for preserving open space in its natural condition or restored to a state approximating its natural condition. There are also credits for channel setbacks, buffers and protecting shorelines.

### **Best Management Practices**

Point source pollutants come from pipes such as the outfall of a municipal wastewater treatment plant. They are regulated by the US EPA. Nonpoint source pollutants come from non-specific locations and harder to regulate. Examples of nonpoint source pollutants are lawn fertilizers, pesticides, other chemicals, animal wastes, oils from street surfaces and industrial areas, and sediment from agriculture,



construction, mining and forestry. These pollutants are washed off the ground's surface by stormwater and flushed into receiving storm sewers, ditches and streams.

The term "best management practices" (BMPs) refers to design, construction and maintenance practices and criteria that minimize the impact of stormwater runoff rates and volumes, prevent erosion, protect natural resources and capture nonpoint source pollutants (including sediment). They can prevent increases in downstream flooding by attenuating runoff and enhancing infiltration of stormwater. They also minimize water quality degradation, preserve beneficial natural features onsite, maintain natural base flows, minimize habitat loss, and provide multiple usages of drainage and storage facilities.

### ***Local Implementation***

In accordance with Cutler Bay's adopted Land Development Regulations, BMPs are defined as any activities, prohibitions, practices, procedures, programs, or other measures designed to prevent or reduce the discharge of pollutants directly or indirectly into waters of the United States. This shall include but are not limited to those measures specified in the stormwater best management practice handbooks for municipal, industrial/commercial, and construction activity and those measures identified by the Town. Furthermore, the water quality standard shall be met when the annual average for each of the listed National Pollutant Discharge Elimination System pollutants does not exceed target criteria within a canal basin as specified in the Land Development Regulations.

### ***CRS Credit***

The Town of Cutler Bay currently receives credit for Activity 450 – Stormwater Management. To receive WQ credit, the community's stormwater management regulations must either specify one or more measures or refer to BMPs as published in an official government reference.

### **Dumping Regulations**

BMPs usually address pollutants that are liquids or are suspended in water that are washed into a lake or stream. Dumping regulations address solid matter, such as shopping carts, appliances and landscape waste that can be accidentally or intentionally thrown into channels or wetlands. Such materials may not pollute the water, but they can obstruct even low flows and reduce the channels' and wetlands' abilities to convey or clean stormwater.

Many cities have nuisance ordinances that prohibit dumping garbage or other "objectionable waste" on public or private property. Waterway dumping regulations need to also apply to "non-objectionable" materials, such as grass clippings or tree branches, which can kill ground cover or cause obstructions in channels. Regular inspections to catch violations should be scheduled.

Many people do not realize the consequences of their actions. They may, for example, fill in the ditch in their front yard without realizing that is needed to drain street runoff. They may not understand how regarding their yard, filling a wetland, or discarding leaves or branches in a watercourse can cause a problem to themselves and others. Therefore, a dumping enforcement program should include public information materials that explain the reasons for the rules as well as the penalties.

### ***Local Implementation***

Cutler Bay's ordinances makes it unlawful for anyone to deposit waste, grass, weeds, brush or other refuse in any street, ditch or watercourse, or on others' property, or on public property. It is also illegal to dispose of certain wastes in public sewers.



### ***CRS Credit***

The Town of Cutler Bay currently receives credit for Activity 540 – Drainage System Maintenance. Credit is provided under the Stream Dumping Regulations (SDR) element if the community has and publicizes regulations prohibiting dumping in streams and ditches.

### **Farmland Protection**

Farmland protection is an important piece of comprehensive planning and zoning throughout the United States. The purpose of farmland protection is to provide mechanisms for prime, unique, or important agricultural land to remain as such, and to be protected from conversion to nonagricultural uses.

Frequently, farm owners sell their land to residential or commercial developers and the property is converted to non-agricultural land uses. With development comes more buildings, roads and other infrastructure. Urban sprawl occurs, which can lead to additional stormwater runoff and emergency management difficulties.

Farms on the edge of cities are often appraised based on the price they could be sold for to urban developers. This may drive farmers to sell to developers because their marginal farm operations cannot afford to be taxed as urban land. The Farmland Protection Program in the United States Department of Agriculture's 2002 Farm Bill (Part 519) allows for funds to go to state, tribal, and local governments as well as nonprofit organizations to help purchase easements on agricultural land to protect against the development of the land. Eligible land includes cropland, rangeland, grassland, pastureland, or forest land that is part of an agricultural operation. Certain lands within historical or archaeological resources are also included.

The hazard mitigation benefits of farmland protection are similar to those of open space preservation:

- Farmland is preserved for future generation,
- Farmland in the floodplain keeps damageable structures out of harm's way
- Farmland keeps more stormwater on site and lets less stormwater runoff downstream
- Rural economic stability and development is sustained
- Ecosystems are maintain, restored or enhanced
- The rural character and scenic beauty of the area is maintained

### ***Local Implementation***

According to the Town's Comprehensive Growth Management Plan, there are 1,401.4 acres (21%) of vacant, undeveloped land in the Town. Of these lands, 907.2 acres (14%) are protected from future development but privately owned; 118.3 (2%) are protected from future development by public ownership; and 375.9 acres (6%) are vacant and subject to development. In addition, there are 36.5 acres of agricultural lands in the Town. County policy is that no new agricultural uses may be permitted within the Urban Development Boundary (UDB), and existing agricultural uses in the UDB are generally transitioning to urban uses.

### ***CRS Credit***

The Town of Cutler Bay currently receives credit for Activity 420 – Open Space Preservation. The CRS provides credit for preserving open space in its natural condition or restored to a state approximating its natural condition.



## Conclusions

- A hazard mitigation program can use resource protection programs to support protecting natural features that can mitigate the impacts of flooding
- Cutler Bay ordinances prohibit illicit discharges into public drainage areas or onto public or private property
- Preserving open space and natural areas will serve to benefit the natural resource areas and protect natural occurring processes and help to protect certain species of plants and animals

## Recommendations

- The Town should work more closely with Biscayne National Park and Miami-Dade County to ensure the Cutler Wetlands are protected from any future development
- Cutler Bay should identify additional parcels that will not be well suited for development and encourage a public/private partnership to maintain them as open space.
- The Town should target outreach to its residents on the benefits of natural resource protection
- Revise local ordinance to require that landscapers be registered with the Town

### B.4.4 Emergency Services Measures

Emergency services measures protect people during and after a disaster. A good emergency management program addresses all hazards, and it involves all local government departments. At the state level, emergency services programs are coordinated by the Florida Department of Emergency Management (FDEM). Locally, Cutler Bay's emergency services are coordinated by the Police and Public Works Department through Miami-Dade County's Emergency Management Program.

This section reviews emergency services measures following a chronological order of responding to an emergency. It starts with identifying an impending problem (threat recognition) and continues through post-disaster activities.

#### Threat Recognition

The first step in responding to a flood is to know when weather conditions are such that an event could occur. With a proper and timely threat recognition system, adequate warnings can be disseminated.

The National Weather Service (NWS) is the prime agency for detecting meteorological threats. Severe weather warnings are transmitted through NOAA's Weather Radio System. Local emergency managers can then provide more site-specific and timely recognition after the Weather Service issues a watch or a warning. A flood threat recognition system predicts the time and height of a flood crest. This can be done by measuring rainfall, soil moisture, and stream flows upstream of the community and calculating the subsequent flood levels.

On smaller rivers and streams, locally established rainfall and river gauges are needed to establish a flood threat recognition system. The NWS may issue a "flash flood watch." This is issued to indicate current or developing hydrologic conditions that are favorable for flash flooding in and close to the watch area, but the occurrence is neither certain nor imminent. These events are so localized and so rapid that a "flash flood warning" may not be issued, especially if no remote threat recognition equipment is available. In the absence of a gauging system on small streams, the best threat recognition system is to have local personnel monitor rainfall and stream conditions. While specific flood crests and times will not be predicted, this approach will provide advance notice of potential local or flash flooding.

#### Local Implementation

The Town monitors flood warnings issued by the County and operates under the County's Comprehensive Emergency Management Plan. The Miami-Dade Emergency Operations Center (EOC)



operates at one of three levels of readiness in order to carry out its mission. These levels are patterned to closely match the Florida Division of Emergency Management EOC activation levels to maintain consistent definitions.

### ***CRS Credit***

The Town of Cutler Bay currently receives credit for Activity 610 – Flood Warning Program. Credit can be received for using National Hurricane Center warnings and river flood stage predictions for the NWS's gages. The actual score is based on how much of the community's floodplain is affected by these systems.

### **Warning**

The next step in emergency response following threat recognition is to notify the public and staff of other agencies and critical facilities. More people can implement protection measures if warnings are early and include specific detail.

The NWS issues notices to the public using two levels of notification:

- Watch: conditions are right for flooding, thunderstorms, tornadoes or winter storms.
- Warning: a flood, tornado, etc., has started or been observed.

A more specific warning may be disseminated by the community in a variety of ways. The following are the more common methods:

- Commercial or public radio or TV stations
- The Weather Channel
- Cable TV emergency news inserts
- Telephone trees/mass telephone notification
- NOAA Weather Radio
- Tone activated receivers in key facilities
- Outdoor warning sirens
- Sirens on public safety vehicles
- Door-to-door contact
- Mobile public address systems
- Email notifications

Multiple or redundant systems are most effective - if people do not hear one warning, they may still get the message from another part of the system. Each has advantages and disadvantages:

- Radio and television provide a lot of information, but people have to know when to turn them on. They are most appropriate for hazards that that develop over more than a day, such as a tropical storm, hurricane, or winter storm.
- NOAA Weather Radio can provide short messages of any impending weather hazard or emergency and advise people to turn on their televisions for more information, but not everyone has a Weather Radio.
- Outdoor warning sirens can reach many people quickly as long as they are outdoors. They do not reach people in tightly-insulated buildings or those around loud noise, such as at a factory, during a thunderstorm, or in air conditioned homes. They do not explain what hazard is coming, but people should know to turn on a radio or television when they hear the siren.



- Automated telephone notification services are also fast, but can be expensive and do not work when phone lines are down. Nor do they work for unlisted numbers, call screening services, or cellular service, unless people sign up for notifications.

Just as important as issuing a warning is telling people what to do in case of an emergency. A warning program should include a public information component.

### **StormReady**

The National Weather Service established the StormReady program to help local governments improve the timeliness and effectiveness of hazardous weather related warnings for the public. To be officially StormReady, a community must:

- Establish a 24-hour warning point and emergency operations center
- Have more than one way to receive severe weather warnings and forecasts and to alert the public
- Create a system that monitors weather conditions locally
- Promote the importance of public readiness through community seminars
- Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises

Being designated a StormReady community by the National Weather Service is a good measure of a community's emergency warning program for weather hazards. It is also credited by the CRS.

### **Local Implementation**

The Town of Cutler Bay is not currently designated as a StormReady community; however, Miami-Dade County is designated as StormReady. Should a storm threaten South Florida, the Miami-Dade County Office of Emergency Management will activate. During activation, the county will give regularly advisories to the media and to local municipalities. The Town of Cutler Bay then updates their website based on the latest advisories. The Town also provides up-to-date information on Town services during that time. The Cutler Bay police department is responsible for enforcing actions required during an emergency.

### **CRS Credit**

The Town of Cutler Bay currently receives credit for Activity 610 – Flood Warning Program. Community Rating System credits are based on the number and types of warning media that can reach the community's flood prone population. Depending on the location, communities can receive credit for the telephone calling system and more credits if there are additional measures, like telephone trees. Being designated as a StormReady community can provide additional credits.

### **Response**

The protection of life and property is the most important task of emergency responders. Concurrent with threat recognition and issuing warnings, a community should respond with actions that can prevent or reduce damage and injuries. Typical actions and responding parties include the following:

- Activating the emergency operations center (emergency preparedness)
- Closing streets or bridges (police or public works)
- Shutting off power to threatened areas (utility company)
- Passing out sand and sandbags (public works)
- Holding children at school or releasing children from school (school superintendent)
- Opening evacuation shelters (the American Red Cross)
- Monitoring water levels (public works)



- Establishing security and other protection measures (police)

An emergency action plan ensures that all bases are covered and that the response activities are appropriate for the expected threat. These plans are developed in coordination with the agencies or offices that are given various responsibilities.

A flood stage forecast map shows areas that will be under water at various flood stages. Different flood levels are shown as color coded areas, so the emergency manager can quickly see what will be affected. Emergency management staff can identify the number of properties flooded, which roads will be under water, which critical facilities will be affected, and who to warn. With this information, an advance plan can be prepared that shows problem sites and determines what resources will be needed to respond to the predicted flood level.

Emergency response plans should be updated annually to keep contact names and telephone numbers current and to ensure that supplies and equipment that will be needed are still available. They should be critiqued and revised after disasters and exercises to take advantage of the lessons learned and of changing conditions. The end result is a coordinated effort implemented by people who have experience working together so that available resources will be used in the most efficient manner possible.

#### ***Local Implementation***

The Town of Cutler Bay Police Department and Public Works Department coordinates emergency management services with Miami-Dade County Office of Emergency Management.

#### ***CRS Credit***

The Town of Cutler Bay currently receives credit for Activity 610 – Flood Warning Program.

#### **Evacuation and Shelter**

There are six key components to a successful evacuation:

- Adequate warning
- Adequate routes
- Proper timing to ensure the routes are clear
- Traffic control
- Knowledgeable travelers
- Care for special populations (e.g., the handicapped, prisoners, hospital patients, and schoolchildren)

Those who cannot get out of harm's way need shelter. Typically, the American Red Cross will staff a shelter and ensure that there is adequate food, bedding, and wash facilities. Shelter management is a specialized skill. Managers must deal with problems like scared children, families that want to bring in their pets, and the potential for an overcrowded facility.

#### ***Local Implementation***

The Miami-Dade County Emergency & Evacuation Assistance Program (E&EAP) provides evacuation support to those residents who may require specialized transportation, whose medical needs prevent them from evacuating on their own or who may require evacuation assistance. Additionally, the program may also be utilized post disaster to provide other assistance to those who are at risk due to a disability, frailty or health issues and who elected to stay at home in the event of a hurricane or other disaster.



Miami-Dade County Office of Emergency Management partners with Dade County Public Schools and the American Red Cross (ARC) to operate Hurricane Evacuation Centers (HEC). These HECs provide refuges of last resort for those individuals who need to evacuate and are unable to make their own evacuation/sheltering arrangements, such as with friends, family, or in hotels outside of the evacuation zones.

The Miami-Dade County storm surge planning zones are based on the newest generation SLOSH model. Areas in Miami-Dade along canals and rivers and further inland have been identified as being at risk for storm surge based on this new data. Using evacuation maps, each zone or portions will be evacuated depending on the hurricane's track and projected storm surge, independent of the hurricane's category. Upon identification of a threat, the County will use local media to relay pertinent information, such as evacuations and shelter openings.

### ***CRS Credit***

Because it is primarily concerned with protecting insurable buildings, the CRS does not provide any special credit for evacuation or sheltering of people (minimal credit is given in Activity 510 - Floodplain Management for evacuation policies and procedures). It is assumed that the emergency response plan would include all necessary actions in response to a flood.

### **Post-Disaster Recovery and Mitigation**

After a disaster, communities should undertake activities to protect public health and safety and facilitate recovery. Appropriate measures include:

- Patrolling evacuated areas to prevent looting
- Providing safe drinking water
- Monitoring for diseases
- Vaccinating residents for tetanus and other diseases
- Clearing streets
- Cleaning up debris and garbage

Following a disaster, there should be an effort to help prepare people and property for the next disaster. Such an effort would include:

- Public information activities to advise residents about mitigation measures they can incorporate into their reconstruction work
- Evaluating damaged public facilities to identify mitigation measures that can be included during repairs
- Identifying other mitigation measures that can lessen the impact of the next disaster
- Acquiring substantially or repeatedly damaged properties from willing sellers
- Planning for long-term mitigation activities
- Applying for post-disaster mitigation funds

### **Regulating Reconstruction**

Requiring permits for building repairs and conducting inspections are vital activities to ensure that damaged structures are safe for people to reenter and repair. There is a special requirement to do this in floodplains, regardless of the type of disaster or the cause of damage. The NFIP requires that local officials enforce the substantial damage regulations. These rules require that if the cost to repair a building in the mapped floodplain equals or exceeds 50% of the building's market value, the building



must be retrofitted to meet the standards of a new building in the floodplain. In most cases, this means that a substantially damaged building must be elevated above the base flood elevation.

### ***Local Implementation***

The Town's Floodplain Management Ordinance requires that all new residential construction or substantial improvement shall have the lowest floor, including the basement, elevated to no lower than one foot above the base flood elevation.

### ***CRS Credit***

The CRS does credit post-disaster mitigation procedures if the policies and procedures are incorporated into a flood mitigation or multi-hazard plan through Activity 510 - Floodplain Management Planning.

### **Conclusions**

- Miami-Dade County performs most emergency management functions for the Town of Cutler Bay
- Miami-Dade County provides all fire protection for the Town of Cutler Bay
- Cutler Bay participates in the Miami-Dade County Local Mitigation Strategy
- Cutler Bay has a significant number of senior living facilities with many in flood-prone areas

### **Recommendations**

- Cutler Bay's (Public Works Department and Police Department who are designated as local emergency managers) emergency managers should work more closely with Miami-Dade County to identify vulnerable populations for evacuation purposes
- Cutler Bay should work with Miami-Dade County to work on protecting critical facilities and infrastructure that are potentially exposed to flood damage

### **B.4.5 Structural Projects**

Four general types of flood control projects are reviewed here: levees, reservoirs, diversions, and dredging. These projects have three advantages not provided by other mitigation measures:

- They can stop most flooding, protecting streets and landscaping in addition to buildings
- Many projects can be built without disrupting citizens' homes and businesses
- They are constructed and maintained by a government agency, a more dependable long-term management arrangement than depending on many individual private property owners

However, as shown below, structural measures also have shortcomings. The appropriateness of using flood control depends on individual project area circumstances.

- Advantages
  - They may provide the greatest amount of protection for land area used
  - Because of land limitations, they may be the only practical solution in some circumstances
  - They can incorporate other benefits into structural project design, such as water supply and recreational uses
  - Regional detention may be more cost-efficient and effective than requiring numerous small detention basins
- Disadvantages
  - They can disturb the land and disrupt the natural water flows, often destroying wildlife habitat



- They require regular maintenance
- They are built to a certain flood protection level that can be exceeded by larger floods
- They can create a false sense of security
- They promote more intensive land use and development in the floodplain

### **Levees and Floodwalls**

Probably the best known flood control measure is a barrier of earth (levee) or concrete (floodwall) erected between the watercourse and the property to be protected. Levees and floodwalls confine water to the stream channel by raising its banks. They must be well designed to account for large floods, underground seepage, pumping of internal drainage, and erosion and scour. Key considerations when evaluating the use of a levee include:

- Design and permitting costs
- Right of way acquisition
- Removal of fill to compensate for the floodwater storage that will be displaced by the levee
- Internal drainage of surface flows from the area inside the levee
- Cost of construction
- Cost of maintenance
- Mitigation of adverse impacts to wetlands and other habitats
- Loss of river access and views
- Creating a false sense of security, because while levees may reduce flood damage for smaller more frequent rain events, they may also overtop or breach in extreme flood events and subsequently create more flood damage than would have occurred without the levee

### **Reservoirs and Detention**

Reservoirs reduce flooding by temporarily storing flood waters behind dams or in storage or detention basins. Reservoirs lower flood heights by holding back, or detaining, runoff before it can flow downstream. Flood waters are detained until the flood has subsided, and then the water in the reservoir or detention basin is released or pumped out slowly at a rate that the river can accommodate downstream.

Reservoirs can be dry and remain idle until a large rain event occurs. Or they may be designed so that a lake or pond is created. The lake may provide recreational benefits or water supply (which could also help mitigate a drought).

Flood control reservoirs are most commonly built for one of two purposes. Large reservoirs are constructed to protect property from existing flood problems. Smaller reservoirs, or detention basins, are built to protect property from the stormwater runoff impacts of new development.

### **Diversion**

A diversion is a new channel that sends floodwaters to a different location, thereby reducing flooding along an existing watercourse. Diversions can be surface channels, overflow weirs, or tunnels. During normal flows, the water stays in the old channel. During floods, the floodwaters spill over to the diversion channel or tunnel, which carries the excess water to a receiving lake or river.

### **Dredging**

Dredging is often viewed as a form of conveyance improvement. However, it has the following problems:

- Given the large volume of water that comes downstream during a flood, removing a foot or two from the bottom of the channel will have little effect on flood heights.



- Dredging is often cost prohibitive because the dredged material must be disposed of somewhere.
- Unless in-stream or tributary erosion is corrected upstream, the dredged areas usually fill back in within a few years, and the process and the expense have to be repeated.
- If the channel has not been disturbed for many years, dredging will destroy the habitat that has developed.

To protect the natural values of the stream, federal law requires a U.S. Army Corps of Engineers permit before dredging can proceed. This can be a lengthy process that requires a lot of advance planning and many safeguards to protect habitats, which adds to the cost of the project.

### ***CRS Credit***

Structural flood control projects that provide 100-year flood protection and that result in revisions to the Flood Insurance Rate Map are not credited by the CRS in order to avoid duplicating the larger premium reduction provided by removing properties from the mapped floodplain.

The CRS credits smaller flood control projects that meet the following criteria:

- They must provide protection to at least the 25-year flood
- They must meet certain environmental protection criteria
- They must meet federal, state and local regulations, such as the Corps of Engineers' 404 permit and State dam safety rules
- They must meet certain maintenance requirements

These criteria ensure that credited projects are well-planned and permitted. Any of the measures reviewed in this section would be recognized under Activity 530 - Flood Protection. Credit points are based on the type of project, how many buildings are protected, and the level of flood protection provided.

### ***Local Implementation***

The Town of Cutler Bay does not currently receive credit for Activity 530 - Flood Protection.

### **Conclusions**

- There are many areas identified that experience flooding due to inadequate drainage systems including the Saga Bay area
- Canal bank erosion can affect adjacent properties and create a situation where the canal does not function properly
- Installing new outfalls can improve local street drainage in certain areas of the Town

### **Recommendations**

- Improve drainage through the implementation of several projects identified in the Town's Capital Improvement Program
- Work with Miami-Dade County on repairing canals which have eroded, including a dredging project to widen the canal at a bridge for better flow
- Work with the Army Corps of Engineers on a new outfall to improve drainage



## **B.4.6 Public Information**

### **Outreach Projects**

Outreach projects are the first step in the process of orienting property owners to the hazards they face and to the concept of property protection. They are designed to encourage people to seek out more information in order to take steps to protect themselves and their properties.

Awareness of the hazard is not enough; people need to be told what they can do about the hazard. Thus, projects should include information on safety, health and property protection measures. Research has shown that a properly run local information program is more effective than national advertising or publicity campaigns. Therefore, outreach projects should be locally designed and tailored to meet local conditions.

Community newsletters/direct mailings: The most effective types of outreach projects are mailed or distributed to everyone in the community. In the case of floods, they can be sent only to floodplain property owners.

News media: Local newspapers can be strong allies in efforts to inform the public. Local radio stations and cable TV channels can also help. These media offer interview formats and cable TV may be willing to broadcast videos on the hazards.

Other approaches: Examples of other outreach projects include:

- Presentations at meetings of neighborhood, civic or business groups
- Displays in public buildings or shopping malls
- Signs in parks, along trails and on waterfronts that explain the natural features (such as the river) and their relation to the hazards (such as floods)
- Brochures available in municipal buildings and libraries
- Special meetings, workshops and seminars

### ***Local Implementation***

A community brochure is mailed to all properties in the community on an annual basis. An outreach brochure is mailed annually to all properties in the SFHA. The community also provides flood information at the Town Hall and distributes both a County and Town Hurricane Guide and prints flood information in the phone book. Cutler Bay maintains a Town website that provides flood protection information. The Town also provides direct mail to residents which include flood protection and property protection measures. Flood materials are also provided in the Miami-Dade County library.

### ***CRS Credit***

The Town of Cutler Bay currently receives credit under Activity 330 – Outreach Projects as well as Activity 350 – Flood Protection Information.

### **Real Estate Disclosure**

Many times after a flood or other natural disaster, people say they would have taken steps to protect themselves if they had known they had purchased a property exposed to a hazard. There are some federal and state requirements about such disclosures:

- Federal law: Federally regulated lending institutions must advise applicants for a mortgage or other loan that is to be secured by an insurable building whether the property is in a floodplain as



shown on the Flood Insurance Rate Map. If so, flood insurance is required for buildings located within the floodplain if the mortgage or loan is federally insured.

- State law: State laws set standards for real estate sales and licensing of agents and brokers.

### ***Local Implementation***

Cutler Bay currently receives credits under Activity 340 – Hazard Disclosure for requiring local real estate agents to disclose flood hazards to prospective buyers.

### **Libraries and Websites**

The two previous activities tell people that they are exposed to a hazard. The next step is to provide information to those who want to know more. The community library and local websites are obvious places for residents to seek information on hazards, hazard protection, and protecting natural resources. Books and pamphlets on hazard mitigation can be given to libraries, and many of these can be obtained for free from state and federal agencies. Libraries also have their own public information campaigns with displays, lectures and other projects, which can augment the activities of the local government. Today, websites are commonly used as research tools. They provide fast access to a wealth of public and private sites for information. Through links to other websites, there is almost no limit to the amount of up to date information that can be accessed on the Internet.

In addition to online floodplain maps, websites can link to information for homeowners on how to retrofit for floods or a website about floods for children.

### ***Local Implementation***

Cutler Bay provides flood materials through the Miami-Dade County library. The Town also provides flood protection information on their website.

### ***CRS Credit***

The Town of Cutler Bay currently receives credit under Activity 350 – Flood Protection Information. The Community Rating System provides credits for having a variety of flood references in the local public library and for providing similar material on municipal websites.

## **Technical Assistance**

### ***Hazard Information***

Residents and business owners that are aware of the potential hazards can take steps to avoid problems or reduce their exposure to flooding. Communities can easily provide map information from FEMA's Flood Insurance Rate Maps (FIRMs) and Flood Insurance Studies. They may also assist residents in submitting requests for map amendments and revisions when they are needed to show that a building is located outside the mapped floodplain.

Some communities supplement what is shown on the FIRM with information on additional hazards, flooding outside mapped areas and zoning. When the map information is provided, community staff can explain insurance, property protection measures and mitigation options that are available to property owners. They should also remind inquirers that being outside the mapped floodplain is no guarantee that a property will never flood.

### ***Property Protection Assistance***

While general information provided by outreach projects or the library is beneficial, most property owners do not feel ready to retrofit their buildings without more specific guidance. Local building



department staffs are experts in construction. They can provide free advice, not necessarily to design a protection measure, but to steer the owner onto the right track. Building or public works department staffs can provide the following types of assistance:

- Visit properties and offer protection suggestions
- Recommend or identify qualified or licensed contractors
- Inspect homes for anchoring of roofing and the home to the foundation
- Explain when building permits are needed for home improvements.

### ***Local Implementation***

FEMA floodplain maps are available on Cutler Bay's website, and the Town responds to requests on whether a property is located in s Special Flood Hazard Area. Property protection measures are also included on the Town's website. Cutler Bay also responds to drainage complaints and provides technical advice and assistance to interested property owners and annually publicizes the service.

### ***CRS Credit***

Cutler Bay currently receives credit under Activity 360 – Flood Protection Assistance.

### **Public Information Program**

A public information program (PPI) is a document that receives CRS credit. It is a review of local conditions, local public information needs, and a recommended plan of activities. A PPI consists of the following parts, which are incorporated into this plan:

- The local flood hazard
- The property protection measures appropriate for the flood hazard
- Flood safety measures appropriate for the local situation
- The public information activities currently being implemented within the community, including those being carried out by non-government agencies
- Goals for the community's public information program
- The outreach projects that will be done each year to reach the goals
- The process that will be followed to monitor and evaluate the projects

### ***Local Implementation***

A PPI for Cutler Bay is currently under development.

### ***CRS Credit***

The CRS provides credit for a PPI under Activity 330 – Outreach Projects.

### **Conclusions**

- Cutler Bay has an aggressive public awareness and outreach program
- The Town targets citizens through its website, news media, public meetings, neighborhood meetings, special events and when construction projects are occurring throughout the Town

### **Recommendations**

- Cutler Bay is in the process of developing a Program for Public Information (PPI) which used the FMPC in the process of developing this plan
- Work to improve flood insurance coverage in Cutler Bay
- Work with Insurance and Real Estate Agents to educate them on the flood risk



## B.5 Mitigation Alternative Selection Criteria

---

The process for evaluating mitigation alternatives is located in section 4.3. The following criteria were used to select and prioritize proposed mitigation measures:

### STPLE/E

- Social: Does the measure treat people fairly? (different groups, different generations)
- Technical: Will it work? (Does it solve the problem? Is it feasible?)
- Administrative: Do you have the capacity to implement and manage project?
- Political: Who are the stakeholders? Did they get to participate? Is there public support? Is political leadership willing to support?
- Legal: Does the organization have the authority to implement? Is it legal? Are there liability implications?
- Economic: Is it cost-beneficial? Is there funding? Does it contribute to the local economy or economic development?
- Environmental: Does it comply with environmental regulations?

### Sustainable Disaster Recovery

- Quality of life
- Social equity
- Hazard mitigation
- Economic development
- Environmental protection/enhancement
- Community participation

### Smart Growth Principles

- Infill versus sprawl
- Efficient use of land resources
- Full use of urban resources
- Mixed uses of land
- Transportation options
- Detailed, human-scale design

### Other

- Does measure address area with highest risk?
- Does measure protect...
  - The largest # of people exposed to risk?
  - The largest # of buildings?
  - The largest # of jobs?
  - The largest tax income?
  - The largest average annual loss potential?
  - The area impacted most frequently?
  - Critical infrastructure
- What is timing of available funding?
- What is visibility of project?



- Community credibility

### **Prioritization Process**

Since there was a five member committee which developed this Floodplain Mitigation Plan, a thorough discussion of each mitigation category occurred. Then within each specific mitigation category, a variety of projects were discussed and debated.

Consensus was reached on the specific projects identified in the mitigation action plan. The prioritization of High, Medium, and Low was reached based on the significance of the project and the overall impact to the goals and objectives of the plan. The FMPC was given this guidance for prioritization:

### **Priority Classification**

**High:** Project should be completed within the next two years

**Medium:** Project should be completed within the next four years

**Low:** Project should be completed in five or more years

If the FMPC felt the project warranted a certain classification, they may have extended the timeframe for completion beyond what is described above because they believed the project was significant and would have a impact on reducing flooding in Cutler Bay.



# Appendix C



## APPENDIX C

### Appendix C: References

IPCC, 2014. Climate Change 2014: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

Southeast Florida Regional Climate Change Compact Technical Ad hoc Work Group. April 2011. A Unified Sea Level Rise Projection for Southeast Florida. A document prepared for the Southeast Florida Regional Climate Change Compact Steering Committee. 27p.

Miami-Dade Sea Level Rise Task Force. July 2014. Miami Dade Sea Level Rise Task Force Report and Recommendations.

SHELDUS, Hazards Research Lab, University of South Carolina, [www.sheldus.org/](http://www.sheldus.org/), 2014.

National Oceanic and Atmospheric Agency (NOAA) National Climatic Data Center, Storm Events Database, 2014.

U.S. Bureau of the Census, Census 2010.

Stockdon, H.F., Doran, K.J., Thompson, D.M., Sopkin, K.L., and Plant, N.G., 2013, National Assessment of Hurricane-Induced Coastal Erosion Hazards: Southeast Atlantic Coast: U.S. Geological Survey Open-File Report 2013-1130, 28 p., <http://pubs.usgs.gov/of/2013/1130>.

Tompkins, Forbes and Deconcini, Christina. Sea-Level Rise and Its Impact on Miami-Dade County Fact Sheet. World Resources Institute, 2014.

National Oceanic and Atmospheric Agency (NOAA) Sea Levels Online, 2014.

U.S. Army Corps of Engineering, National Inventory of Dams, 2014.

U.S. Army Corps of Engineering, National Levee Database, 2014.

AMEC Data Collection Guide

Climate Central. 2014. [Surgingseas.org/](http://Surgingseas.org/)

Federal Emergency Management Agency, Community Information System, 2014.

Federal Emergency Management Agency, What is a Levee Fact Sheet, August 2011.

Department of Atmospheric Sciences at the University of Illinois at Urbana-Champaign

Global Climate Change Impacts in the United States. Karl, T.R., J. M. Melillo, and T. C. Peterson (eds.). United States Global Change Research Program. Cambridge University Press, New York, NY, USA. 2009



Florida Department of Environmental Protection, Bureau of Beaches and Coastal Systems. Critically Eroded Beaches in Florida, 2014.

Florida Department of Emergency Management. State of Florida Enhanced Hazard Mitigation Plan, August 2013.

Miami-Dade County Local Mitigation Strategy, 2010.

Miami-Dade County Comprehensive Emergency Management Plan, 2013.

Miami-Dade County Tax Assessor's Data, 2013.

Cutler Bay Repetitive Loss Areas Analysis, 2012.

Cutler Bay Stormwater Master Plan, 2008.

Cutler Bay Comprehensive Growth Management Plan, 2008.

Cutler Bay Capital Improvement Plan, 2008.

Miami-Dade County Flood Insurance Study, 2009.

Cutler Bay Flood Damage Prevention Ordinance, 2010.

Cutler Bay Land Development Regulations, 2012.

Cutler Bay Building Code Ordinance, 2010.

Cutler Bay Community Rating System Annual Reports.