

HURRICANE IRMA

EMERGENCY RESPONSE

After Action Report



City of Cocoa
Emergency Operations
Center

Activation

September 9th-15th

Total Hours

139

43 Level I

45 Level II

51 Level III

City Manager's Office

Administrative Services

Community Services

Finance

Fire

Information Technology

Police

Public Works

Water Utility



GENE PRINCE
FIRE CHIEF
EMERGENCY MANAGER

Executive Summary

Hurricane Irma began impacting the City of Cocoa on Sunday, September 10, 2017. The storm that had a few days earlier been forecasted to come directly up the east coast of Florida was now leaving a path of destruction up the west coast of Florida. The storm would soon begin pushing northeast and prove to be a direct threat to life, public and private property and the City's water system that supplies water to 250,000 people in central Brevard County. Effective strategic planning, preparation and lessons learned from previous storms help direct successful efforts to respond to and mitigate the damage the City sustained from Hurricane Irma.

Preparations began the week of September 5th:

- Fire, Police, Public Works and the Utilities Department, began prepping their personnel for alternate shift schedules and readying their areas for the impact of the storm.
- Finance made arrangements for possible emergency purchasing requests.
- Storm drains checked, cleared and storm water pond levels lowered.

EOC Activation

- The City EOC opened with a Level 1 (full) activation at 8pm on September 8, 2017 and continued through 1500 hours on September 11th, at which time activation was downgraded to a Level 2 (partial) activation through 1800 hours on September 15th for a total of 88 hours. The EOC was at Level 3 (monitoring) for 51 hours.
- Nineteen personnel were involved in the EOC operation. This included personnel to cover multiple operational periods for each Emergency Support Function (ESF).
- Twelve-hour operational periods were established and each ESF was advised to manage who was on and off duty during each operational period.
- Formal briefings were scheduled for 0930 and 1900 following the Brevard County and City Policy Group briefings.
- Incident Action Plans (IAP) were put in place for each operational period

On April 6, 2018, the City of Cocoa held an after-action meeting on preparations for and the activation of the Emergency Operations Center (EOC) for Hurricane Irma September 9th thru 15th, 2017.

ESF Reports

What went well:

- Briefing updates – kept everyone informed
- Instructions on how to use ICS forms – during activation
- Having IT on site in the EOC
- Previous ICS Training proved helpful
- Early presence in community
- Traffic Management
- All employees paid on time
- Friday release of employees
- Coordinated pre-storm messaging
- Video updates posted on social media
- Hurricane webpage dedicated to messaging
- Food /meals – meal preparation

Areas for Improvement:

- Telephone service
- Personnel distribution - use outside normal duties
- More frequent updates on videos concerning return of service
- Use of more video messages (pre/during/post storm)
- Information related to the housing of stray animals
- Payroll Coding, corrections, auditing
- Training on forced labor/equipment reporting for all departments
- Emergency communication plan between EOC, Dyal Plant and Wewahootee
- Food plan
- 214 forms
- Disaster pay policy revised and clarified

Recommendations:

- List of standard messages to easily post on social media
- FAQ's on website
- Pre-hurricane videos
- Purchase hard rakes for PD to assist in clearing storm drains
- Create layer of addresses in GIS
- Update addresses in damage assessment software
- Update damage assessment supplies
- Add SCADA screen in EOC for lift stations
- Efficient FEMA Reporting – Who is responsible for what?
- Rapid Damage Assessment process
- Utilize customer service reps after event - taking calls
- Community Tele-meetings
- Automated valves on the elevated water tank and mains crossing river
- Reclassifying WFO/SFO Field Staff to Mission Essential to have at least one or two full crews available to respond to incidents at the direction of the Utilities Director in consultation with the EOC Director and City Manager, subject to conditions of the event and safety of personnel. This determination will be made during storm preparations and subject to the projected impact and landfall of the storm event.

Incident Overview

The City of Cocoa began experiencing tropical force winds at approximately 12pm on September 10, 2017 which continued through September 11th at 2 pm. During that time frame the City experienced hurricane force winds for several hours with wind gusts just over 100 mph. The damage to public property has been estimated at \$3.3 million. Approximately \$1,718,000 of this damage was to the Riverfront Park boat dock and related structures. Flooding was an issue along the eastern portion of Harrison Street due to storm surge from the Indian River. The City received in excess of 9 inches of rain over two days and flooding was reported in several areas in the south west part of the city. Nearly the entire city was without electrical power immediately after the storm. The City's water distribution system had 176 calls for service, of which 42 were for water main breaks. ***The most significant being the 36 inch water main running alongside SR 520 in the Indian River that caused the entire water system to lose pressure and the issuing of boil water notices in the early morning hours of September 11th.*** A system search for large breaks was conducted once wind speeds dropped to sustained winds below 35 mph. Once it was determined that no large breaks on the mainland was the root cause for the system-wide pressure loss, the water system was isolated at the mainland and over the next three days a plan was developed, set in place and acted on to restore water service to the barrier islands, with a priority to restore service to critical facilities, such as Kennedy Space Center and Port Canaveral. Utility crews continued to isolate valves systematically and conduct repairs on reported breaks. Service to the entire water system was restored by 7 pm on September 13th. Mandatory and precautionary boil water notices were issued in accordance with established policies and procedures.

Of the City's 52 waste water lift stations, 42 lost power or communications during the storm. Thirty-one of the lift stations had to be serviced by rotating four portable generators until electrical power was restored to the area of the city where they are located. There were only two sanitary sewer overflows during and after Hurricane Irma.

The Sellers Plant (the waste water facility) is built to handle a maximum capacity of four (4) million gallons a day (mgd) and normally operates at a capacity of two (2) million mgd a day. As a result of the large amount of rainfall and resulting storm water discharge the Plant was operating at 8.3 mgd and went into the wet weather discharge protocol for reclaimed water. Two discharges of note were experienced, one during and one post storm both were reported to the Florida Department of Environment Protection (FDEP). On September 11th due to the large amount of rain fall coupled with the large influent surge at the Plant, treated reclaim water backed up into Bracco Pond and overflowed Pond 1A and eventually discharged into the Indian River. The second incident occurred on September 12th, the chlorine dipped below 1.00 part per million for 14 minutes and the Plant was unable to divert water anywhere due to Bracco Pond 1A being over full. Both incidents were reviewed by the FDEP and it was determined that there were no violations and no hazardous discharge to the Indian River Lagoon.

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The damage to private property was estimated to be \$3,431,100.00, which was mostly due to roofs and fencing being damaged as well as some flooding. Although there were 451 structures that were affected (minimal damage) by Hurricane Irma only 13 received minor damage. No structures were destroyed.

The City entered into an agreement with Brevard County Emergency Management for debris clean up and this proved to be problematic because of the demand for these services state-wide taking much longer than originally anticipated. As a result, the City began utilizing Public Works crews to pick up debris in some areas.

It was determined that the City of Cocoa Water System water mains that follow SR 520 and SR 528 in the Indian and Banana Rivers will be checked by specialized divers every five years or when a weather event causes the Brevard County Emergency Operations Center to be activated to a Level 1.

It was also determined to revise the deployment of non-public safety personnel during windstorm events with sustained winds up to 40 mph, of which subject to the conditions evaluated by the EOC Director and City Manager and affected ESF, deployment may occur. In the event of deploying non-public safety work crews in conditions in excess of 40 mph public safety personnel will be deployed in conjunction with non-public safety personnel as a pre-cautionary and protective measure.

Issues and Resolutions

Telecommunications

- **Issue:** Throughout the storm event phone service both internal and external to the City was intermittent and not operational more than operational. The backup copper lines were the only functioning telecommunications within the City for external and internal calling. The City's phone system is contracted out to a local vendor who lost generator power and was unable to service the system until days after the storm.
- **Resolution:** Prior to the start of hurricane season 2018 the City should migrate to an internally managed phone system capitalizing on the reliability of the City's fiber optic network. The conversion was completed in March 2018 for the City's general lines and May 2018 for the utility customer service lines. The internally managed phone system will allow City staff to re-distribute incoming phone calls to the appropriate department/division as well as to fully utilize the customer service center during storm related events. This project is being completed by the City's Information Technology Division.

Vegetative Debris Collection

- **Issue:** The collection of vegetative and construction related debris throughout the City was a very slow and frustrating process for the businesses and residents. The City in an effort to maximize the number of service contractors working in the City joined the Brevard County contract. Contractors were in high demand post Hurricane Irma due to the statewide impact of the storm and many communities contracts were not honored by contractors who could get a higher rate elsewhere. The result was inconsistent service contractors within the City of Cocoa and an extended cleanup process. The City used existing staff and equipment to supplement the cleanup and proved to be quite effective. The duration of the Brevard County contractor work was 09/21/2017 to 12/01/2017.
- **Resolution:** Based on the effectiveness of the City's crews during the cleanup efforts, the City should pursue future cleanups through a joint effort between contractors and City staff. The City should procure additional equipment and reassign personnel for cleanup duties after a major storm related event. An outside contractor should be brought under continuing services or the Brevard County contract should be utilized for specific areas to ensure no overlapping of service. With the proposed changes the City believes all cleanup activities could be completed within 1 month of a similar storm event. The City should have a policy and action plan in place prior to the start of the next hurricane season. After City Council direction is received public works will carry out the work during storm recovery.

Application Integration

- **Issue:** During the storm event the emergency operations center was very reliant on field communications to receive critical information. This method of collecting information can

be very difficult in emergency response situations when the EOC is depended upon for real-time information distribution. While some of the City's software applications report real-time data and proved very useful other applications will need to be integrated and tested.

- **Resolution:** The City should systematically integrate existing software applications to the EOC in a useable format for real time data information. The critical data needed should be prioritized for a real-time data solution. This will allow the EOC to be a true information center where information can be distributed without the reliance on field staff first reporting the requested information. Existing application should be integrated in advance of the 2018 hurricane season and additional software/hardware should be procured as budgetary limitations allow. This project will be completed by the department subject matter expert and the information technology division.

Emergency Operations Center Buildout

- **Issue:** During the storm event the City was in the process of upgrading the functionality of the emergency operations center. The facility was not configured in a way to maximize the display of information and reliability to eliminate downtime. Uniform computer access on-site along with access to regular work files is critical during emergency operations to ensure continuity of operations. The real-time display of key information is critical to providing emergency response for field personnel and decision making.
- **Resolution:** The City has completed the buildout of the emergency operations center. There are now multiple displays that can host real-time data displayed in a dashboard manner. The computer system has been upgraded and all stations have been virtualized that allows for consistent access across the EOC as well as direct access to each members work computer remotely. This project was completed by the City's information technology division.

Potable Water Transmission Main Break

- **Issue:** During the hurricane, a 36" transmission line located under the Indian River failed resulting in the entire potable distribution system losing pressure.
- **Resolution:** The short term resolution was the execution of a plan to re-establish pressure throughout the system rapidly and systematically. The long term repairs and protection of the water transmission mains consisted of using specialized divers to reassemble pipe under water. The entire subaqueous pipe system was assessed and areas of exposed pipe were covered by concrete burlap bags that protect the pipes in the future. Pipe segments that were undermined were supported and covered using the same concrete burlap bag method previously described. It is recommended that the City of Cocoa reassess the subaqueous pipes after a Level 1 Brevard EOC activation with an impact to our service area or every five years, whichever comes first.

Timeline of Significant Events

Monday September 4, 2017

1100 Governor Scott Declares State of Emergency in all Florida counties – Executive Order 17-235

Tuesday, September 5, 2017

0900 Mayor Parrish issues Emergency Declaration 2017-82

1330 Meeting with ESFs at EOC – EOC at Level 3 activation. Met with ESFs and alternates to begin preparedness activities ahead of Hurricane Irma making landfall in Florida.

1500 Executive Staff meeting to discuss EOC activation and preparedness activities

Thursday, September 7, 2017

0900 Ordered food for EOC activation and city divisions working during and post storm

1300 EOC at Level 3 activation. – Met with ESFs and alternates and set Saturday September 8, 2017 at 2000 hrs. as the time to move to a Level 1 activation. Prepare to stay for 72 hours.

Hurricane Safety and preparedness alert video sent out to citizens on all city media platforms – Mayor Parrish

1900 Governor teleconference briefing

2000 Brevard County Emergency Management (BCEM) Municipal briefing

Friday, September 8, 2017

0700 Fire Department and meter readers received and divided food for all city divisions that will be working during and post storm

1300 Fire Department and Meter readers distributed food to city divisions

Saturday, September 9, 2017

1700 Fire Department began setting up cots and gathering ice for EOC activation.

2000 EOC Level 1 activation Alpha/Bravo shifts - Initial briefing

2000 Fire and Police Department go to Alpha/Bravo shifts

2030 BCEM Municipal briefing

2100 City Council briefing

2230 EOC Briefing – City/storm status

2400 Incident Action Plan (IAP) for 1st operational period 2400-0800 distributed

0600 Received draft IAP for 2nd operational period

Sunday, September 10, 2017

0800 2nd Operational period begins

0800 EOC Briefing – distributed IAP for 2nd operational period

0930 BCEM Municipal briefing

1000 Policy group meeting and City Council Briefing

1100 Reports of isolated flooding begins

1130 Emergency deviated medical response protocols presented by Fire Department approved

2000 3rd operational period begins – IAP distributed.

2000 Fire and Police personnel suspend emergency response as sustained wind speed reaches 50 mph

2030 BCEM Briefing

2100 Policy group meeting and City Council Briefing

2135 EOC phone lines down, analog phone lines still operational

2145 City Hall and EOC on generator power

2200 EOC Briefing

2314 Wind Speed gust at 80 mph

2357 Fire Station 2 on generator power

Monday, September 11, 2017

0130 Flooding reported at Harrison and Rivers Edge

0345 CPD operating under generator power

0347 Loss communication with Sellers Plant (sewer)

0411 Utility Director reported that the City Water System is losing pressure throughout the entire distribution system. System pressure under 20 psi. A system wide boil water notice was issued

0439 Precautionary Boil Water Notice issued via social media, city website and press release. Notice sent to BCEM EOC

0501 BCEM EOC reported waterline breaks and No water at BCEM EOC and some shelters

0502 Utility Director called Brevard County Utility Director working on plan to complete repairs

0600 Requested water tankers through BCEM

0610 Teleconference with BCEM Director regarding water system

0800 EOC Briefing – Presented IAP for 3rd Operational Period

0830 Assignments assess Roadway blockage, windshield damage surveys with CFD, CPD, PW personnel.

0845 Meeting with EOC Director, Utility Director, Assistant City Manager and City Manager to assess impacts to water system and discuss initial plan of action

0913 Call from BCEM – Can't provide water tankers but can provide bottled water

0915 Policy Group Meeting

0930 BCEM Municipal briefing

1000 Checked with BCEM on bottled water and found they had a change in plans and would get back to city on bottled water.

1120 Requested light towers for traffic management per CPD through BOB BCEM

1400 Policy Group meeting on EOC Staffing levels

1530 EOC Briefing on change to partial activation of City EOC Fire, PD, Finance, Admin Services and PW released. EM Director, Deputy Director, CM office, Community Services and Water Utility still assigned

1600 Damage Assessment Teams sent out

2000 BCEM Municipal briefing

2030 EOC Briefing – 4th operational period begins, IAP distributed

2045 Made request to State EOC for bottled water

2030 Damage Assessment team released

2115 Briefing on Water System and Lift station status from Utility Director - Water pressure on mainland restored and under boil water notice for approximately 55,000 customers

2130 Briefing on distribution plan for bottled water

2200 Alternate PIO released

Tuesday, September 12, 2017

0100 Operations plan for water system restoration completed and distributed by Utility Director

0600 State EOC confirms water bottle deliver – 8 tractor-trailer loads

0700 EOC Briefing 5th operational period begins IAP distributed

0800 Policy Group meeting on plan to distribute bottled water

0900 Briefing on Water System and Lift Station status from Utility Director – water pressure on mainland stabilized overnight. Water pressure being restored to KSC, Port Canaveral, Cape Canaveral and Air Force Station – approximately 5,000 customers

0930 BCEM Municipal briefing

1200 Confirmed with State EOC four distribution sites for water bottles throughout Cocoa Water System service area

Site One - Island Square Mall

Site Two – 801 Dixon Blvd (Byrd Plaza)

Site Three – Cocoa Beach 1500 Minute Man

Site Four - Cape Canaveral 8550 Astronaut Blvd.

1239 1st Video update from Utility Director on water line breaks and returning customers to normal service

1300 National Guard arrives to set up for bottled water distribution

1527 2nd Video update from Utility Director on water line breaks and returning customers to normal service

1900 1st truck of bottled water arrives at Site one

2036 All distribution sites have water and will start on distributing water 0800 on 9/13

Wednesday, September 13, 2017

0700 EOC Briefing 6th operational period begins IAP distributed

0800 Water bottle distribution begins at all four sites

0830 Briefing on Water System status from Utility Director – confirmed 36” subaqueous water main break in Indian River on SR 520 water main

0900 Water valve isolation on 520 east of CC Hospital brings up pressure in Cocoa Beach and begins work on Central Merritt Island.

0930 BCEM Municipal briefing

1000 Logan Dive Team on site to dive entire 520 water main in Indian and Banana Rivers and inspect underwater transmission lines

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1215 Water pressure being restored to South Merritt Island and Sykes Creek areas

1430 Briefing on Water System status from Utility Director

1800 Water Bottle Distribution site closed for the day

1822 3rd Video update from Utility Director on water line breaks and returning customers to normal service

1830 Water system pressure restored throughout service area except for isolated areas where repairs are still required

Thursday, September 14, 2017

0700 EOC Briefing 7th operational period begins IAP distributed

0800 Water bottle distribution begins at all four sites

0900 Briefing on Water System and Lift Station status from Utility Director

1000 BCEM Municipal briefing

1130 Began working on demobilization plan for water distribution sites with State EOC

1500 Cocoa and Merritt Island sites out of bottled water, enacted demobilization plan

1830 All distribution sites demobilized and resources sent back to staging area per State EOC

1300 Teleconference with FPL on electrical power restoration

2015 City Council briefing

Friday, September 15, 2017

0700 EOC Briefing 8th operational period begins IAP distributed

0900 briefing on Water System status and Waste Water Lift stations

1000 BCEM Municipal briefing

1315 Meeting on Damage Assessment

1500 Meeting Action plan for subaqueous water main breaks in Indian and Banana Rivers.

1600 Received Public Property Damage Assessment Report

1815 Received Personal Property Damage Assessment Report

1830 EOC Deactivated