PELICAN BAY SERVICES DIVISION
MUNICIPAL SERVICE TAXING & BENEFIT UNIT

NOTICE OF PUBLIC MEETING

NOVEMBER 12, 2018
THE PELICAN BAY SERVICES DIVISION BOARD AND THE PELICAN
BAY FOUNDATION BOARD WILL HOLD A JOINT WORKSHOP ON
MONDAY, NOVEMBER 12 AT 9:00 AM AT THE COMMUNITY CENTER
AT PELICAN BAY, LOCATED AT 8960 HAMMOCK OAK DRIVE,
NAPLES, FLORIDA, 34108

AGENDA

1. Call to order and Pledge of Allegiance (2 minutes)
2. Introduction of Boards (3 minutes)
3. Gulf Park Drive - Presented by PBSD (15 minutes)
4. Infrastructure (drains, pathways, roadways, street lights, berm and ponds) – Presented
   by PBSD (25 minutes)
5. Dependent/Independent District plans – Presented by PBSD (25 minutes)
6. Red Tide/Beach Maintenance – Presented by PBSD (20 minutes)
7. Lessons learned from Irma – Presented by PBF/PBSD (25 minutes)
8. Hurricane cleanup responsibilities – Presented by PBSD (20 minutes)
9. Communications before and after natural disasters – Presented by PBF (20 minutes)
10. Other comments/Q&A (25 minutes)
11. Adjournment

ANY PERSON WISHING TO SPEAK ON AN AGENDA ITEM WILL RECEIVE UP TO ONE (1) MINUTE PER ITEM
TO ADDRESS THE BOARD. THE BOARD WILL SOLICIT PUBLIC COMMENTS ON SUBJECTS NOT ON THIS
AGENDA AND ANY PERSON WISHING TO SPEAK WILL RECEIVE UP TO THREE (3) MINUTES. THE BOARD
ENCOURAGES YOU TO SUBMIT YOUR COMMENTS IN WRITING IN ADVANCE OF THE MEETING. ANY
PERSON WHO DECIDES TO APPEAL A DECISION OF THIS BOARD WILL NEED A RECORD OF THE
PROCEEDING PERTAINING THERETO, AND THEREFORE MAY NEED TO ENSURE THAT A VERBATIM
RECORD IS MADE, WHICH INCLUDES THE TESTIMONY AND EVIDENCE UPON WHICH THE APPEAL IS TO BE
BASED. IF YOU ARE A PERSON WITH A DISABILITY WHO NEEDS AN ACCOMMODATION IN ORDER TO
PARTICIPATE IN THIS MEETING YOU ARE ENTITLED TO THE PROVISION OF CERTAIN ASSISTANCE.
PLEASE CONTACT THE PELICAN BAY SERVICES DIVISION AT (239) 597-1748 OR VISIT
PELICANBAYSERVICESDIVISION.NET.
12.08 TRANSPORTATION

6. Access to Surrounding Roads

Access to the surrounding major roads shall be limited to those access points shown on Exhibit "J" except as otherwise approved by the Coastal Area Planning Commission.
Neil,

Thank you for coming in today with Lisa. I wanted to recap the meeting so I can assign some taskers to our staff to keep our ideas moving.

If I missed anything or if I am off a little with my notes, please let me know.

- Maintenance facility
  - Goal is to develop a shared use facility master plan before the Christmas break and move that forward to be construction ready by the fall of 2019
  - Sean is going to coordinate a meeting with our facilities team so we establish a work team that can handle the details as we move forward

- Sidewalks and Drainage
  - Goal is to transition the sidewalks and drainage systems outside of the paved right of way to PBSD
    - Sidewalks are pretty straightforward
    - Drainage cutoff needs to be refined
  - Sean will work with GMD to get you a copy of our drainage outfall plan in the next 30 days
    - You need a map of these locations and a spreadsheet identifying them
    - These exhibits will be used as a reference document in the transaction
  - PBSD was going to work on developing the financial plan

- Clam Bay Management Plan
  - This topic is going to be raised at the November PBSD meeting
  - Discussion will be had about reviewing historical methods of maintaining the pass with the more recent methods
  - The goal is to try and find common ground with the approach in order to manage stakeholder expectations with the need for a more sustainable maintenance plan
    - We need to avoid the annual emergency dredging as the agencies and the public are beginning to question the approach

I am going to ask Heather to get us together again in mid-December to maintain momentum on accomplishing these initiatives.

I also wanted to thank you for working with internal controls and ramping up the QA/QC program.

Respectfully,

Nick Casalanguida
Collier County, Deputy Manager
NickCasalanguida@CollierGov.net
239-252-8383
CONTRACT PRICING WORKSHEET  
For Standard Equipment Purchases  

This Worksheet is prepared by Contractor and given to End User. If a PO is issued, both documents MUST be faxed to H-GAC @ 713-993-4548. Therefore please type or print legibly.

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC06</td>
<td>Surf Rake 600HD</td>
<td>$51,584.00</td>
</tr>
</tbody>
</table>

A. Product Item Base Unit Price Per Contractor's H-GAC Contract: $51,584.00

B. Published Options - Itemize below - Attach additional sheet if necessary - Include Option Code in description if applicable  
(Note: Published Options are options which were submitted and priced in Contractor's bid.)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC06 530AS02 Automatic Finisher Attachment</td>
<td>$2,046.00</td>
</tr>
<tr>
<td>IC06 600HDGA Hot Dip Galvanizing</td>
<td>$3,949.00</td>
</tr>
<tr>
<td>IC06 522AS03 Hydraulic Moldboard</td>
<td>$2,664.00</td>
</tr>
<tr>
<td>IC06 6-LIGHTS Light Assembly</td>
<td>$860.00</td>
</tr>
</tbody>
</table>

Subtotal From Additional Sheet(s): $9,519.00

C. Unpublished Options - Itemize below - Attach additional sheet if necessary  
(Note: Unpublished options are items which were not submitted and priced in Contractor's bid.)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
</table>

Subtotal From Additional Sheet(s): 0.00

Check: Total cost of Unpublished Options (C) cannot exceed 25% of the total of the Base Unit Price plus Published Options (A+B).

For this transaction the percentage is: 0.00

D. Total Cost before any other applicable Charges, Trade-Ins, Allowances, Discounts, Etc. (A+B+C)

| Quantity Ordered | X Subtotal of A + B + C: $61,103.00 | Subtotal D: $61,103.00 |

E. Trade-Ins / Special Discounts / Other Allowances / Freight / Installation / Miscellaneous Charges

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping</td>
<td>$0.00</td>
</tr>
<tr>
<td>Installation &amp; Training</td>
<td>$0.00</td>
</tr>
<tr>
<td>Discount - Price change from RH08-16 to RH08-18</td>
<td>-$2,350.00</td>
</tr>
</tbody>
</table>

Subtotal E: -$2,350.00

Delivery Date: 30 Days ARO

F. Total Purchase Price (D+E): $58,753.00
BEACH CLEANING EQUIPMENT.
Lifts the debris, not the sand.

BARBER SURF RAKE®
Model 600HD

At 3,800 pounds, the 600HD is H. Barber & Sons’ largest SURF RAKE®. It has been successfully used in a variety of municipal applications. Cleaning up to eight acres an hour with its seven foot wide cleaning width, the 600HD has the greatest cleaning capacity of any beachcleaner. The 3 cubic yard hopper can lift up to 4,500 pounds of material and dump its contents hydraulically from a clearance height of nine feet.

Model 400HD

The model 400HD is an excellent choice for resorts, hotels and lakeshore communities. At 2,700 pounds, it is H. Barber & Sons’ moderate-size SURF RAKE®. The 400HD is equipped with a 2 cubic yard hopper which will lift 3,500 pounds of debris to a dumping height of nine feet. This mid-sized model uses the same heavy-duty conveyor and dump components as the 600HD. The 400HD can clean up to five acres per hour.

Model 400

Similar to the model 400HD, the model 400 is the smallest SURF RAKE®. It weighs 1,900 pounds and can lift up to 2,400 pounds in its 1 cubic yard hopper. Its hydraulic dump discards material neatly on the ground. Within one hour, the model 400 can effectively clean up to four acres.
The Barber SURF RAKE® is a unique mechanical rake operated by one person from the seat of a towing tractor. It provides safe, fast and efficient beach cleaning. Here is how it works: 1. The **moldboard** levels uneven areas in the sand. 2. A 3/8” grid of **stainless steel spring tines** rake debris from the sand toward 3. an adjustable **deflector** plate. As a result, refuse is deposited on 4. the **conveyor** to 5. the hydraulically raised **hopper**. The result: a clean, safe and well-manicured beach.

**THOROUGH CLEANING**
Hundreds of stainless steel tines, mounted in offset rows, rake through the sand every second, removing the unwanted debris. Even the smallest objects such as glass, cigarette butts and pop-tops are captured by the SURF RAKE® and deposited in the hopper.

**SANITIZING CONVEYOR BELT**
The Barber SURF RAKE features a new Sanitizing Conveyor “S-Belt”. This new belt design maximizes sand penetration and removal of extremely fine debris. Belt perforations, mounting tines underneath the conveyor and eliminating retaining bars now reduce the risk of residual sand removal. The new conveyor belt is easier to repair and keep clean and clear of debris.

**EXTRA STRENGTH STAINLESS STEEL TINE**
A new, double torsion, three coil stainless steel tine offers long life, great durability and resistance to corrosion.
## Specifications

### Models

<table>
<thead>
<tr>
<th>MODEL</th>
<th>HYDRAULIC DRIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>600HD</td>
<td>Completely sealed and protected by full flow filter. Large capacity spline mounted cast iron pump, hydraulic motor, flow control, and built-in overflow protection.</td>
</tr>
<tr>
<td>400HD</td>
<td>Completely sealed and protected by full flow filter. Large capacity spline mounted cast iron pump, hydraulic motor, flow control, and built-in overflow protection.</td>
</tr>
<tr>
<td>400</td>
<td>Completely sealed and protected by full flow filter. Large capacity spline mounted cast iron pump, hydraulic motor, flow control, and built-in overflow protection.</td>
</tr>
</tbody>
</table>

### Conveyor

- Of bar flight type with chain and sprocket drive, covered with continuous 6" wide NBR belt, which will not stretch or corrode.
- Of bar flight type with chain and sprocket drive, covered with continuous 4" wide NBR belt, which will not stretch or corrode.
- Of bar flight type with chain and sprocket drive, covered with continuous NBR belt, which will not stretch or corrode.

### Hopper

- Approx. 700 Stainless steel tines
- Approx. 380 Stainless steel tines
- Approx. 340 Stainless steel tines

### Dump Height

- 9 feet

### Tires

- 36 x 13.5 x 15 high flotation design
- 31 x 13.5 x 15 high flotation design
- 31 x 13.5 x 15 high flotation design

### Moldboard

- A moldboard deflector plate is positioned at the front of the machine to level the beach before cleaning.
- A moldboard deflector plate is positioned at the front of the machine to level the beach before cleaning.
- A moldboard deflector plate is positioned at the front of the machine to level the beach before cleaning.

### Operating Speeds

- Up to 15.0 miles per hour
- Up to 15.0 miles per hour
- Up to 15.0 miles per hour

### Cleaning Width

- 7 feet (6 foot processing width)
- 6 feet (4 foot processing width)
- 6 feet (4 foot processing width)

### Cleaning Depth

- Adjustable to 6"
- Adjustable to 6"
- Adjustable to 6"

### Dimensions

- Height: 7'6"
- Height: 7'3"
- Height: 4'5"
- Length: 13'1"
- Length: 11'9"
- Length: 9'10"
- Width: 7'8"
- Width: 7'6"
- Width: 7'6"

### Weight

- Approximately 3800 lbs.
- Approximately 2700 lbs.
- Approximately 1900 lbs.

### Paint

- Dupont IMRON® Polyurethane enamel
- Dupont IMRON® Polyurethane enamel
- Dupont IMRON® Polyurethane enamel

### Finishing Attachment

- To smooth the sand and eliminate tire marks for a minimum 9 foot wide path - optional.
- To smooth the sand and eliminate tire marks for a minimum 9 foot wide path - optional.
- To smooth the sand and eliminate tire marks for a minimum 9 foot wide path - optional.

### Galvanization

- All frame and body parts Hot Dip Galvanized - optional.
- All frame and body parts Hot Dip Galvanized - optional.
- All frame and body parts Hot Dip Galvanized - optional.

### Performance

- Cleans up to 8 acres per hour
- Cleans up to 5 acres per hour
- Cleans up to 4 acres per hour

### Tractor Requirements

- 60 PTO horsepower 4-wheel drive agricultural type tractor with 30" rear wheels.
- 35 PTO horsepower 4-wheel drive agricultural type tractor with 28" rear wheels.
- 30 PTO horsepower 4-wheel drive agricultural type tractor with 28" rear wheels.

### Debris Removed

- 540 RPM near PTO, 3 point hitch, and 1 remote hydraulic valve (minimum), up to 3 with options. This is a general guideline. Larger or smaller tractors may be used depending on beach conditions.
- Broken glass, plastic, syringes, cigarette butts, pop-tops, straws, cans, tar balls, stones 3/8" to 4" in diameter, sea grass, sea weed, fish, small pieces of wood.
- The manufacturer reserves the right to change the specifications without notice and without incurring obligation. The information contained herein is from data available at the time of printing.
The Barber SURF RAKE is the beach cleaner of choice for improving the appearance of public and private beaches. The most widely cited reason for choosing the SURF RAKE is its efficiency. It is designed with a unique raking system that quickly and thoroughly cleans an entire beach, including heavy debris areas along the water's edge. It is also the only beach cleaner that is equally effective in wet and dry sand at speeds up to 15 miles per hour. The ultimate result: your beaches are returned to a cleaner, more beautiful condition.

By eliminating the need for hand labor, the SURF RAKE actually reduces time and expense, resulting in an extremely cost-efficient method as well. Users find the SURF RAKE dependable, easy to operate and maintain. And with increasing concern for the environment, the Barber SURF RAKE is the least intrusive method of mechanical beach cleaning available today.

Barber SURF RAKES are maintaining beautiful beaches both domestically and internationally. Regardless of where a customer may be located, H. Barber & Sons promises expedient delivery of all parts and machinery. It is part of the company-wide commitment to excellent service which customers have come to expect from H. Barber & Sons. The corporate headquarters and manufacturing plant of H. Barber & Sons is based in Connecticut. Sales and support services are handled through a worldwide dealer network. Throughout the company, quality production, responsive service and customer support are of utmost importance.

Since its establishment in 1966, H. Barber & Sons has been committed to the preservation of beautiful beaches and the environment. Its product, the Barber SURF RAKE, is the highest quality, most efficient beach cleaning equipment available. With its ability to clean a variety of beach conditions, the SURF RAKE has earned H. Barber & Sons the distinction of being the leader in beach cleaning technology and the largest manufacturer of beach cleaners in the world.
The World Leader in Tine Raking Cleaning Equipment.

Litter collection machines for both paved surfaces and grass areas. Truck towed and tractor towed models for all applications.

Stone pickers that remove debris and level work area in one pass. A variety of models for different size jobs.

World leader in beach cleaning equipment for more than 40 years. Models for all beaches and conditions.
Collier County
Hurricane Irma Response
After-Action Report

October 31, 2017
Hagerty Consulting, Inc. ("Hagerty") provides this Collier County Hurricane Irma Response After-Action Report (the “Deliverable”) pursuant to its contract with Collier County Board of County Commissioners (the “Client”) dated October 9, 2017 (the “Contract”). Hagerty developed this Deliverable in a collaborative effort with the Client, and made use of input from the Client. Hagerty does not, in providing this Deliverable, make any representations about this Deliverable, oral or written, that change or are in addition to those representations that Hagerty makes in the Contract. Hagerty states that its obligations and rights with respect to this Deliverable are those expressly stated in the Contract. The only warranties to which this Deliverable is subject are any applicable warranties that are stated in the Contract, and any such warranties are subject to all limitations on warranties and exclusions of warranties that appear in the Contract and that apply to this Deliverable. All other provisions of the Contract that relate to the product to be provided by Hagerty, including statements about the performance and characteristics of that product, and all limitations on any such statements, apply to this Deliverable. Further, Hagerty here affirms that all limitations on its liability, any provisions for indemnification, any provisions for limited or exclusive remedies, and provisions for the forum or forums in which remedies may be sought, and all other applicable provisions of the Contract, apply to this Deliverable, to the exclusion of any terms not set forth in the Contract.

Hagerty intends this Deliverable to be used by the Client and by persons that are affiliated with the Client, in the undertaking for which Hagerty prepared this Deliverable, and does not intend it to be used by any other person or in any other manner. In supplying this Deliverable, Hagerty relies on the specialized knowledge of the Client about how this Deliverable should be used and should not be used, and about how it may have to be updated.

Hagerty advises any person that uses this Deliverable that Hagerty owes no duties with respect to this Deliverable to any person other than the Client. Hagerty accepts no responsibility for the results of any use or attempted use of this Deliverable by any person other than the Client.
Administrative Handling Instructions

The Collier County Hurricane Irma Response After-Action Report identifies areas of strength and opportunities for improvement based on the lessons learned associated with Collier County's response to Hurricane Irma from September 6, 2017, through September 16, 2017. This report is limited to observations and analysis available through October 18, 2017, a month following Hurricane Irma. The analysis outlined in this report represents an analysis of immediate or short-term issues.

Structurally, this document is aligned with the core capabilities identified by the federal government under the National Preparedness Goal (NPG) and was developed leveraging planning meetings as outlined under the Homeland Security Exercise and Evaluation Program (HSEEP).

The information contained in this document is current as of the date of publication, October 25, 2017. As of the date of publication, hurricane response and recovery efforts are still ongoing.

Input for the After-Action Report (AAR) was sought from and provided by Collier County departments and divisions under the County Board of Commissioners, as well as from Emergency Operations Center liaisons from the Collier County Sheriff's Office and the Collier County Public Schools. Appendix C: Interview Schedule and Attendance provides the list of participating agencies.

For more information about this report, please use the following point of contact.

Dan Summers, Director
Collier County Bureau of Emergency Services
8075 Lely Cultural Pkwy
Naples, FL 34113
DanSummers@colliergov.net
239-252-3600
Acknowledgements

A critical component of post-disaster processes is the identification of lessons learned to enable Collier County to enhance their capabilities before the next hurricane. Almost 50 Collier County employees and stakeholders took part in interviews and compiled their own findings to inform the Collier County Hurricane Irma Response After-Action Report. Collier County thanks these individuals for their work to help develop this report.

From the days preceding landfall through the weeks and months after the storm, countless community members, volunteers, and government employees have been active to prepare for, respond to, and recover from the impacts of the hurricane. As these efforts continue, Collier County would like to thank the individuals, communities, and recovery teams that are actively involved in restoring the community and maintaining Collier County’s state of excellence.
Executive Summary

The Collier County Hurricane Irma Response After-Action Report was requested by the Collier County Board of Commissioners to help identify the strengths and challenges in Collier County’s emergency response capabilities demonstrated from September 6, 2017, through September 16, 2017. This After-Action Report (AAR) highlights the positive aspects of the response by Collier County, while also noting areas in which there is room for improvement to improve response capabilities for future disaster. This report is not intended to assign blame for actions or identify shortcomings, it is an opportunity to identify improvements through the strategic organization of actions and assets. The AAR is a tool to be used as a roadmap for future development and modifications of processes, as well as to identify priorities for procurement of needed response assets.

Critical Priority Findings

The following are the critical priority findings from the Collier County Hurricane Irma Response After-Action Report. These findings reference observations contained in the report that provide further analysis and identified recommendations.

- The pre-landfall public information campaign was successful, but communication with the public was impacted post-landfall by power loss. (Observation 1, Observation 3)
- Fuel shortages impacted County employees responding to the hurricane, private citizens, and supply for generators. (Observation 5)
- Shelter demand far exceeded the planning assumptions, requiring last minute coordination to open sufficient number of shelters. (Observation 9, Observation 10)
- Under State licensing, some assisted living facilities and long-term care facilities did not have sufficient back-up power capabilities. (Observation 6)
- While a large number of life-safety issues were presented in this event, the presence of strong leadership and coordination and commitment at all levels led to successful operations to fulfill all life-saving and sustaining missions. (Observation 17)
Table of Contents

1.0 Introduction ........................................................................................................... 6
   1.1 Event Summary .................................................................................................... 6
   1.2 Description of Data Sources .............................................................................. 7
2.0 Hurricane Irma Response Analysis ...................................................................... 8
   2.1 Public Information and Warning ....................................................................... 9
   2.2 Logistics and Supply Chain Management .......................................................... 11
   2.3 Mass Care Services ............................................................................................ 14
   2.4 Operational Communications ............................................................................ 18
   2.5 Operational Coordination .................................................................................. 20
   2.6 Planning .............................................................................................................. 25
3.0 Corrective Actions Implementation Plan ............................................................... 31
Appendix A: Acronyms ............................................................................................... 32
Appendix B: Glossary .................................................................................................... 33
Appendix C: Interview Schedule and Attendance ...................................................... 36
Appendix D: Survey Results ....................................................................................... 38
Appendix E: Incident Timeline ................................................................................... 44
Appendix F: Planning and Regulation Resources and NIMS Resolution .................... 45
1.0 Introduction

On Sunday, September 10, 2017, Hurricane Irma made landfall in Collier County bringing powerful winds, downing power lines, uprooting trees, turning streets into rivers, and leaving a trail of debris and devastation behind. Preparations in Collier County for Irma started 5 days before landfall with close monitoring that ramped up to a full activation of the Emergency Operations Center (EOC) on September 8. Through the hard work and dedication of Collier County employees, the County successfully responded to one of the worst hurricanes in the County’s history.

The Collier County Hurricane Irma Response After-Action Report was requested by the Collier County Board of Commissioners to help identify the strengths and challenges in Collier County’s emergency response capabilities. The findings are based on lessons learned associated with Collier County’s response to Hurricane Irma from September 6, 2017, through September 16, 2017. This After-Action Report (AAR) documents the positive aspects of the response, while also noting areas in which there is room for improvement. This report is intended to be used as a roadmap for future development and modifications of processes, and for the prioritization of the procurement of needed response assets. It is not intended to place blame for any actions, or for anything to be seen as a shortcoming, but rather is an opportunity for improvement through the strategic organization of actions and assets.

Over the course of a week, Collier County personnel participated in interview sessions and provided detailed information to help inform this report. The issues identified in this report should be referenced in the coming months by each department to develop and implement corrective actions specific to their emergency response roles and responsibilities.

As the County continues to recovery from Irma, additional after-action analysis will be undertaken to incorporate city, private-sector, and volunteer agency perspectives.

1.1 Event Summary

Hurricane Irma made landfall in Marco Island at 3:35 PM EDT on September 10, 2017, as a Category 3 hurricane. Irma was an intimidating storm, having maintained Category 5 winds for longer than any other Atlantic hurricane in recorded history, and causing severe impacts on Collier County:

- Approximately five feet of storm surge and 7.5 to 11.5 inches of rainfall in different areas.
- $325 million in estimated damage.
- 4.2 million cubic yards of estimated debris.

The storm had a massive impact on Collier County, and on the entire state. Hurricane Irma caused power outages to almost 98 percent of the County, which had cascading impacts on communication services, and resources across the state were delayed in staging areas due to the time it took the hurricane to travel...
through the length of Florida. These impacts affected the resources and procedures that Collier County had identified before the storm, necessitating a large coordination effort from all response stakeholders to ensure the provision of life-safety and life-sustaining services.

The supply of resources was also impacted by the national response to Hurricane Harvey two weeks prior to Hurricane Irma. Additionally, the demand for services was higher than anticipated due to the forecasted impact of the storm and the greater public awareness due in part to the national news stories about Hurricane Harvey. Almost 8,000 more residents sought shelter than anticipated, and in the week leading up to Hurricane Irma, there was a 75 percent increase in the number of registrants on the Collier County Florida Special Needs Registry.

Collier County Bureau of Emergency Services (BES) fully activated its EOC on September 8, 2017, in anticipation of the impending landfall of the major hurricane. During response, an estimated 180 partners from over 60 agencies and departments played a role, either within the EOC or out in the field. An estimated 42,000 to 45,000 people in Collier County were ordered to evacuate their homes, with almost 18,000 people seeking refuge in one of the 30 shelters coordinated by BES and response partners.

1.2 Description of Data Sources

This report was compiled based on input provided through a series of 14 interviews conducted from October 11, 2017 – October 18, 2017 with 48 representatives from Collier County departments and divisions under the County Board of Commissioners, as well as with EOC liaisons from the Collier County Sherriff’s Office and the Collier County Public Schools. The full list of participating agencies is documented in Appendix C: Interview Schedule and Attendance. In addition to interview attendance, representatives from participating agencies provided departmental or division after-action findings to inform the development of the Collier County Hurricane Irma After-Action Report.

Information gathered from WebEOC, the emergency management coordination platform used in the EOC during Hurricane Irma, was also referenced to inform these findings. In addition, pertinent Collier County plans and policies were researched and referenced to complete these findings.
2.0 Hurricane Irma Response Analysis

The following sections identify and describe the strengths and opportunities for improvement related to actions that Collier County took in preparation for and in response to Hurricane Irma. Both the strengths and areas for improvement offer opportunities for Collier County to improve its response capabilities and capacity for future incidents. The recommendations included in the sections below identify opportunities for Collier County to address the lessons learned identified here to improve the County’s ability to provide services in future incidents.

This analysis is strategically presented in alignment with core capabilities under the National Preparedness Goal (NPG). The NPG provides a common taxonomy and framework for local, state, and federal agencies to consider and increase their capabilities to prevent, prepare for, respond to, recover from, and mitigate against the potential impacts of future disasters. The observations are organized first by Core Capability, and then by strength and area for improvement, they are not organized in an order of overall priority.

The relevant core capabilities associated with the event and examined in this AAR are presented below.

<table>
<thead>
<tr>
<th>National Preparedness Goal Core Capability</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public Information and Warning</strong></td>
<td>Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard, as well as the actions being taken and the assistance being made available, as appropriate.</td>
</tr>
<tr>
<td><strong>Logistics and Supply Chain Management</strong></td>
<td>Deliver essential commodities, equipment, and services in support of impacted communities and survivors, including emergency power and fuel support, as well as the coordination of access to community staples. Synchronize logistics capabilities and enable the restoration of impacted supply chains.</td>
</tr>
<tr>
<td><strong>Mass Care Services</strong></td>
<td>Provide life-sustaining and human services to the affected population, including hydration, feeding, sheltering, temporary housing, evacuee support, reunification, and distribution of emergency supplies.</td>
</tr>
<tr>
<td><strong>Operational Communications</strong></td>
<td>Ensure the capacity for timely communications in support of security, situational awareness, and operations by any and all means available, among and between affected communities in the impacted area and all response forces.</td>
</tr>
<tr>
<td><strong>Operational Coordination</strong></td>
<td>Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities.</td>
</tr>
<tr>
<td><strong>Planning</strong></td>
<td>Conduct a systematic process engaging the whole community as appropriate in the development of executable strategic, operational, and/or tactical-level approaches to meet defined objectives.</td>
</tr>
</tbody>
</table>
2.1 Public Information and Warning

The Public Information and Warning Core Capability includes the ability of the county to deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard, as well as the actions being taken and the assistance being made available. The following observations relate to this core capability and include recommendations to enhance the County’s capabilities in the future. The observations are organized within this Core Capability by strength and then area for improvement, they are not organized in an order of overall priority.

2.1.1 Strengths

The section below provides analysis on the observed strengths related to the Public Information and Warning Core Capability.

Observation 1: Pre-Landfall Public Communication

The use of the County’s established traditional and social media platforms allowed for effective public information and warning messages to be delivered before Hurricane Irma made landfall.

Analysis

The Public Information Officer (PIO) from the Communication and Customer Relations Division coordinated with BES, Collier County departments, and the Collier County Sheriff’s Office to disseminate public information and warnings, ensuring that all residents received timely and effective evacuation information as the track of Hurricane Irma shifted. The PIO leveraged Spanish and Creole language media and organization contacts, as well as an American Sign Language contracted interpreter, to ensure the County’s messages were accessible to the largest possible percentage of County residents. Additionally, the PIO utilized the Collier County website and social media platforms, including Facebook live, to disseminate storm-related messages and provide real-time responses to questions and misinformation.

The efforts of the PIO and public information stakeholders ensured that all County residents had reliable and timely evacuation information to guarantee their safety before Hurricane Irma landfall. These efforts over traditional and social media platforms, including through National Oceanic and Atmospheric Administration (NOAA) weather radio and simulcasted television and radio stations, ensured that information about Hurricane Irma was available to as many County residents as possible.

Observation 2: Hurricane Hotline

Collier County provided real-time response to community questions and needs via the 3-1-1 and Hurricane Hotline services.

Analysis

The Administrative Services Department operated a phone bank with 16 stations, and 104 staff and volunteers manning these stations, from September 6 – 22, 2017 to provide Collier County residents information before the hurricane about preparedness efforts, including details about evacuation and
sheltering procedures, and after the hurricane about response and recovery efforts. The 3-1-1 and Hurricane Hotline services received at least an estimated 30,000 calls during this period. This service ensured residents had a source for real-time information about Collier County services leading up to and after the hurricane.

2.1.2 Areas for Improvement

The section below provides analysis on the observed areas for improvement related to the Public Information and Warning Core Capability.

Observation 3: Communication Disruption due to Power Loss
The County’s ability to communicate with the public immediately after the storm was limited due to widespread loss of power.

Analysis
The widespread loss of internet and power during Hurricane Irma impacted Collier County residents’ ability to receive communications, especially due to cell phone tower power outages, and highlighted the need to be prepared for alternate methods of public information dissemination during future disasters. Text messaging, broadcast radios, and community message boards are potential alternative methods that can be employed when web-based and television communication methods are not available.

Recommendations
- Identify and create procedures and pre-scripted messages to support alternative public information messaging when web-based and television mediums are not available.
- Continue to implement the Everbridge system purchased by FDEM as part of AlertFlorida to support text message alerts during disasters.
2.2 Logistics and Supply Chain Management

The Logistics and Supply Chain Management Core Capability includes the ability of the county to deliver essential commodities, equipment, and services in support of impacted communities and survivors, to include emergency power and fuel support, as well as the coordination of access to community staples. Synchronize logistics capabilities and enable the restoration of impacted supply chains. The following observations relate to this core capability and include recommendations to enhance the County’s capabilities in the future. The observations are organized within this Core Capability by strength and then area for improvement, they are not organized in an order of overall priority.

2.2.1 Strengths

The section below provides analysis on the observed strengths related to the Logistics and Supply Chain Management Core Capability.

*Observation 4: Coordination to Support Resource Requests*

EOC representatives coordinated to provide support to the Logistics and Disaster Resources Section in order to ensure all critical resource requests were fulfilled.

**Analysis**

The EOC received over 500 logged resource requests during Hurricane Irma. The resource requests had the potential to overwhelm the planned capacity of Emergency Support Function (ESF) #7 – Resource Support and the Logistics and Disaster Resources Section. EOC representatives from supporting divisions supplemented the Section to provide targeted support for critical requests, including fuel disbursement, to ensure that there was no gap in life-saving or life-sustaining service provision.

2.2.2 Areas for Improvement

The section below provides analysis on the observed areas for improvement related to the Logistics and Supply Chain Management Core Capability.

*Observation 5: Fuel Shortages*

The lack of fuel severely impeded the County’s ability to support emergency response efforts.

**Analysis**

The county’s disaster fuel vendor was unable to provide the level of support contracted, and the County’s fuel reserve tanks were not fully filled before Hurricane Irma made landfall. The fuel shortage impeded the County’s ability to supply full fuel reserves for operating generators at critical facilities and to fuel cars for County employees providing response services. The County ensured all life-safety needs were met with the available fuel supply.

**Recommendations**

- Identify multiple fuel vendors, including those who specialize in disaster and those out of the immediate region, with contract penalty clause to prevent future vendor shortages.
- Identify all County assets that can be used for fuel distribution (e.g., department fuel trucks, portable tanks for pickup trucks).
Explore potential public/private agreements with developers to build additional fuel storage facilities at new private facilities (e.g., government pays for the storage component and helps with permitting) for government use in a disaster.

**Observation 6: Generators at Non-County Owned Critical Facilities**

Not all non-Collier County owned or managed critical facilities, including private lift stations, shelter facilities, nursing homes, and assisted living facilities, had adequate alternate power sources.

**Analysis**

Over 205,000 Florida Power and Light (FPL) customers in Collier County were without power after Hurricane Irma. This meant that critical facilities not owned by the County, including private lift stations, shelters, assisted living facilities, and nursing homes, relied on alternate power sources in order to provide services for their residents. Many of the generators in these facilities were not adequate, or sufficiently maintained, to provide these services. For example, the generator at Palmetto Ridge, which served as the Special Needs Shelter, failed almost immediately after power loss. The backup generator only provided power for one building, where the patients requiring oxygen were housed, and emergency lights in all remaining buildings.

The County maintains a supply of portable generators, and provided these as well as fuel as needed, to ensure life-safety and life-sustaining services at these facilities. Additionally, Collier County Emergency Medical Services (EMS), the Public Transit and Neighborhood Enhancement Division, and the Collier County Public Schools provided vehicles with air conditioning to provide relief for clients in these facilities. The County’s current supply of portable generators was insufficient to meet the demand due to increased amount of shelters, as well as critical facilities in need of alternate power supply.

**Recommendations**

- Work with non-County owned critical facilities to identify generator status, facility functions supported by generators, and maintenance plan.
- Prioritize list of critical facilities to receive portable generator support in a disaster based on fixed or temporary needs.
- Identify additional generator requirements, including on-site generators or portable generators, to support all planned shelter facilities.
- Identify and implement policy to require non-County owned critical facilities to maintain their generators, test them with potential load on a regular (e.g., alternate power industry standard) basis, and keep enough fuel in supply to support continued operation for up to three days.
- Closely review the plans submitted by assisted living communities and nursing home facilities to ensure their viability and to identify any areas where there may be too much reliance on one vendor to supply fuel for the generators. BES should work with these facilities to make their plan operationally effective by having the local authority to impose more stringent requirements than the present rules from the Florida Agency for Health Care Administration.
**Observation 7: Generators for County Owned Critical Facilities**

Not all of the Collier County identified critical facilities, especially lift stations, have alternate power sources.

**Analysis**

There are over 425 lift stations in Collier County. While Collier County provides alternate power sources for the majority of the critical facilities that they own or manage, the number of lift stations makes the provision of alternate power sources for all of these economically non-viable. The failure of lift stations during Hurricane Irma caused wastewater system failures and spills in limited areas across the County.

While Collier County maintains a supply of portable generators to meet the needs of these facilities, this was not a sufficient supply to meet the high demand due to the large power outages in the immediate aftermath of the storm. There was also a high national demand for generators in the aftermath of Hurricane Harvey and the preparation for Hurricane Irma.

**Recommendations**

- Prioritize list of critical facilities to receive portable generator support in a disaster based on fixed or temporary needs.
- Identify additional generator requirements, including on-site generators or portable generators, to support high demand for alternate power at County owned critical facilities.

**Observation 8: Emergency Management Storage Space**

The amount and logistics of the emergency management supply storage space is not adequate for efficient storage or response-related distribution.

**Analysis**

The County maintains a cache of emergency supplies in warehouse spaces in the Emergency Services Building. The largest of these spaces is the East Bay, a non-environmentally controlled space. Additionally, some commodities are stored in trailers, which are exposed to heat and humidity. The lack of adequate environmentally controlled space results in loss of resources due to mildew, and creates challenges for unloading commodities in the East Bay during inclement weather. There are forklift and liftgate capabilities at the East Bay site, but this space does not have a loading dock to enable a more efficient movement of supplies. This has caused delays in getting resources out to those who need them.

**Recommendations**

- Renovate the existing emergency management covered parking area to include environmentally controlled areas as well as a loading dock. Or identify an alternative storage area that fully meets the needs of the County.
- Form agreements with potential shelter locations to build or convert on-site existing space to be environmentally controlled supply storage to provide easier access for shelter operation and substantially reduce the burden of storage on the Emergency Services Building.
2.3 Mass Care Services

The Mass Care Services Core Capability includes the ability of the county to provide life-sustaining and human services to the affected population, to include hydration, feeding, sheltering, temporary housing, evacuee support, reunification, and distribution of emergency supplies. The following observations relate to this core capability and include recommendations to enhance the County’s capabilities in the future. The observations are organized within this Core Capability by strength and then area for improvement, they are not organized in an order of overall priority.

2.3.1 Strengths

The section below provides analysis on the observed strengths related to the Mass Care Services Core Capability.

Observation 9: Shelter Identification and Activation

The coordination between Collier County, Collier County Public Schools, and all response stakeholders enabled the identification and activation of 29 shelters to ensure all residents had access to shelter services.

Analysis

Pre-hurricane Collier County plans allowed for staff, resources, and shelter locations to support approximately 10,000 evacuees; an estimated 17,620 people sought shelter during Hurricane Irma. The County, Collier County Public Schools, and all response stakeholders made heroic efforts to identify and open 29 shelter locations in a 22-hour window between 1300 hours on September 8, 2017, when the first shelters opened, and 1100 hours on September 9, 2017. These efforts to identify suitable locations, and the resources to support these locations, ensured that all residents who needed sheltering services received them during Hurricane Irma.

2.3.2 Areas for Improvement

The section below provides analysis on the observed areas for improvement related to the Mass Care Services Core Capability.

Observation 10: Pre-Hurricane Shelter Planning

The pre-hurricane identification of available potential shelter locations and resources was insufficient for the number of evacuees who sought shelter in Collier County facilities.

Analysis

As noted above, Collier County shelter plans identified space for approximately 10,000 people in 10 shelter locations. During Hurricane Irma, the shelter demand was approximately 17,620. The Special Needs Shelter was planned to have a capacity of 40 special needs clients, and there were 396 special needs clients that were served at this facility during Hurricane Irma. As the County identified shelter locations, there was sometimes a lack of awareness of the status of potential locations. One of these facilities, the University of Florida's Institute of Food and Agricultural Sciences (IFAS) extension building, was evacuated due to concerns of stability and suitability. The roof on the IFAS extension building failed due to high winds during the storm, after it was evacuated of all shelter clients.
Table 1: Shelter Locations, Capacity, and Occupancy

<table>
<thead>
<tr>
<th>Shelter Name</th>
<th>Capacity</th>
<th>Occupants During Irma Sheltering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ave Maria Field House</td>
<td>1000</td>
<td>500</td>
</tr>
<tr>
<td>Calusa Park</td>
<td>744</td>
<td>183</td>
</tr>
<tr>
<td>Coral Springs Middle School</td>
<td>1031</td>
<td>1000</td>
</tr>
<tr>
<td>Cypress Palm Middle School</td>
<td>1675</td>
<td>800</td>
</tr>
<tr>
<td>Eden Park Elementary</td>
<td>250</td>
<td>564</td>
</tr>
<tr>
<td>First Baptist Church Naples</td>
<td>150</td>
<td>250</td>
</tr>
<tr>
<td>Golden Gate Elementary</td>
<td>310</td>
<td>310</td>
</tr>
<tr>
<td>Golden Gate High School</td>
<td>1300</td>
<td>1300</td>
</tr>
<tr>
<td>Golden Gate Middle School</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Golden Terrance Elementary</td>
<td>250</td>
<td>500</td>
</tr>
<tr>
<td>Gulf Coast High School</td>
<td>1018</td>
<td>1525</td>
</tr>
<tr>
<td>Highlands Elementary</td>
<td>420</td>
<td>420</td>
</tr>
<tr>
<td>Hodges University</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Immokalee High School</td>
<td>1500</td>
<td>1500</td>
</tr>
<tr>
<td>Immokalee Middle School</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>Lake Trafford Elementary School</td>
<td>419</td>
<td>419</td>
</tr>
<tr>
<td>Laurel Oak Elementary School</td>
<td>250</td>
<td>315</td>
</tr>
<tr>
<td>Lely High School</td>
<td>750</td>
<td>1002</td>
</tr>
<tr>
<td>Mike Davis Elementary School</td>
<td>900</td>
<td>900</td>
</tr>
<tr>
<td>North Collier Regional Park</td>
<td>489</td>
<td>489</td>
</tr>
<tr>
<td>North Naples Middle School</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Oak Ridge Middle School</td>
<td>500</td>
<td>512</td>
</tr>
<tr>
<td>Palmetto Ridge High School</td>
<td>880</td>
<td>880</td>
</tr>
<tr>
<td>Pine Crest Elementary School</td>
<td>875</td>
<td>875</td>
</tr>
<tr>
<td>Sabal Palm Elementary</td>
<td>250</td>
<td>287</td>
</tr>
<tr>
<td>St. Agnes Catholic Church</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Temple Shalom</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Veteran's Memorial Elementary</td>
<td>250</td>
<td>152</td>
</tr>
<tr>
<td>Village Oaks Elementary</td>
<td>250</td>
<td>427</td>
</tr>
<tr>
<td>Vineyards Elementary</td>
<td>175</td>
<td>360</td>
</tr>
</tbody>
</table>

**Total Planned Shelter Capacity:** 8,562  
**Total Number of Sheltered:** 17,620  

**Total Shelter Capacity:** 17,786

**Key**  
- Pre-Planned Shelter  
- Operated Over Capacity
Recommendations
- Perform a shelter needs assessment to determine potential demand during future incidents, including the demand for critical care and those with access and functional needs.
- Perform shelter assessments on all potential shelter locations to determine vulnerability to hazards, alternate power supply, and other suitability considerations. Assessments should include a structural engineering component to determine the wind load capacity of the building.
- Continue to work with neighboring counties on regional shelter planning efforts to leverage and share resources.
- Enforce Enhanced Hurricane Protection Area standards for retrofitted or new facilities.

Observation 11: Pre-Hurricane Shelter Resources
The County did not have an adequate numbers of pre-hurricane trained staff in all the activated shelters to support the high shelter demand.

Analysis
The shelters were managed and staffed with a combination of Collier County employees, American Red Cross volunteers, Collier County Public School employees in school facilities, and Florida National Guard troops. The shelter staff were not all pre-identified and so did not all receive training in shelter processes from Collier County BES before the hurricane, and there was reported confusion about who was responsible for managing the shelter and making decisions. EOC Shelter Coordinators could not communicate directly with schools and had to use school liaisons to pass and receive information. National Guard troops were unfamiliar with shelter protocols, and they did not provide an opportunity in advance of deployment to receive local coordinating instructions.

Recommendations
- Develop a shelter management plan that involves all key parties and clearly specifies roles and responsibilities. Consider developing these plans at an individual shelter facility level.
- Expand the frequency and curriculum for the implementation of the annual shelter training program to clearly communicate what shelter staff should expect while working at a shelter, including information about what they should bring with them to care for themselves.
- Develop an on-the-job abbreviated training that shelter staff can take immediately before being activated to support shelter activities.

Observation 12: Pet Sheltering
The Governor publicly guaranteed that all shelters in the state would receive pets, but not all Collier County shelters had the processes and resources in place for these services.

Analysis
Co-locating pets with their owners is now a national emergency management standard to ensure that all people, including those with pets, will seek shelter during a disaster. Many shelters did not have supplies to house pets (e.g., pet tarps, carriers, food), and they did not have pet policies defined. The County had to pay for the cleanup of these facilities from minor damages made by pets.
Recommendations
- Develop campaign about what owners should do with pets during a disaster; include this with pet licensing materials the County sends to owners.
- Perform a pet shelter needs assessment in alignment with sheltering needs assessment.
- Determine resources needed to provide services in all sheltering locations.
- Identify staffing resources needed to provide services in all sheltering locations; begin recruiting and training staff.
- Form a County Animal Response Team to coordinate with other county and state teams to help develop a plan and policies, identify resources, and train potential pet sheltering staff.

Observation 13: Paratransit Services
There was insufficient paratransit transportation to take special needs residents to shelters.

Analysis
Residents needing paratransit transportation waited for hours to be picked up to be taken to shelters. The demand was so great that paratransit providers were picking up evacuees long after their pre-determined shut down time, up to the first bands of the storm, to ensure all evacuees made it into a shelter.

Recommendations
- Coordinate with Public Transit and Neighborhood Enhancement Division to identify ways to reduce the coordination time to dispatch paratransit.
- Identify alternative solutions, using private companies or volunteer groups, such as cabs that have wheelchair lifts, to support transportation efforts.
- Expand the Special Needs Coordination team in the EOC to improve dispatch determination and timing.

Observation 14: Post-Hurricane Support for Individuals with Continuing Care Needs
Due to the large county- and state-wide demand for healthcare services, there was insufficient available support for individuals with access and functional needs that require continuing care after the storm.

Analysis
The County’s plan to provide services to those with access and function needs that require continuing care after the storm is limited to the availability of resources from local or regional hospitals or nursing homes, and the support from state departments to assist with client care and post-event placement. Due to the large county- and state-wide impact of the storm, these resources were not available to assist Collier County upon closure of the special needs/critical care shelter. Collier County had requested state support to meet these needs; however, while the state offered five personnel from the Agency for Health Care Administration, these personnel did not become available to assist the County. These services are essential for providing care for individuals who cannot return to their previous living situation due to home damages or because their daily care giver is not available.

Recommendations:
- Identify additional mutual aid resources to engage before and after future incidents to support this mission.
2.4 Operational Communications

The Operational Communications Core Capability includes the ability of the county to ensure the capacity for timely communications in support of security, situational awareness, and operations by any and all means available, among and between affected communities in the impact area and all response forces. The following observations relate to this core capability and include recommendations to enhance the County’s capabilities in the future. The observations are organized within this Core Capability by strength and then area for improvement, they are not organized in an order of overall priority.

2.4.1 Strengths

The section below provides analysis on the observed strengths related to the Operational Communications Core Capability.

Observation 15: Restoration of the Public Safety Radio System

Collier County was able to quickly restore full operations of the public safety radio systems to ensure minimal disruption of communications immediately after the storm.

Analysis

A generator failure at the County Barn site and wind damage at three sites caused disruption to the radio system operations and capabilities across the County. The Information Technology Division provided support to restart the generator and verify system operations at the County Barn during Hurricane Irma, and additional technicians began inspections and repairs on September 11 when the conditions were safe for travel. This quick identification of system issues and completion of repairs needed for restoration ensured that the disruption of the public safety radio system was minimal, and very short-term.

2.4.2 Areas for Improvement

The section below provides analysis on the observed areas for improvement related to the Operational Communications Core Capability.

Observation 16: Communication Disruptions

Damaged infrastructure caused disruptions to multiple modes of communication during and immediately after the storm.

Analysis

After Hurricane Irma made landfall, there were multiple failures in communications across different modes of communication, causing intermittent loss in communications between the EOC and shelters and facilities across the county, especially in Immokalee and Everglade City. As described above, there were areas with low fault tolerance in the existing radio network and radio antenna damage that caused communication outages along this mode of emergency service provider communication. Additional disruptions were caused by loss of power, and inadequate alternate power supply, for cell towers and internet system
providers. This lack of communication capability impeded the County’s ability to coordinate some response actions.

**Recommendations**

- Evaluate and validate the new radio system when installation is complete in 2018 to ensure it addresses the issues identified in radio pathway fault tolerance during Hurricane Irma.
- Require that all departments and divisions identify their COOP locations to the IT Division to ensure primary and alternate data and voice communications connectivity.
2.5 Operational Coordination

The Operational Coordination Core Capability includes the ability of the County to establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities. The following observations relate to this core capability and include recommendations to enhance the County’s capabilities in the future. The observations are organized within this Core Capability by strength and then area for improvement, they are not organized in an order of overall priority.

2.5.1 Strengths

The section below provides analysis on the observed strengths related to the Operational Coordination Core Capability.

**Observation 17: Incident Coordination and Leadership**

While a large number of life-safety issues were presented in this event, the presence of strong leadership and coordination and commitment at all levels led to successful operations to fulfill all life-saving and sustaining missions.

**Analysis**

The response to Hurricane Irma was led from the EOC under the leadership of the Bureau of Emergency Services (BES) Director, and supported by the County Manager, Deputy County Manager, and County Attorney. All the Collier County partners who served in roles in the EOC and across the County to prepare for and respond to the needs of the County residents during Hurricane Irma worked tirelessly together under this leadership to ensure that they were identifying and addressing critical issues that arose throughout the incident.

This was a complex incident, and there were many factors that caused complications beyond the County’s control, including the changing path of the storm, the heightened awareness of consequences due to the recent impacts of Hurricane Harvey, and a shortage of resources due to vendor failures and national resources being previously deployed to other parts of the country.

The strong coordination of Collier County BES and all departments and divisions ensured that any issue that arose, as detailed in other sections of this report, was addressed as efficiently and effectively as possible during the response to Hurricane Irma. This coordination was critical in ensuring that no fatalities occurred as a result of evacuation operations, hurricane landfall, storm surge, structural failure, or re-entry operations.

---

Observe operations in the EOC "pre-event and post-event was one of the most impressive things I’ve seen in my life. I’m very proud of the work that was done here.”

-Jeff Klatzkow, County Attorney
2.5.2 Areas for Improvement

The section below provides analysis on the observed areas for improvement related to the Operational Coordination Core Capability.

Observation 18: WebEOC Use

EOC staff found it difficult to maintain an adequate situational awareness of all events and resource needs through WebEOC.

Analysis

WebEOC is an incident management tool that helps maintain situational awareness and supports resource management issues. Staff received information from WebEOC, email, phone, and face-to-face interactions. This was partially due to some personnel being unfamiliar with WebEOC as they were assigned to the EOC for the first time without the benefit of attending previously offered monthly training, and it quickly became difficult to maintain awareness of information and resource requests in WebEOC without prior training. This caused issues for situational awareness in the EOC as well as in the call centers, which did not have adequate visibility of up-to-date information. In some instances, the public was given misinformation about sheltering procedures or available locations due to the quickly filling shelters and data entry lag from County shelter workers or Red Cross.

Lack of awareness of command, control, coordination, and communication flow protocols inside the EOC caused difficulty for EOC staff, as well as staff in the field relying on the EOC for information. If information was being accurately captured by all partners in WebEOC, this would have alleviated some of the cross-communication and difficulty in maintaining information integrity and awareness.

Recommendations

- Provide all County employees with EOC responsibilities mandated training multiple times a year on using and monitoring WebEOC to ensure all resource requests are made and tracked through this system.
- Develop a method to incentivize emergency management training—including Collier County-specific procedures, FEMA Independent Study courses, EOC exercises, and Incident Management Team concepts—for employees who take trainings to become proficient in their emergency response-related role (e.g., four hours of comp time for every fifteen hours of approved trainings).
- Remind EOC staff of the handy job aides at each workstation to ensure the use of command, control, and coordination communication flow diagram included in the EOC reference binder.
**Observation 19: Coordination with Immokalee**

Communication system interruptions led to challenges in the coordination with government and non-governmental organizations in Immokalee, resulting in barriers, and perceived barriers, in service provision.

**Analysis**

Communication system interruption and physical distance contributed to challenges in coordination with Immokalee residents. Previously established interagency and post Hurricane Wilma coordination recovery committees were not still functioning during Hurricane Irma, and they were not able to reform to serve as a liaison to the County and with other community groups, which resulted in a general lack of awareness of activities in Immokalee, impacting decision making, and leading to disorganized messaging of relief and recovery efforts.

**Recommendations**

- Sign an interlocal agreement with a suitable facility to ensure its use as a satellite EOC during any activation involving Immokalee.
- Identify multiple liaisons from BES and other Collier County departments who will staff the satellite EOC with relevant operational structure and ESF representatives during an activation.
- Assign responsibilities to liaisons to maintain robust community contacts in Immokalee year-round to ensure lines of communication and coordination after a disaster, in coordination with a Volunteer and Donations Manager if the position is approved.

**Observation 20: External Resource Coordination Barriers**

Two notable instances in barriers in coordinating with the State and deployed team resulted in delays to temporary housing and volunteer and donations management missions.

**Analysis**

A request to the State of Florida for a temporary housing assessment for Immokalee and Everglade City submitted on September 15, 2017, was delayed by the state for 10 days. BES followed procedures identified in the *2010 Collier County Board of Commissioners Disaster Housing Strategy* and confirmed during Hurricane Irma response by the state and FEMA liaisons to request a temporary housing assessment as a precursor to deployment of a direct temporary housing mission. The state did not process the request appropriately because it was not a request for a temporary housing mission. This failure in communication resulted in additional distress in these communities for residents whose housing loss threatened their health, safety, and welfare. Additionally, the EOC experienced a barrier in coordination with an Incident Management Team (IMT) that did not follow its mission assignment to support volunteer and donations management efforts in Immokalee. The IMT wrote a recovery plan without input from the community. This error was compounded after the plan was made public without validating the information contained within the plan.
Recommendations

♦ Coordinate with the Florida Division of Emergency Management to determine any additional resource request protocols to ensure all requests receive timely consideration.
♦ Ensure all IMT leadership meets directly with EOC leadership daily to address issues not typically reported in traditional National Incident Management System (NIMS) reporting.

Observation 21: Public Perception of Service Provision

There is a reported public perception that Collier County was not at the forefront of service provision after Hurricane Irma due to a lack of “branding” in the service provision.

Analysis

Reports from County staff in the field noted that the public did not fully recognize the service provision efforts of Collier County. This was noted to be caused at least in part by the lack of “branding” in the field (e.g., personnel in County shirts or hats, signs at points of distribution). This perception was somewhat exacerbated by not timing the dispersal of press releases and information with the Sherriff’s Office. The community’s perception of the County’s ability to provide services during and after a disaster is critical to the success of continuing response and recovery efforts. While the Communication and Customer Relations Division PIO coordinated with the Sherriff’s Office to validate and disseminate information, the timing of the releases was not coordinated.

Recommendations

♦ Establish a battle rhythm with all participating agencies to coordinate the timing, as well as message, of press releases.
♦ Provide better branding (e.g., shirts, hats, signs) for Collier County employees providing services in the field.

Observation 22: EOC Layout

The current EOC layout does not adequately meet the needs of the County when the EOC is fully activated.

Analysis

Throughout the response, there was insufficient space to allow for coordination and completing essential functions. For example, the Special Needs Phone Bank only had spaces for four to five positions during the incident, but this was not enough staff to appropriately fill the needed amount of case workers due to the most recent surge in clients with functional and special needs requirements, such as oxygen, skilled care, and electricity dependent clients. Ensuring that all activated stakeholders have the ability to attend briefings and have access to other response stakeholders is critical to ensuring coordination and situational awareness.
Recommendations

- Reconfigure existing and contiguous space to provide more room for Human Services, Finance, Logistics, and Planning operations during an EOC activation.
- Conduct an analysis to identify ways to maximize current space. Potential opportunities include:
  - Reprogram recently vacated space, formally used by Communications and Customer Relations.
  - Attempt to reconfigure the in-house EOC audio and television view of EOC status and activity, which was lost as a result of the forced migration from analog cable signals to digital cable systems implemented by Comcast in 2015.
2.6 Planning
The Planning Core Capability includes the ability of the county to conduct a systematic process of engaging the whole community as appropriate in the development of executable strategic, operational, and tactical-level approaches to meet defined objectives. The following observations relate to this core capability and include recommendations to enhance the County’s capabilities in the future. The observations are organized within this Core Capability by strength and then area for improvement, they are not organized in an order of overall priority.

2.6.1 Strengths
The section below provides analysis on the observed strengths related to the Planning Core Capability.

Observation 23: Available County Planning Resources
The Comprehensive Emergency Management Plan (CEMP) outlines all ESF functions and responsibilities during a disaster.

Analysis
The CEMP is a critical resource for all departments, divisions, and other response stakeholders to identify their role in the 18 Collier County ESFs and the responsibilities of these ESFs. Additionally, the CEMP outlines the operational structure to enable communications, coordination, and information sharing during an incident in the EOC and the field. This CEMP is used as a resource for departments and divisions when identifying their pre- and post-disaster responsibilities and plans.

2.6.2 Areas for Improvement
The section below provides analysis on the observed areas for improvement related to the Planning Core Capability.

Observation 24: EOC Finance Section
The County EOC needs to have a defined and named Finance Section staffing roster, with procedures and sufficient trained staff to cover all EOC shifts.

Analysis
The County EOC does not have a defined Finance Section, outside of a Procurement Unit in the Logistics and Disaster Resources Section, or enough qualified and trained staff assigned to serve in positions related to a finance section. Without an EOC Finance Section to provide technical and back-up documentation support to some of the procurement processes, generated additional efforts in the days to follow to assemble back-up data. An expanded finance team, organized under NIMS principles of EOC operations, could offer timely support for analysis and information sharing during an event.

Recommendations
♦ Expand the Finance Section with roles, responsibilities, and guidance in the CEMP.
♦ Identify and assign staff from Collier County Corporate Financial and Management Services Division and the Collier County Clerk’s Office to serve as dedicated EOC Finance Section staff when the EOC
is activated. Ensure that their day-to-day responsibilities are assigned to other employees so they can fully dedicate themselves to the essential emergency response tasks.

- Provide training on CEMP procedures to identified staff who will serve as finance section personnel during EOC activation.

Observation 25: County Department and Division Emergency Plans

County department and division emergency plans did not comprehensively identify critical emergency roles and responsibilities, resulting in employees that were not sufficiently trained to perform their disaster roles.

Analysis

Many of the County departments and divisions do not have fully comprehensive plans that adequately identify all the necessary emergency response tasks required or assign staff to support specific activities. Many employees reported for duty but spent a considerable amount of time waiting to be assigned to a task. There was considerable confusion among staff that had been trained to support shelter operations about their activation to a shelter, especially if their department or division also assigned them roles during the hurricane response. Others expressed confusion on what was expected of them during an emergency response.

Recommendations

- The County should engage in a countywide effort to revise emergency plans for each department using established planning development tools. These plans should outline the critical roles and responsibilities and be assigned to staff to complete. If BES is unable to support this effort given critical staffing shortages, the County should procure external subject matter expertise to assist with this task.
- Upon completion of plans, each department should implement a comprehensive and annual training and exercise program to ensure all staff understand their roles and responsibilities. These efforts could be a part of, or separate from, the annual Collier County hurricane exercise.
- Pre-script partial and full EOC activation messages to clearly state expectations for ESF staff both serving in the EOC and the field.
- Build a WebEOC county staffing data board that will allow all Department Directors an on-line tool for assigning staff to EOC support roles or critical Departmental of Divisional assignments.

Observation 26: EOC Staffing

Some sections and ESFs within the County EOC did not have adequate staff for multiple shifts to complete all required tasks within this complex incident.

Analysis

Many of the command staff in the EOC did not have adequate backup staff from County departments, as well as positions traditionally filled by Fire Services or EMS personnel, to maintain multiple shifts during the immediate response to Hurricane Irma. The ramifications of this were highlighted in the Logistics and Disaster Resources, detailed elsewhere in this report, and the Planning Section. Due to limited Planning Section staffing and many conflicting demands during Hurricane Irma, key pieces of information were not
able to be documented, such as specific shelter opening and closing times. Decisions on generator and fuel allocation were often made without this critical information. Maintaining situational awareness and establishing a common operational picture is critical to making informed response decisions.

Recommendations
- Identify additional County staff that can support all shifts during EOC operations to ensure adequate coverage of the Planning Section for extended operations.
- Train newly-identified staff on Planning Section processes.
- Research mutual aid partners that could be called upon to provide EOC support during an extended emergency in all sections.
- Prior to a disaster, obtain authorization to establish pre-disaster contingency contracts for EOC support in all sections. Once this authorization has been provided for, identify external partners (such as private consulting vendors or non-profit agencies) that can provide assistance.

Observation 27: EOC Logistics and Disaster Resources Section
The County does not have sufficient trained staff pre-identified to fulfill the responsibilities of a robust Logistics and Disaster Resources Section.

Analysis
The Collier County emergency management resource management process requires a more comprehensively staffed Logistics and Disaster Resources Section to appropriately manage resource requests, fill and assign resources, track and monitor deployed resources, and demobilize assets once the mission has been filled. Throughout the incident, logistics personnel were called away from the EOC to support field activities, and there were not staff available to manage operations out of the warehouse. Resource and logistics management is critical for an effective response. Without additional trained staff in the Logistics and Disaster Resources Section to manage the operations in the EOC and warehouse, the resource request and management process was sometimes delayed.

Additionally, to consistently maintain a strong readiness posture, BES Logistics employees carry out a series of maintenance tasks for the response asset inventory, such as deliveries, cleaning, and other associated tasks, that consume a significant amount of time that could instead be used for planning and working on the strategic aspects of a strong readiness posture. Additional support from contract and existing County department personnel would free BES experienced and trained employees to use their skills on their more targeted planning and training tasks.

Recommendations
- Hire a part-time Logistics Technician to improve preparedness efforts.
- Identify and provide pre-disaster training for additional County staff that can support all logistics section shifts in the EOC and warehouse.
- Review the resource management process outlined in the Collier County CEMP to identify ways to streamline and make the process less time-intensive and define a Supply Unit.
Observation 28: County Employee Disaster Services

Many County employees faced challenges in fulfilling their disaster response roles due to issues with shelter and fuel provision.

Analysis

While the County had identified and opened a "county-employee" shelter, many employees were turned away because of a misunderstanding in the policy, and others were turned away because it was only for immediate family members. Employees sought refuge for their families at their workplace, which were not equipped to serve as shelters. This was especially evident in the Emergency Services Building, where an estimated 400 EOC and Sherriff’s Office staff and some family members sought shelter. The population was higher than expected, due to the Sherriff’s Office activated strike teams of dispatchers for the 9-1-1 center and mutual aid officers to prepare for anticipated needs. The high population exacerbated sanitation issues caused by low water pressure and an in-building booster pump failure, as well as resulted in insufficient space to allow assigned responders and critical EOC staff and relief personnel to rest and recharge to ensure peak performance.

Employees, whether driving their own vehicles or County vehicles, did not always have adequate fuel to report to work or carry out their responsibilities due to the regional and statewide shortage following the impacts of both Hurricanes Harvey and Irma. While the County had identified County fueling stations that were reserved for first responders such as fire and law enforcement, they were often turned away due to confusion by the contractor operating the refueling sites from the Division of Emergency Management.

Recommendations

♦ The County should conduct an assessment of the potential shelter needs of Sherriff’s Office, EMS, and essential county employees. This assessment should also examine the need to support employees’ extended families and the impact on employee performance if not addressed.
♦ Once this assessment has been completed, the County should identify a facility that is suitable to meet the needs, covering essential requirements such as essential county employee childcare and facilities for pets.
♦ The County should widely distribute the rules, policies, and procedures for utilizing the employee shelter facility and ensure that those assigned to manage this shelter are fully trained.
♦ Coordinate with Sherriff’s Office to identify alternative locations for mutual aid resources prior to, during, and after a disaster.
♦ The County should conduct a review of the fuel supply issue to identify potential solutions, including alternative transportation options to support staff following an emergency, giving consideration to increases in year-round fuel inventory, identifying multiple contract vendors outside of the region with mobile dispensing capabilities, and priority designation for the County employees as a second responder or essential emergency worker.

Observation 29: Initial Debris Management Communications

While the debris management mission is progressing efficiently, earlier messaging to the public and site identification could enhance these services, and the public perception of these services.

Analysis

Debris Management in response to Hurricane Irma has been managed in the weeks since Hurricane Irma in a sufficient manner to clear an estimated 4.2 million cubic yards of horticultural and construction and

Collier County Hurricane Irma After-Action Report
demolition debris; however, there are opportunities to take actions to further improve future large debris management missions in the County. Some of the previously identified debris management sites were no longer available either due to development or Florida Department of Environmental Protection concerns that they were too wet at the time, thus hampering the debris collection efforts. Additionally, four cities were identified as having mixed construction and demolition debris with vegetative debris, and some hazardous materials on the curbside.

Recommendations
- The County should revisit its Disaster Debris Management Plan to identify additional debris management sites.
- The revised plan should also include public messaging procedures and pre-scripted outreach materials that PIOs and BES can use as part of annual hurricane preparedness outreach efforts as well as specific hurricane messaging. The hurricane messaging can include the identification of drop-off sites, once a pre-approved site has been chosen and debris management contractors are positioned to monitor drop-off operations.

Observation 30: Emergency Management Trained and Focused PIO

Collier County does not have a full-time PIO trained in emergency management, or guidance relevant to coordination with state or federal elected officials, which could have been leveraged to enhance the County’s public information and external affairs efforts.

Analysis

The ESF #14 – Public Information appendix to the CEMP establishes roles and responsibilities for public information, but it is limited to coordinating with the media and directly to the public through social media or the county’s incident hotline. During a national incident like Hurricane Irma, state and federal elected officials need to be continuously apprised of the situation, and the staff from the Communication and Customer Relations Division were not trained in the external affairs aspects of the emergency management public information mission. It is critical to have a trained full-time staff member and a standard process for communicating with these officials to ensure their needs are being met and to obtain their support for Collier County response and recovery efforts.

During the response to Hurricane Irma, BES employees coordinated with the Communication and Customer Relations Division PIO to ensure the timeliness and effectiveness of the public messaging. While the Communication and Customer Relations Division showed great strength in its ability to utilize available media sources to reach all communities, they did not have a depth of knowledge in messaging related to emergency management, response, and long-term recovery that a full-time PIO at BES would contribute to the joint information coordination.

Recommendations
- Engage mutual aid and Emergency Management Assistance Compact (EMAC) resources for additional public information surge staffing.
- Hire a full time PIO at BES to establish media and elected official relationships and procedures and to lead joint information coordination with the Communication and Customer Relations Division during future disasters.
- Develop plans and procedures to support coordinating with state and federal elected officials.
**Observation 31: Volunteer and Donations Management**

There was a large influx of unsolicited donations and self-deployed volunteers in the aftermath of Hurricane Irma, which could have been more efficiently coordinated by a Volunteer and Donations Manager.

**Analysis**

After Hurricane Irma passed, there was a large influx of unsolicited donations and self-deployed volunteers to Immokalee; an estimated 50 non-governmental and governmental organizations were in Immokalee, without a central point of contact to organize activities. The volunteers coordinated with some members of the community, but the large outpouring of volunteer and donation support was not centrally organized. This helped precipitate a perception of gaps in government leadership after the storm passed. A full-time Volunteer and Donations Manager at BES would coordinate with local, state, and federal non-governmental organization contacts to identify needed resources and manage volunteers, as well as function as needed surge support within the Logistics Section.

**Recommendation**

- Engage mutual aid and EMAC resources for volunteer and donations management surge staffing.
- Hire a full-time Volunteer and Donations Manager at BES to coordinate and form relationships with local, regional, state, and national non-governmental volunteer organizations and manage the Voluntary Organizations Active in Disaster (VOAD) and Community Organizations Active in Disaster (COAD) groups to increase participation and communication to enhance coordination after a disaster.
3.0 Corrective Actions Implementation Plan

The Collier County Bureau of Emergency Services will submit a list of corrective actions after the recommendations are discussed and priorities determined with the County Departments and Divisions.
## Appendix A: Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAR</td>
<td>After-Action Report</td>
</tr>
<tr>
<td>BES</td>
<td>Collier County Bureau of Emergency Services</td>
</tr>
<tr>
<td>CMA</td>
<td>County Manager Administrative Procedure</td>
</tr>
<tr>
<td>COAD</td>
<td>Community Organizations Active in Disasters</td>
</tr>
<tr>
<td>COOP</td>
<td>Continuity of Operations</td>
</tr>
<tr>
<td>EOC</td>
<td>Emergency Operations Center</td>
</tr>
<tr>
<td>EMAC</td>
<td>Emergency Management Assistance Compact</td>
</tr>
<tr>
<td>EMS</td>
<td>Emergency Medical Services</td>
</tr>
<tr>
<td>ESF</td>
<td>Emergency Support Function</td>
</tr>
<tr>
<td>HSEEP</td>
<td>Homeland Security Exercise and Evaluation Program</td>
</tr>
<tr>
<td>IFAS</td>
<td>University of Florida’s Institute of Food and Agricultural Sciences</td>
</tr>
<tr>
<td>IMT</td>
<td>Incident Management Team</td>
</tr>
<tr>
<td>NIMS</td>
<td>National Incident Management System</td>
</tr>
<tr>
<td>NOAA</td>
<td>National Oceanic and Atmospheric Administration</td>
</tr>
<tr>
<td>NPG</td>
<td>National Preparedness Goal</td>
</tr>
<tr>
<td>PIO</td>
<td>Public Information Officer</td>
</tr>
<tr>
<td>SpNS</td>
<td>Special Needs Shelter</td>
</tr>
<tr>
<td>VOAD</td>
<td>Volunteer Organizations Active in Disasters</td>
</tr>
</tbody>
</table>
Appendix B: Glossary

**AlertFlorida**: A statewide emergency notification initiative sponsored by the Florida Division of Emergency Management

**Core Capability**: 32 identified activities in the National Preparedness Goal that address the greatest risks to the nation. This report pertains to:

- Planning- Conduct a systematic process engaging the whole community as appropriate in the development of executable strategic, operational, and/or tactical-level approaches to meet defined objectives.
- Operational Coordination- Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities.
- Public Information and Warning- Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard, as well as the actions being taken and the assistance being made available, as appropriate.
- Logistics and Supply Chain Management- Deliver essential commodities, equipment, and services in support of impacted communities and survivors, to include emergency power and fuel support, as well as the coordination of access to community staples. Synchronize logistics capabilities and enable the restoration of impacted supply chains.
- Mass Care Services- Provide life-sustaining and human services to the affected population, to include hydration, feeding, sheltering, temporary housing, evacuee support, reunification, and distribution of emergency supplies.
- Operational Communications- Ensure the capacity for timely communications in support of security, situational awareness, and operations by any and all means available, among and between affected communities in the impact area and all response forces.

**Emergency Support Function (ESF)**: The structure for coordinated governmental interagency support for response to an incident. In Collier County, the ESFs are:

- ESF 1: Transportation
- ESF 2: Communications
- ESF 3: Public Works & Engineering
- ESF 4: Firefighting
- ESF 5 Planning and Intelligence
- ESF 6: Mass Care
- ESF 7: Resource Support
- ESF 8: Health, Medical, & Human Services
- ESF 9: Urban Search & Rescue
- ESF 10: Hazardous Materials
- ESF 11: Food & Water
- ESF 12: Energy
- ESF 13: Military Support
- ESF 14: Public Information
ESF 15: Volunteers & Donations
ESF 16: Law Enforcement
ESF 17: Animal Issues
ESF 18: Business & Industry

**Emergency Operations Center (EOC):** A central command and control facility responsible for carrying out the principles of emergency preparedness and emergency management, or disaster management functions at a strategic level during an emergency.

**Hurricane Category:** The Saffir-Simpson Hurricane Wind Scale is the classification system used to denote the strength of a hurricane based on estimated potential property damage. This scale is a 1 to 5 rating based on a hurricane’s wind speed. Category 3 hurricanes and higher are considered major hurricanes because of their potential to cause significant loss of life and damage.

Table 2: Saffir-Simpson Hurricane Wind Scale, NOAA National Hurricane Center

<table>
<thead>
<tr>
<th>Category</th>
<th>Sustained Winds</th>
<th>Types of Damage Due to Hurricane Winds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>74-95 mph</td>
<td><strong>Very dangerous winds will produce some damage:</strong> Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.</td>
</tr>
<tr>
<td></td>
<td>64-82 kt</td>
<td><strong>Extremely dangerous winds will cause extensive damage:</strong> Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.</td>
</tr>
<tr>
<td></td>
<td>119-153 km/h</td>
<td><strong>Devastating damage will occur:</strong> Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.</td>
</tr>
<tr>
<td>2</td>
<td>96-110 mph</td>
<td><strong>Catastrophic damage will occur:</strong> Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.</td>
</tr>
<tr>
<td></td>
<td>83-95 kt</td>
<td><strong>Catastrophic damage will occur:</strong> A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.</td>
</tr>
<tr>
<td></td>
<td>154-177 km/h</td>
<td></td>
</tr>
<tr>
<td>3 (major)</td>
<td>111-129 mph</td>
<td></td>
</tr>
<tr>
<td></td>
<td>96-112 kt</td>
<td></td>
</tr>
<tr>
<td></td>
<td>178-208 km/h</td>
<td></td>
</tr>
<tr>
<td>4 (major)</td>
<td>130-156 mph</td>
<td></td>
</tr>
<tr>
<td></td>
<td>113-136 kt</td>
<td></td>
</tr>
<tr>
<td></td>
<td>209-251 km/h</td>
<td></td>
</tr>
<tr>
<td>5 (major)</td>
<td>157 mph or higher</td>
<td></td>
</tr>
<tr>
<td></td>
<td>137 kt or higher</td>
<td></td>
</tr>
<tr>
<td></td>
<td>252 km/h or higher</td>
<td></td>
</tr>
</tbody>
</table>
**Special Needs Shelter:** A shelter for people who have special needs according to the definition in the Florida Administrative Code (Chapter 64-3):

"someone who during periods of evacuation or emergency, requires sheltering assistance, due to physical impairment, mental impairment, cognitive impairment or sensory disabilities"

The basic eligibility criteria to stay in a special needs shelter are:

1. Special medical needs
2. Needed care exceeds the basic first aid provided at general population shelters
3. Impairments or disabilities are medically stable and do not exceed the capacity, staffing and equipment of the special needs shelter to minimize deterioration of the individual's pre-event level of health

**WebEOC:** An internet-based platform allowing for secure and real-time sharing of information related to management of emergencies among emergency management personnel, first response agencies, and cooperating agencies.
# Appendix C: Interview Schedule and Attendance

<table>
<thead>
<tr>
<th>Date and Time</th>
<th>Agency/Interview Topic Group</th>
<th>Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 11, 2017,</td>
<td>Emergency Services</td>
<td>Dan Summers</td>
</tr>
<tr>
<td>8:30 – 9:30 am</td>
<td></td>
<td>Mike Shaw</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rick Zyvoloski</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Christine Boni</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kathy Heinrichsberg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lauren Bonica</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Melanie Collins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>John Neuman</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Len Price</td>
</tr>
<tr>
<td>October 11, 2017,</td>
<td>Administrative Services</td>
<td>Mike Sheffield</td>
</tr>
<tr>
<td>10:15 – 11:15 am</td>
<td></td>
<td>Ted Coyman</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jeff Walker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dan Croft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Travis Gossard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mario Menendez</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mike Burks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ron Miller</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tanya Williams</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Steve Carnell</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Barry Williams</td>
</tr>
<tr>
<td>October 11, 2017,</td>
<td>Administrative Services</td>
<td>Ilonka Washburn</td>
</tr>
<tr>
<td>11:30 am – 12:30 pm</td>
<td></td>
<td>Rick Garby</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Darcy Andrade</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sean Callahan</td>
</tr>
<tr>
<td>October 11, 2017,</td>
<td>Public Services</td>
<td>Nick Casalanguida</td>
</tr>
<tr>
<td>1:45 – 5:15 pm</td>
<td></td>
<td>Jeff Klatzkow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tim Durham</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deborah Forester</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geoff Willy</td>
</tr>
<tr>
<td>October 12, 2017,</td>
<td>County Manager and Attorney</td>
<td>Ed Caum</td>
</tr>
<tr>
<td>8:30 – 9:30 am</td>
<td></td>
<td></td>
</tr>
<tr>
<td>October 12, 2017,</td>
<td>Corporate Business and Community</td>
<td>Michelle Arnold</td>
</tr>
<tr>
<td>10:00 – 11:00 am</td>
<td>Redevelopment</td>
<td>Don De Tesso</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Braian Morales</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lauren Bonica</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Louise Pelletier</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Melanie Collins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tim Kutz</td>
</tr>
<tr>
<td>October 12, 2017,</td>
<td>Business and Economic Development</td>
<td>Kathleen Marr</td>
</tr>
<tr>
<td>11:15 am – 12:15 pm</td>
<td></td>
<td>Amy Lyberg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Beth Johnnessen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alistair Burnett</td>
</tr>
<tr>
<td>October 12, 2017,</td>
<td>Transportation</td>
<td>Dennis Linquidi</td>
</tr>
<tr>
<td>1:45 pm – 2:45 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>October 12, 2017,</td>
<td>Community and Human Services</td>
<td></td>
</tr>
<tr>
<td>3:00 – 4:00 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>October 12, 2017,</td>
<td>Shelters</td>
<td></td>
</tr>
<tr>
<td>4:15 – 5:00 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>October 13, 2017,</td>
<td>Public Utilities</td>
<td></td>
</tr>
<tr>
<td>8:30 am – 12:30 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date and Time</td>
<td>Agency/Interview Topic Group</td>
<td>Attendees</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>October 13, 2017, 1:45 – 2:45 pm</td>
<td>Public Safety and Emergency Services</td>
<td>Chief Tabatha Buther</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sgt. Jose Carillo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Artie Bay</td>
</tr>
<tr>
<td>October 13, 2017, 2:45 – 3:45 pm</td>
<td>Airports</td>
<td>Justin Lobb</td>
</tr>
<tr>
<td>October 17, 2017, 9:00 – 10:00 am</td>
<td>Information Technology</td>
<td>John Daly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mike Berrios</td>
</tr>
</tbody>
</table>
Appendix D: Survey Results

A survey was conducted with Hurricane Irma response partners from October 18-20, 2017. The purpose of this survey was to gather information about Hurricane Irma response from the point at which the Collier County government and Emergency Operations Center (EOC) began preparation activities on September 6, 2017 through September 16, 2017. The survey consisted of 27 questions and received 139 responses.

A list of the survey questions is included below as well as analytics from key survey questions. The survey is hosted on Emergency Management's Survey Monkey account and all specific responses can be accessed through that account.
**Hurricane Irma Response After Action Survey Questions**

1. Did you serve primarily in the Collier County Emergency Operations Center (EOC) or in the field during Hurricane Irma response?
2. What Emergency Support Function (ESF) did you serve during Hurricane Irma response?
3. What was your role in the Collier County Hurricane Irma response?
4. What was your organization’s mission during the first week?
5. What were your responsibilities related to this mission upon activation?
6. Did you have responsibilities outside of the scope of this mission? If so, what were some of the activities you performed that were outside of your expected or perceived scope?
7. What were your responsibilities throughout this first week?
8. Did your responsibilities evolve or change throughout this week?
9. Who did you coordinate primarily with during the first week?
10. What information did you rely on during the first week to enable decision-making and ensure you could meet your mission?
11. Who did you receive this information from?
12. How did you receive this information?
13. Did you experience any issues in receiving this information?
14. Was the coordination with other agencies and organizations during the week adequate to ensure you had the support needed to meet your mission?
15. Did you experience any issues in coordination during the week?
16. What programs or systems do you consider to be your primary tools to accomplish your mission or responsibilities throughout the first week?
17. Did you reference any plans or procedures during your activation? Which ones?
18. What operational tools did you use during your activation?
19. Did you experience any gaps in achieving your mission or responsibilities during the first week?
20. What were the causes, or potential causes, of these gaps?
21. Do you have examples of achievements or successes, where you worked to overcome a complex issue or a gap?
22. Please Check All That Apply: How did you receive incident-related information during Hurricane Irma?
23. What was your experience with notifications and receiving information related to this event?
24. Did you feel that you had adequate information related to the storm and preparedness activities?
25. How helpful was the available information for your organization and its needs?
26. What was your experience with WebEOC in this event?
27. To what level do you feel that organizations were working together collaboratively during this event?
### Key Analytics

**Question 2:** What ESF did you serve during Hurricane Irma Response? (139 total responses)

<table>
<thead>
<tr>
<th>ESF</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESF 1: Transportation</td>
<td>10</td>
</tr>
<tr>
<td>ESF 2: Communications</td>
<td>5</td>
</tr>
<tr>
<td>ESF 3: Public Works</td>
<td>15</td>
</tr>
<tr>
<td>ESF 4: Fire</td>
<td>10</td>
</tr>
<tr>
<td>ESF 5: Planning &amp; Intelligence</td>
<td>5</td>
</tr>
<tr>
<td>ESF 6: Mass Care</td>
<td>10</td>
</tr>
<tr>
<td>ESF 7: Resource Support</td>
<td>15</td>
</tr>
<tr>
<td>ESF 8: Health &amp; Medical</td>
<td>5</td>
</tr>
<tr>
<td>ESF 9: Search &amp; Rescue</td>
<td>0</td>
</tr>
<tr>
<td>ESF 10: Hazardous Materials</td>
<td>0</td>
</tr>
<tr>
<td>ESF 11: Food &amp; Water</td>
<td>10</td>
</tr>
<tr>
<td>ESF 12: Energy</td>
<td>0</td>
</tr>
<tr>
<td>ESF 13: Military Support</td>
<td>0</td>
</tr>
<tr>
<td>ESF 14: Public Information</td>
<td>0</td>
</tr>
<tr>
<td>ESF 15: Volunteers &amp; Donations</td>
<td>0</td>
</tr>
<tr>
<td>ESF 16: Water</td>
<td>0</td>
</tr>
<tr>
<td>ESF 17: Education &amp; Training</td>
<td>0</td>
</tr>
<tr>
<td>ESF 18: Animal Issues</td>
<td>0</td>
</tr>
<tr>
<td>ESF 19: Intermine &amp; Industry</td>
<td>0</td>
</tr>
<tr>
<td>ESF 20: Fire</td>
<td>0</td>
</tr>
</tbody>
</table>

**Question 10:** What information did you rely on during the first week to enable decision-making and ensure you could meet your mission?

- Meetings
- Supervisor/Manager/Director
- Emails
- Briefings
Question 11: Who did you receive this information from?
  - EOC
  - Reports

Question 12: How did you receive this information?
  - E-mail
  - Phone
  - Radio
  - Verbally
  - EOC

Question 16: What programs or systems do you consider to be your primary tools to accomplish your mission or responsibilities throughout the first week?
  - WebEOC
  - Phone
  - Radio
  - Email

Question 22: Please check all that apply: How did you receive incident-related information during Hurricane Irma? (90 total responses)
**Question 23:** What was your experience with notifications and receiving information related to this event? (90 total responses)

- Excellent
- Fair
- Neutral
- Negative

**Question 24:** Did you feel that you had adequate information related to the storm and preparedness activities? (90 total responses)

- Strongly Agree
- Somewhat Agree
- Somewhat Disagree
- Strongly Disagree
**Question 26:** What was your experience with WebEOC in this event? (90 total responses)

- Very Helpful
- Somewhat Helpful
- Not At All Helpful
- Did Not Use

**Question 27:** To what level do you feel that organization were working together collaboratively during the event? (90 total responses)

- Strong
- Fair
- Poor
## Appendix E: Incident Timeline

<table>
<thead>
<tr>
<th>Day</th>
<th>Key Events</th>
</tr>
</thead>
</table>
| Sept 5, 2017 | > Collier County begins response coordination activities  
> 291 new Special Needs registries were entered                                      |
| Sept 7, 2017 | > Additional animal sheltering request  
> Hurricane-related traffic congestion noted on I-75, US-41, and SR 27.  
> NWS issues hurricane WATCH  
> EOC partially activated  
> Shelter employee activation  
> NWS issues hurricane WARNING  
> Special Needs Shelter (SpNS) transportation begins  
> EOC fully activated  
> SpNS opens  
> Marco Island mandatory evacuation issued  
> Mandatory evacuations for Goodland, Everglades City, and Chokoloskee in effect. Mobile homes strongly advised to evacuate. |
| Sept 8, 2017 | > Eight General Population Shelters open  
> Mass telephone notification sent to 1300 people to identify special needs transport or a traditional transport.  
> Mandatory evacuations added for people living west and south of U.S. 41  
> Four General Population Shelters noted as full  
> Three additional General Population Shelters opened  
> Nine General Population Shelters noted as full  
> Five additional General Population Shelters open  
> Evacuation Zone expanded  
> SpNS noted as full with a population of 421  
> Presidential Emergency Disaster Declaration  
> Two hospitals on generator power  
> Approximately 196,000 Florida Power & Light Customers in Collier County without power.  
> Pet Friendly Shelter at North Collier Regional Park housing 118 animals experienced flooding under the doors into the area where the animals belonging to owners at the SPNS and first responders/essential personnel. The dogs and cats had to be relocated to another area of the shelter.  
> SpNS noted as full with a Population of 524  
> Major Disaster Declaration for Charlotte, Collier, Hillsborough, Lee, Manatee, Miami-Dade, Monroe, Pinellas and Sarasota. |
| Sept 10, 2017|                                                                                                                                           |
| Sept 11, 2017| > 5 General Population Shelters Open                                                                                                     |
| Sept 14, 2017| > Memory care clients at SpNS moved to alternate room due to lack of air conditioning  
> SpNS population noted as 262                                                                 |
Appendix F: Planning and Regulation Resources
Regulatory

♦ Local Responsibilities - Chapter 252.38, Florida Statute (http://www.leg.state.fl.us)

♦ Chapter 38 of the Code of Laws (Civil Emergencies) contains the following sections: Article I. Post-Disaster Recovery and Reconstruction Management; Article III. Declaration of State of Emergency and Article IV. Automotive Fuel Allocation.

♦ Collier County Resolution 90-286: "Resolution authorizing the execution and acceptance of an agreement between Collier County and other Florida Counties and Municipalities for Public Works Mutual Aid..."

♦ Office of the County Manager, Administrative Code 5900: "Cessation of Normal Government Activities, Personnel Roles and Responsibilities during Emergencies and Emergency Disaster Pay"

♦ Florida Executive Order 80-29
Planning

- Collier County Comprehensive Emergency Management Plan (2016)
- 2010 Southwest Florida Regional Planning Council’s Regional Hurricane Evacuation Study (http://www.swfrpc.org/evac_study.html)
- Florida Comprehensive Emergency Management Plan (http://www.floridadisaster.org/cemp.htm)
- Florida Handbook for Disaster Assistance (http://www.floridadisaster.org/documents/disasterhandbook.pdf)
- 2016 Statewide Emergency Shelter Plan (http://www.floridadisaster.org/Response/engineers/library.htm)
RESOLUTION NO. 422


WHEREAS, in the context of INF Requirement Section 201.6(c)(5), the Board of County Commissioners of Collier County, Florida is the applicable authorized “Local Government Body”; and

WHEREAS, In President George W. Bush’s Homeland Security Directive (HSDP)-5, he directed the Secretary of the Department of Homeland Security to develop and administer a National Incident Management System (NIMS), to provide a consistent nationwide approach for federal, state, local and tribal governments to work together more effectively and efficiently to prevent, prepare for, respond to, and recover from domestic incidents, regardless of cause, size or complexity; and

WHEREAS, the collective input and guidance from all federal, state, local and tribal homeland security partners have been, and will continue to be, vital to the development, effective implementation and utilization of a comprehensive NIMS; and

WHEREAS, it is necessary that all federal, state, local and tribal emergency management agencies and personnel coordinate their efforts to effectively and efficiently provide the highest levels of incident management; and

WHEREAS, to facilitate the most efficient and effective incident management it is critical that federal, state, local and tribal organizations utilize standardized terminology, standardized organizational structures, uniform personnel qualification standards, uniform standards for planning, training, and exercising, comprehensive resource management, and designated incident facilities during emergencies or disasters; and

WHEREAS, the NIMS standardized procedures for managing personnel, communications, facilities and resources has improved, and shall continue to facilitate, the Collier County’s ability to utilize federal and state funding, to enhance local and state agency readiness, maintain first responder safety, and streamline incident management processes; and

WHEREAS, the Incident Command System components of NIMS are and shall continue to be an integral part of various incident management activities throughout Collier County, including all public safety and emergency response organizations training programs; and

WHEREAS, the National Commission of Terrorist Attacks (9-11 Commission) has recommended adoption of a Standardized Incident Command System, and that the Secretary of Homeland Security develop and administer a National Response Plan (NRP), which Plan, using the NIMS, shall with regard to response to domestic incidents, provide the structure and mechanisms for national level policy and operational direction for Federal support to State and local incident managers and for exercising direct Federal authorities and responses, as appropriate.

NOW, THEREFORE, the Board of County Commissioners of Collier County Florida hereby:

1. Approves and adopt a continuing policy that the National Incident Management System shall be utilized by Collier County for all incident management in Collier County in the context of President George W. Bush’s Homeland Security Directive (HSDP)-5, dated February 28, 2003. a copy of which (consisting of five pages) is attached hereto and is incorporated herein; and

2. This policy shall continue until such time, if any, that this policy is amended or terminated by future Resolution(s) of the Board of County Commissioners; and

3. This Resolution shall become effective upon adoption.
ADOPTED this 13th day of December, 2005 after motion, second and majority vote favoring adoption.

ATTEST: 
DWIGHT E. BROCK, Clerk 

By: 

BOARD OF COUNTY COMMISSIONERS  
OF COLLIER COUNTY, FLORIDA 

By: FRED W. COYLE, Chairman 

Approved 6/24/05 
and legal sufficiency. 

Thomas E. Pakos 
Assistant County Attorney

>end of report<