



City of Pompano Beach Hurricane Irma After Action Report

February 2018



Executive Summary

On September 10, 2017, the City of Pompano Beach was impacted by Hurricane Irma, which necessitated evacuation of coastal areas of the City and caused severe weather and power outages. To capture aspects of response that went well and aspects that need improvement to strengthen future response, the City conducted an after action review that culminated in this report. Because of the benefit in gathering information quickly after the incident and because of ongoing recovery responsibilities of City personnel, the City contracted with emergency management consulting firm Witt O'Brien's to facilitate the after action review and compile this report.

Purpose and Scope of After Action Review

The purpose of this after action report is to identify key actions, operational strengths, and areas for improvement in the City of Pompano Beach's response to Hurricane Irma in early September 2017. As in any response, positive measures as well as lessons are identified. This report addresses preparedness, response, and initial recovery activities by City departments and personnel as coordinated through the Pompano Beach Emergency Operations Center (PBEOC). More than half of the City's employees participated in response in some way.

Multiple organizations, including county agencies and the Broward County Emergency Operations Center (BCEOC), non-profit organizations, and private sector utility providers are part of response in the City of Pompano Beach, and while their roles are mentioned in this after action review, the report does not incorporate detail or analysis regarding their actions or responsibilities. Information in this report was gathered between September and early December 2017 from individuals involved in the response and through review of incident documentation (see Methodology section on page 6 for additional information).

Organization of Report

This report is organized simply to allow the City to identify and follow up on aspects of preparedness and response that were implemented for Hurricane Irma and may be needed in future emergency incidents. The report provides an overview of Hurricane Irma and its effects on the Pompano Beach area, identification of specific preparedness activities by the City, and analysis of areas for improvement and recommendations.

In the analysis section, challenges encountered in response to Irma are organized based on the following themes:

- Establishing and Maintaining a Proactive Response

- Information Sharing to Promote Community Engagement
- Operational Communications
- Ready Response Force
- Supporting those Impacted
- Emergency Operations Center Management and Operations
- Coordination with Response Partners
- Restoration of Essential Services
- Facilitating Recovery

The narrative under each theme provides a summary of issues related to the respective theme, findings or observations about the issue including areas of success and areas for improvement, and recommendations to address challenges encountered during and in the aftermath of the incident.

Use of this Report

This after action report is designed to provide the City a basis for its efforts to continue to improve its emergency management capabilities and level of preparedness for incidents of any type. At the time this report was drafted, the City was already moving to address several of the findings and recommendations. The City commissioned this report to make improvements, and the report can and should be used to identify priority actions for improving planning and procedures, training and exercise, and response coordination of facilities and resources. By periodically reviewing status updates on priority recommendations as identified by City officials and Emergency Management, the City can measure progress and strengthen the City's preparedness and response capabilities.

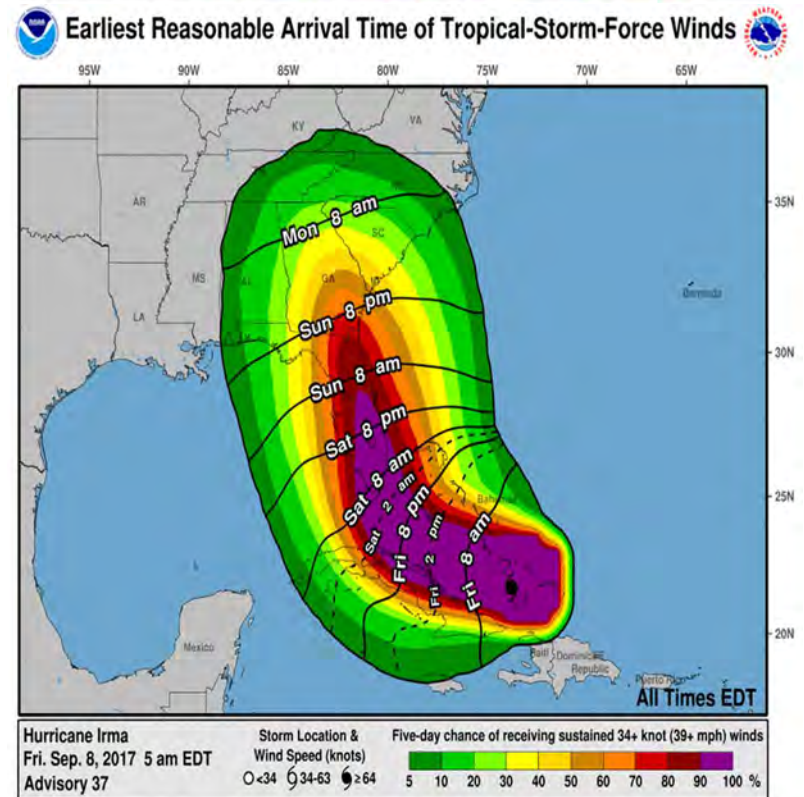
Section 1: Incident Overview

At the peak of a busy hurricane season in 2017, Hurricane Irma threatened much of the Florida peninsula. It followed devastating damage on the southeast coast of Texas from Hurricane Harvey. Hurricane Irma first struck the US Virgin Islands and then the Northern tip of Cuba before turning toward southern Florida as a Category 5 hurricane. With the storm at 500 miles wide and winds reaching 185 miles per hour (mph), City of Pompano Beach officials and officials in many other Florida communities called for coastal residents to evacuate.

In the City of Pompano Beach, many citizens heeded the warning and evacuated before the storm affected the area. On September 10, Irma brought maximum sustained winds of 69 mph and gusts up to 86 mph (at Pompano Beach Airpark), according to the National Weather Service (NWS) Miami/South Florida Forecast Office. It is estimated that Pompano Beach experienced close to Category 1-force winds on the afternoon of September 10.¹ The NWS estimated rainfall of 6 inches to 9 inches from 8 a.m. September 9 through 8 a.m. on September 11, 2017. Storm surge was 2.5 to 3 feet and resulted in beach erosion but little penetration or flooding from storm surge.

Monitoring & Early Warning

The National Oceanic and Atmospheric Administration's National Hurricane Center (NHC) began tracking what would become Hurricane Irma as it formed west of the Cape Verde Islands in the Atlantic in late August 2017. As with other tropical systems that could impact Pompano Beach, the City's Emergency Management staff began monitoring the system and the NHC-projected track. The NWS Miami office began providing informational briefings on Irma on September 3 -- first via email and beginning September 5 via webinar (twice daily beginning September 6). The City's emergency manager and others in the area received or participated in the briefings.



¹ Molleda, R. (2017). Email communication October 17, 2017, from Rob Molleda, National Weather Service.

As the NHC's forecast strengthened and track projections changed, the City adjusted preparations, including preparations for potential evacuation of coastal areas, notification of City personnel regarding staffing for emergency operations and office closures, and securing City-owned infrastructure. The City's emergency operation plan (EOP) identifies activation and operational levels. The City opened the Pompano Beach emergency operations center (PBEOC) at partial activation (Level 2) on Wednesday, September 6. Non-essential employees were notified on September 6, that they would not report to work on September 7 and 8 and that employees should work with their supervisor regarding hours and operations based on department emergency plans. The City Manager announced that the City's employee shelter at Mitchell Moore Recreation Center would open on Friday, September 8, and the PBEOC would go to full activation (Level 1) on Saturday morning, September 9.

On September 7, the NHC and NWS issued a Storm Surge Watch for areas that included the City of Pompano Beach; a Hurricane Warning and Storm Surge Warning followed late that evening. In response to the hurricane forecast, the City activated the PBEOC at Level 1 (full activation) with A and B shifts effective at 7 a.m. on Saturday, September 9. PBEOC staffing included representatives from emergency management, city manager's office, Broward Sheriff's Office, Fire Rescue, Engineering, Public Works, Procurement (General Services), Utilities, Finance, Human Resources, Risk Management, Building and Planning (Development Services), as well as the City Public Information Officer, a business liaison, Parks, Recreation & Cultural Arts Department, Information Technology, GIS specialist, incoming call takers, and a licensed HAM radio operator (for alternate communication capabilities). The City also staged its municipal representatives in the Broward County EOC (BCEOC); in accordance with city and county plans, municipal representatives serve as a conduit of information regarding situation and response needs from each municipality to the Broward County EOC (BCEOC). The PBEOC remained activated at Level 1 through Tuesday, September 12.

Based on the NHC forecast track and conditions, a mandatory evacuation was put into place starting Thursday, September 7, 2017 for evacuation zones A and B – totaling over 11,500 people. Evacuation of residents in these zones was supported through traffic control and monitoring through the County and City EOCs supported by the Broward County Sheriff's Office. Through coordinated efforts with the County, residents in mandatory evacuation zones (east of U.S. Highway 1 and mobile homes) were provided information about evacuation routes and County emergency shelters via press releases, media outlets, City and County websites, emergency notification systems (Reverse 911/CodeRED) and social media avenues.

Immediate Response

With the PBEOC and the Broward County EOC (BCEOC) activated, staff from multiple departments and organizations were pre-staged in the PBEOC to

coordinate response once conditions were safe for personnel to begin assessing damage and addressing response needs. The City staffed a municipal services branch position within the BCEOC to coordinate City information and needs with the county. The Planning Section in the PBEOC provided City information to the county via the county's incident information system, WebEOC, and the Logistics Section submitted resource requests via the resource requests process in WebEOC.

City of Pompano Beach response activities included communicating with residents and the media, responding to 9-1-1 calls (once conditions allowed), assessing damage, clearing debris, coordinating with utility providers, maintaining generators and fuel supplies to support operations (e.g., water system pressure, sewage pumps, and traffic signals) when electricity was disrupted, and coordinating support for unmet needs.

Phone and internet service to City facilities were disrupted from Sunday morning, September 10, through Tuesday, September 12 (and intermittently thereafter), which impacted emergency calls and City response capabilities. The disruption affected communication between the EOC and field operations though it did not impact immediate emergency response. In accordance with City plans, backup communications capabilities, including cell phones and handheld radios (a cache of satellite radios was also available), were used to maintain vital communications among response agencies and the PBEOC. The City Manager remained at the PBEOC throughout activation. An officer stationed at the Regional Command Center prioritized emergency 9-1-1 calls that came in during the hurricane so that they could be quickly responded to in priority order once winds subsided.

Residents as well as City operations such as traffic signals, experienced Irma-related power outages. Florida Power and Light (FPL) provided outage hourly update information to the PBEOC and the public via an FLP web portal. Outages totaled approximately 90% of the City and restoration took days to complete. The building in which the PBEOC is located was on generator power for 8 days. City water system employees monitored water pressure and rotated generators among 80 lift stations as needed to maintain water pressure and service throughout the storm.

Broward County (by State mandate) coordinates emergency shelters for the county, including Pompano Beach, and the county opened a shelter at Pompano Beach High School to serve residents who lived in evacuation zones. The shelter provided services to a total of 302 residents and reached capacity by September 10, 2017.

Initial damage assessment and debris removal were conducted quickly. The rapid impact assessment (RIA) process was led by Development Services' Building Division in coordination with the Broward County Sheriff's Office deputies and was completed within two hours of tropical storm force winds subsiding. City of Pompano Beach Public Works crews completed the initial push to clear roads of debris within hours after the storm had passed.

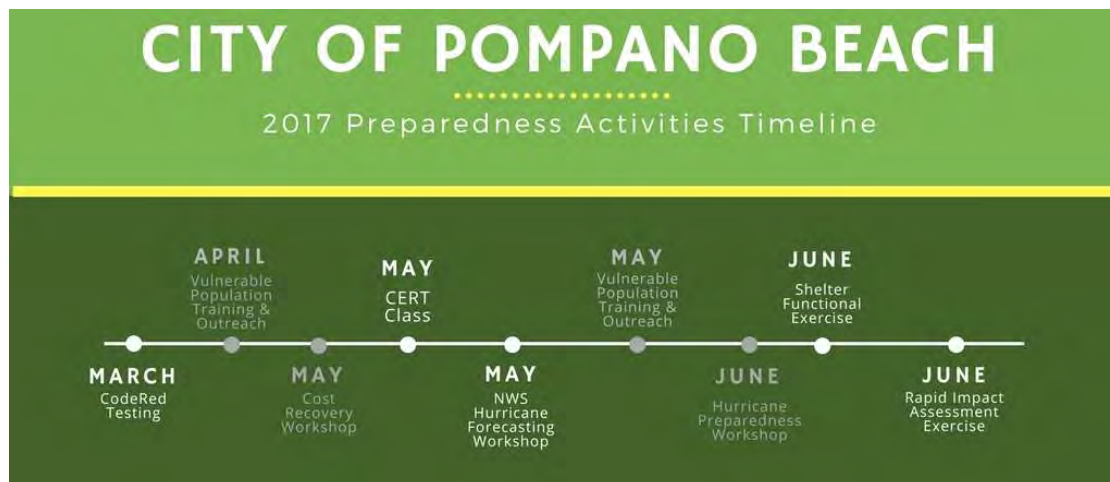
Recovery

The City of Pompano Beach has estimated Irma-related costs to the City, to include facility and equipment repairs, debris removal, and labor related costs, with an estimated preliminary amount of \$6 million. The city expects that most of these costs will be covered by insurance and Federal Emergency Management Agency (FEMA)-administered Public Assistance funding available through the federal disaster declaration; the remaining costs will be paid with City's disaster reserves. Approximately 4,000 City of Pompano Beach residents applied for Individual Assistance. The total private property damage Hurricane Irma caused is estimated at approximately \$3.5 million.

The City engaged Witt O'Brien's to conduct this after action report to identify positive actions that need to be captured as well as areas that need to be improved. Observations on areas for improvement and recommendations to enhance the City's preparedness for future events are addressed in Section 3 of this report.

Preparedness

Successful response is the result of development of plans beforehand and the coordinated implementation of those plans. The City of Pompano Beach provided and participated in many preparedness activities to support this response well before Hurricane Irma. The below graphic highlights key preparedness initiatives the City had taken leading up to Hurricane Irma.



Section 2: Methodology

This after action report summarizes compiled feedback regarding the City's response to Hurricane Irma and was prepared through structured input and follow-up with individuals representing agencies and organizations involved in the City of Pompano Beach's preparedness for and response to the storm as well as feedback

received through the public in Commission Meetings and through the After Action Meeting held with the public on January 10, 2018. The methodology was designed to identify strengths and areas for improvement to articulate concrete recommendations for future improvements.

Scope

The scope of this report is to evaluate the City of Pompano Beach's response to Hurricane Irma. Therefore, evaluation methods have been targeted to collect information specific to the City's response. It should be recognized that other jurisdictions and response partners may develop evaluations and after action reports based on their specific role. In addition, in instances where Broward County led or supported a specific response function that requires improvement, it is noted herein and will be addressed through continued coordination efforts.

Data Collection

The data collection and evaluation team collected after action feedback from City of Pompano Beach responders and stakeholders through a variety of methods. The content of this AAR is derived from the following meetings and activities:

- **Online survey of responders:** An online survey tool was developed and distributed widely to collect specific feedback on the overall response as well as to collect recommendations for future improvement.
- **One-on-one interviews:** Interviews were conducted with key City officials and response partners, in person and via telephone, to collect valuable data on the response timeline, issues uncovered in the response, and area for future improvement.
- **Review of Commission Meetings:** Evaluators reviewed Commission Meetings in which the response to Hurricane Irma was discussed. This included public comments.
- **After Action Workshop:** A two-hour after action workshop was held on November 13, 2017. This facilitated workshop included forty-seven representatives of City, County, and the Federal Government.
- **Review of Response Plans:** A representative sample of response plans developed and utilized for the response were collected and reviewed.
- **Public After Action Meeting:** On January 10, 2018 an After Action Meeting was held with the public to review initial findings and to solicit additional issues, strengths, and recommendations to enhance future response and recovery efforts.

Information was collected from mid-October through mid-December 2017. Descriptions of issues and recommendations were drafted based on the input gathered and on analysis and best practices of the consulting team that assisted the City in the after action review. An initial draft report was reviewed by the City's Emergency Manager and City Manager, and a draft was reviewed with stakeholders

and residents in a public review of the report on January 10, 2018. Clarifications and additions from the public workshop were incorporated into the report before a final version was presented to the City Manager..

Data Analysis

The data collection and evaluation team summarized and collected data, identified relevant observations within the data and then organized the data into the following nine themes:

- Establishing and Maintaining a Proactive Response
- Information Sharing to Promote Community Engagement
- Operational Communications
- Ready Response Force
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- Facilitating Recovery

For each theme, key findings are presented and include both strengths and areas for improvement based on the data collected. Each finding includes an analysis of key observations as well as recommendations for future improvement.

Recommendations may be based on the City's response plans, best practices, or input from responder, stakeholders, evaluators, or subject matter experts.

The narrative summaries do not mention individuals or specific positions as this AAR is designed to correct processes and systems rather than personnel. Note that some observations and feedback that lacked context or supporting details may not be represented in this document.

The 2015 National Preparedness Goal establishes 32 core capabilities to prevent, protect against, mitigate the effects of, respond to, and recover from the types of incidents that pose the greatest risk to the nation. This report's identified strengths and areas for improvement relate to multiple core capabilities: Operational Coordination, Operational Communications, Situational Assessment, Planning; Public Information and Warning; Community Resilience; and Housing.

CITY OF POMPANO BEACH

RESPONSE BY THE NUMBERS

CITY OF POMPANO BEACH
HURRICANE IRMA AFTER-ACTION
REVIEW



DAMAGE ESTIMATES

\$6 Million in damages to government and public infrastructure. \$3.5 Million in damages to public property.

APPLICATIONS FOR INDIVIDUAL ASSISTANCE

4,000 people registered for individual assistance after the storm.



POWER OUTAGE & RESTORATION

Approximately 90% of the County was without power.

SANDBAGS

Over 4,000 sandbags and 40 tons of sand was distributed.



DAMAGE ASSESSMENTS

A Rapid Impact Assessment was complete in under 2 hours.

DEBRIS REMOVAL

The initial push of debris from roadways occurred within 3 hours after the storm has passed.



EMPLOYEES WORKING HURRICANE IRMA

767 full-time employees, 200 part-time employees & volunteers worked in response & recovery missions.

STAFF WORKING THE EOC

85 employees worked in the Emergency Operation Center.



EMERGENCY MANAGEMENT STAFF: ONE



Section 4: Analysis of Key Findings

The data collection and evaluation team collected and analyzed observations and feedback that pertained to the City's response to Hurricane Irma. The analysis resulted in the development of key findings organized in the following nine themes:

- Establishing and Maintaining a Proactive Response
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The following discussion of each theme observed includes key observations made by response personnel and key stakeholders during the response and recovery process from Hurricane Irma as well as public input and feedback derived from recorded commission meetings and the Public After Action Meeting.

Establishing and Maintaining a Proactive Response

City personnel actively tracked Hurricane Irma, utilizing tools provided from the National Weather Service, pre-existing plans, and coordination meetings with City and County officials. Staff adopted the motto "Lean forward all of the time" to ensure that as the potential impacts of the hurricane came into focus, adequate planning was occurring to ensure essential services were provided.

Finding 1.1: The City effectively established and maintained a proactive posture throughout the incident thanks in part to coordination efforts with Broward County, other municipalities in the County, and the National Weather Service.

To ensure the City had the most up to date information, coordination calls with the National Weather service occurred at least twice daily leading up to, during, and after the hurricane. Improved tools, such as the Earliest Potential Onset of Tropical Storm Force Winds and storm surge modeling, were utilized by City of Pompano Beach Emergency Management and other staff to make critical decisions on public protective measures. The information the weather service provided allowed the city to have focused, proactive discussions about potential impacts and establish plans and protocols for worst case scenarios. Data was easily interpreted by City officials based on training received prior to hurricane season – a testament to the

*POMPAÑO BEACH
CONDUCTED A PRE-SEASON
HURRICANE PREPAREDNESS
TRAINING SESSION WITH
THE NATIONAL WEATHER
SERVICE ON MAY 31, 2017
WHICH AIRED ON THE
CITY'S GOVT CHANNEL 78
AND REMAINS ACCESSABLE
VIA YOUTUBE TODAY.*

effective preparedness actions the City took to be resilient to known threats, such as hurricanes. Overall, the information sharing of scientific modeling data provided by the National Weather Service offered critical support in the decision making required to keep the residents of Pompano Beach informed and safe from the impacts of Hurricane Irma.

Mandatory evacuation of coastal areas of Pompano Beach, evacuation zones A and B, was in effect starting Thursday, September 7, 2017. These zones included approximately 11,500 Pompano Beach residents. Public messaging regarding the evacuation order was provided via the City's website, Reverse 911 (CodeRED messaging), press releases and associated media briefings. Evacuation proceeded safely via personal and public transportation (including those with access and/or mobility concerns) with the assistance of Broward County.

Recommendations:

- 1.1.1 Maintain training and coordination efforts. The City should continue its proactive stance in preparing for hurricanes as well as coordinating with Broward County and the National Weather Service/National Hurricane Center to make effective proactive decisions to minimize impacts of tropic cyclones and other severe weather-related hazards (such as flooding, tornadoes, etc.) on the City and its residents.
- 1.1.2 Action and decision-making guide. The City should build on the County's Storm Action Lead Time (SALT) approach and the example in the City Emergency Support Function (ESF) 5 Standard Operating Procedures (SOP) (Figure 4) to develop a robust checklist that guides decision-making and Pompano Beach Emergency Response Team (PBERT) actions (e.g., staffing coordination, evacuation preparations) in advance of arrival of tropical storm-force winds (e.g., starting at 120 hours before arrival of tropical storm-force winds) based on clearance times and population needs.

Finding 1.2: Additional emergency management staff is needed to prepare for and coordinate City response to known threats and overall all-hazards resilience.

The City of Pompano Beach has one person responsible for its Emergency Management program. The City's Emergency Manager was heavily engaged and active leading up to, during, and after Hurricane Irma. As is appropriate, dozens of City personnel carry out preparedness, mitigation, response, and recovery roles in their departments, and some are designated to staff the City EOC on behalf of their department or organization. The City partially activated the EOC, having the City's Emergency Manager report to the EOC to begin coordinating efforts on Wednesday,

September 6, 2017. The City's Emergency Manager was augmented by a City Staff through a full activation of the EOC on Saturday, September 9, 2017. In the days leading up to the full activation of the EOC, coordination activities, such as the development of situation reports, decision making regarding protective measures for Pompano Beach residents, and coordination activities with Broward County and the National Weather Service relied heavily on one person as the storm approached. The Pompano Beach Fire Chief is the designated alternate or backup for the Emergency Manager and is also the backup for the Public Information Officer in an incident. In an incident, the Fire Chief also is actively managing Fire Department preparedness, personnel staging, and response. Though this approach provides depth in each response function, the end result is that, for key personnel, rotations are limited, and personnel get limited to no rest. In Irma, having only one emergency management staff person stressed the pre-disaster planning efforts. In a larger incident, this could create a choke point for information and decision-making and an issue for continuity of vital coordination activities. This vulnerability could be avoided in the future through hiring of additional staff and/or pre-emptive partial activation of the Planning Section of the Emergency Operations Center (EOC).

Recommendations:

- 1.2.1 Consider partial activation of the EOC sooner. The City should consider implementing a partial activation of the EOC in the days leading up to a potential hurricane to provide staffing and coordination support for the Emergency Manager.
- 1.2.2 Prepare for emergency management extended operations. Identify and train one or more City staff or additional emergency management staff to serve as a deputy and backup to the City Emergency Manager in EOC activations.
- 1.2.3 EOC staffing. Identify, implement, provide space for, and enforce procedures to avoid personnel working consecutive shifts, even if there is a need to stage personnel at or near the EOC because of potential access issues because of storm damage.

Finding 1.3: The City provided sandbags to support community-based mitigation efforts in the face of Hurricane Irma; however, supplies provided insufficient for demand.

The City of Pompano Beach provided resources to residents to protect their property, including distribution of sandbags. The City distributed 4,000 sandbags over a three-day period, distributing 2,000 sandbags in one just day. Overall, the City distributed 40 tons of sand. This distribution effort was so widely utilized by

the residents of Pompano Beach that, by the third day, sandbags ran out, and residents were bringing their own shopping bags and pillowcases to fill. Additional sandbags were not available because of short supply in the marketplace, at least to a degree resulting from recent response to Hurricane Harvey in Texas. Concerns arose that non-Pompano Beach residents were accessing the Sandbag Distribution Center and creating a shortage of available sandbags for residents. In addition, some residents expressed that they felt that the 10-bag limit was not sufficient to mitigate potential impacts of the hurricane.

Recommendations:

- 1.3.1 Consider purchasing a sandbag machine to expedite sandbag distribution. The City should consider purchasing a sandbag machine as residents flocked to the sandbag distribution center to access sandbags to mitigate against potential flooding. If cost prohibitive, the City should consider stockpiling sandbags to allow for full distribution based on the threats and vulnerabilities of community-based flooding.
- 1.3.2 Review sandbag and related mitigation policies and procedures; clarify or update as needed. Explore ways of estimating potential demand for sandbags and sand (or other supplies as appropriate) and establish procedures that support orderly provision of supplies when the City chooses to make them available. Consider viability of checking City residency (via car or driver's license or utility bill with residential address). Identify appropriate distribution locations and public communications (including message, media, and frequency) to support realistic expectations of supply availability and distribution process.
- 1.3.3 Develop and provide instruction on how to utilize sandbags: Explore strategies to inform residents on how to appropriately utilize sandbags to include informational handouts.

Finding 1.4: The City pre-emptively ordered commodities to support potential relief efforts.

In the days leading up to Hurricane Irma's landfall, the Emergency Manager worked alongside the Parks, Recreation and Cultural Arts Department (Mass Care) to pre-identify and submit resource requests to establish a commodity point of distribution site in the event the impacts of Hurricane Irma warranted it. Additional emergency supplies were also ordered through the City's Office of Housing and Urban Improvement (OHUI) in anticipation of emergency housing repairs for individual assistance relief.

Recommendation:

- 1.4.1 Continue to pre-identify and position resources. The City should sustain efforts to pre-order and position resources to quickly aid residents based on the needs of the incident.

Finding 1.5: Continue outreach efforts to vulnerable populations.

The City of Pompano Beach and Broward County has an ongoing effort in place to support vulnerable populations during an incident. Some residents expressed that Hurricane Irma significantly stressed vulnerable populations in the City and additional support would have alleviated challenges they faced from prolonged power outages, access to food and medicine.

Recommendation:

- 1.5.1 Continue to promote the use of the Broward County Vulnerable Population Registry. The City should continue to promote the use of the Broward County Vulnerable Population Registry and utilize the tool in a response to meet the needs of individuals that register and require assistance.

Information Sharing to Promote Community Engagement

Though City officials can implement specific actions to limit risk to known events, such as hurricanes, full community-based resilience is a partnership between government, private sector, and individuals. It is essential to promote effective information sharing and community engagement to support resilience and preparedness. Information sharing to promote community engagement was managed through the City Manager's Office through the Public Communications Director as well as through routine communications with elected officials.

Finding 2.1: The City provided continuous information about Hurricane Irma and its impacts throughout the duration of the event; however, outreach efforts could have been farther reaching through an extended use of social media tools.

The City coordinated and distributed information to the public through an information gathering and dissemination process that began at the EOC. As incident specific information, such as potential impacts of the hurricane, location of the sandbag distribution center, and shelter locations became available, the information was collected at the EOC and sent to the designated Public Information Officer. Through press releases and information posts on the City's website, critical information was disseminated to the media and to the public. Some residents indicated that they would have appreciated additional information on the

hurricane, impacts, and activities throughout the duration of the incident. As individuals seek information in real-time, additional information dissemination methods such as use of Facebook, Twitter, and other applications should be considered to ensure residents are being reached in a timely manner.

Pompano Beach maintains a CodeRed Mass Notification system that uses published telephone numbers and mapping to allow for targeting notification directly to residents. In the event that residents do not have a landline or hold an unpublished number, the capability exists so residents can enroll for this service which also utilizes email addresses and messages via text

For Hurricane Irma, CodeRed was utilized to communicate debris management. In the incident, the CodeRed Emergency Notification System was used to share information and could be further utilized as a method for general messaging or outreach to the public. The ability for the public to enroll has been widely publicized and promoted. On an annual basis, the City has conducted an 'ALL-CALL' to all registered numbers and this year included all water utility numbers to further extend the reach.

Recommendations:

- 2.1.1 Expand public outreach through Facebook and Twitter. The City should consider active use of Facebook and Twitter to provide direct communication to the residents of Pompano Beach. Twitter and Facebook used on an ongoing basis will help make residents aware of hazard and disaster-related information and resources available. Upon this expansion, and to support robust communications in times of emergencies, the City should develop standard operating procedures that outline the activities, processes, and tools (and how they are used) to communicate with the public about risk and preparedness on an ongoing basis and about protective actions and incident status during an emergency or potential event.
- 2.1.2 Determine strategies to utilize and integrate the 'My Pompano' Application to enhance preparedness, response, and recovery communications. In August of 2017, the City of Pompano Beach launched the My Pompano application that provides direct communication with elected officials, information on city events, and access to e-services. The City should identify if this application can be utilized for communicating incident-specific information in the future.
- 2.1.3 Consider expanded use of the CodeRed Emergency Notification System. The City should review possibilities for the extended use of the CodeRed Emergency Notification System and utilize it to

communicate to residents' key protective actions, mitigation measures, and response and recovery details for incidents.

- 2.1.4 Continue to publicize the enrollment feature of the CodeRed Emergency Notification System. As residents move away from utilizing land line phones to mobile phones, the need for self-enrollment in notification systems like CodeRed is needed in order to reach those who could be impacted by an event rapidly. Links to information on how to sign-up for CodeRed are on the header of every page of the City's website. This great best practice should be continued.

Finding 2.2: Through information collected at the EOC, the City Manager provided routine updates to elected officials.

City Manager Greg Harrison was the central point of contact, providing the Mayor, Executive Staff, and the City Commission with routine updates regarding Hurricane Irma. The City Manager remained at the EOC for the duration of the Level 1 activation, sleeping onsite, to ensure information was being coordinated and communicated effectively in support of response operations. When communications infrastructure at the EOC and throughout the City was compromised, Assistant City Managers were positioned to effectively share and communicate impacts and needs. Elected officials were eager to learn about potential impacts and actions taken by the City to protect lives and property.

The Planning Section within the EOC provided situation reports, which provide an update of incident information daily (at least twice within the established 12-hour shift), outlining the current situation, potential impacts, and actions the City was taking to limit the loss of life and property. In addition, in-person briefings with City officials were conducted.

Recommendations:

- 2.2.1 Continue to inform and engage elected officials during the response. The City Manager should continue the best practice of continual and open communication flow between the EOC and the City's elected officials.
- 2.2.2 Identify backup means of communication to inform decision makers during response. The City needs alternate or backup means of communication so that the City Manager does not need to stay at the PBEOC during an incident response. Especially in an extended activation, this could prove non-workable and counterproductive. Reliable means of communication and backup communication should be established, tested, and maintained to ensure ongoing

communication between the City Manager and other city officials and the PBEOC regardless of the City Manager's location.

- 2.2.3 Provide training to elected officials: The City's elected officials play an important role in an emergency incident; elected officials need to have an understanding of their roles and the activities of the EOC and the PBERT. The City should provide regular training on elected officials' roles in an emergency to support coordinated effort between the City Manager, EOC, and elected officials.

Operational Communications

Though the City attempted to ensure redundancies for internet and phone communications, internet and phone capabilities were out for approximately three days. Communication systems for responders, such as radios and satellite phones worked well and were deployed to support breakdowns in conventional communications systems.

Finding 3.1: Phone service for City government was down for more than two days.

Phone lines for city government are provided under contract with Windstream via multiple bundles of copper phone lines called Primary Rate Interface (PRI). Electricity is required for these lines, with electricity pushing communications through nodes in the system. The City identified electricity dependency as a potential issue in 2015, and a backup fiber line was installed and tested successfully in July 2017. Before or during Hurricane Irma landfall, the fiber line configuration was lost or reset, which required reconfiguration. When copper phone lines failed, the fiber backup did not successfully provide phone service or Internet connectivity. This outage occurred for two days, impacting the City's ability to make and receive calls. Backup systems, including cell phones and hand-held radios, were used; satellite phones were available but were not broadly used.

Recommendations:

- 3.1.1 Contract for primary and/or backup dedicated fiber phone system. The City should consider contracting with a provider, such as Comcast or Hotwire, to provide dedicated fiber phone lines for the City.
- 3.1.2 Contract for point-to-point wireless capability. The City should consider including point-to-point wireless capability as a redundancy to ensure phone communications in the event the fiber line is cut or otherwise disrupted.
- 3.1.3 Schedule and implement routine tests of backup phone capabilities. The City should implement routine tests of backup and redundant

phone and Internet capability to ensure critical communications can continue in the event of a phone service disruption and/or power outage.

Finding 3.2: Internet capability at City buildings was disrupted for more than two days.

Internet capability was impacted in all city buildings because of power outages on a critical node of the Internet provider, Comcast. City IT professionals had difficulty contacting leadership at Comcast to remedy the problem. Portable hotspots were available to provide Internet connectivity at the EOC and other critical locations throughout the City. A satellite Internet capability has been recently added to the EOC to provide additional redundancies; however, it is expensive and is to be used on a limited basis when other service is not available.

Recommendations:

- 3.2.1 Contract with an Internet provider to provide a direct Internet connection to critical city buildings. The City should consider contracting with a provider to provide a direct fiber line connection to ensure Internet reliability in known hazards such as hurricanes and based on likely consequences like power outage.
- 3.2.2 Continue to contract and test backup Internet capability at critical facilities. The City should continue to implement a backup internet capability in the form of satellite Internet and mobile hotspots for critical facilities including the EOC.
- 3.2.3 Schedule and implement routine tests of backup Internet capabilities. The City should implement routine tests of fiber communications systems, satellite Internet, and mobile hotspots and follow up on failures or interrupted service to make sure these systems are operable in times of need.

Finding 3.3: The Broward County Public Safety Radio System became overloaded immediately following Hurricane Irma, limiting response communications for the City to only one channel.

As Hurricane Irma moved through the area and response operations resumed, call volume on the Broward County Public Safety Radio System became so voluminous that the dispatch center advised Pompano Beach Fire Rescue that operations were limited to one channel rather than the multiple channels typically utilized. This decision was made based on communication infrastructure limitations to handle the

volume of transmission needed to coordinate an effective response. This issue also was observed during the Fort Lauderdale Airport Shooting Incident in January 2017.

In efforts to expand its communications platform, Broward County is replacing the current public safety radio system with digital 800 MHz system; this is a \$45 million investment subsidized by a grant, which will provide new radios and fire alerting systems throughout the County in the next two years. This new system will replace the legacy system with a modern digital radio system including redundancy and backup capabilities. In the City of Pompano Beach, the Fire Department, emergency medical, and Ocean Rescue use the County radio system. Other departments use city radio communications capabilities, which operate on different frequencies and use different technologies.

It is important to note that at no time was response compromised due to the limited radio use.

Recommendations:

- 3.3.1 Continue to implement the Public Safety Radio Communications Upgrade. The City, under leadership of the County, should continue these efforts to modernize the Public Safety Radio System used by the City Fire Rescue Department.

Ready Response Force

“Do Good”. Simply put, this was the mission City Manager Greg Harrison gave each City employee that responded to the PBOC to prepare for and manage Hurricane Irma’s impacts. To ensure the focus of the response was to do good for the people of Pompano Beach, the City Manager provided shirts with the logo “Do Good” to remind City employees why they were reporting to the EOC, spending time away from their families, and working long into the night. In all, 85 employees worked in the Emergency Operations Center, and 767 fulltime employees, 200-part time employees, and volunteers worked in some way to support mitigation, response, or recovery missions during the event. Over three quarters of the City’s employees worked Hurricane Irma related activities.

ON JUNE 1, 2017, A HURRICANE PREPAREDNESS WORKSHOP WAS HELD AT CITY HALL TO PREPARE CITY EMPLOYEES FOR HURRICANE SEASON (THIS IS THE SAME AS THE 5/31/17 WORKSHOP. JUNE WAS A EXERCISE WITH THE COUNTY TO TEST SHELTER PLANS AND WEBEOC

Finding 4.1: Though staff worked hard, long, and sacrificed throughout the response, additional training would benefit EOC staff.

All EOC staff worked tirelessly throughout the response and were the first to admit that additional training would help them in their roles for future responses. It is important to note that the EOC staff represents City Employees whose full-time position does not include Emergency Management. Therefore, as these staff report to the EOC to support the City in times of need, additional training would benefit them as they transition to these temporary roles. Job aids, such as position specific checklists could also support an enhanced response force of EOC staff who are confident in their role.

Recommendation:

- 4.1.1 Expand position-specific planning and training. Expand development of ESF annexes, position-specific procedures, standard operating procedures, and checklists to support conduct of the City's emergency response coordination activities. Plans and procedures that were in place helped to support effective response, and efforts should be made to develop additional plans and procedures to support preparedness and response.

Finding 4.2: Though some plans and templates have been developed, the City can do more to develop position-specific plans and templates for future events.

The Planning Section and Operations Section of the EOC are expected to work together to develop a comprehensive Incident Action Plan (IAP) that identifies priorities, assignments, and other details for each operational period. During Irma, there were instances of assignments made verbally that were not necessarily captured in or accounted for in the IAP process. This process could be improved through an integrated approach to IAP development and use of an IAP template.

Recommendation:

- 4.2.1 Provide additional IAP training. Require personnel who will or may be expected to staff the Planning and Operations sections to take FEMA independent study course, IS-201, focusing on the development of Incident Action Plans (IAPs).

Finding 4.3: The City provided services to employees to support working through adverse conditions that ultimately supported a stronger response, but questions on who is eligible for these services remain.

To support and encourage City employees to work through and return to work immediately after Hurricane Irma, the City provided childcare services and an employee shelter for City employees. The City Employee Shelter opened on Friday, September 8, 2017 for employees and their immediate families who were required to work throughout the hurricane. After the hurricane had passed, the City opened

four child care centers for City employees so that they may return to work quickly despite school closures. Though this program was successful, there was uncertainty on which employees qualified for this program, which resulted in the program not fully being utilized. These programs are an excellent demonstration of providing needed services to responders in order to expedite response and recovery efforts and should be continued. It should also be well documented and distributed to City employees to further encourage rapid restoration of City services.

Recommendations:

- 4.3.1 Childcare Policy. Update and distribute the City's emergency response childcare policy. The City should distribute this information at the start of hurricane season to remind City employees and clarify when and what services are available.
- 4.3.2 Employee shelter. Sustain the activation of an employee shelter for employees that are required to work throughout the incident and their immediate families.

Finding 4.4: Incidents provide opportunities for growth, so staff should be provided an opportunity to capture and learn from this incident.

Throughout the response, EOC personnel as well as first responders throughout the City demonstrated ingenuity, drafted response plans, and implemented procedures to support response efforts. These efforts should not be lost. Providing time for these responders to maintain and update these tools would support future response efforts and allow for a continual progression of preparedness.

Recommendation:

- 4.4.1 A day of preparedness: As hurricane Irma's effects waned, EOC staff returned to their daily jobs. The City should consider inviting EOC staff back into the EOC for a day to reflect on the response and capture all plans, procedures, and documentation developed during the response for future use.

Supporting those Impacted

Pompano Beach and Broward County identified potential risks and mobilized assets to support those impacted by Hurricane Irma. Mandatory evacuation orders were issued for areas evacuation zones A and B including over 11,500 residents. It is estimated that over 300 Pompano Beach's residents sought emergency shelter in County-operated shelters. Others stayed with family and friends or in commercial lodging at their own expense. During and immediately after the hurricane, the Pompano Beach Fire Prevention Bureau conducted routine checks on all assisted

living facilities in the City. Regional Communication Centers, served as backup capability to the City's dispatch center and collocated with strike team resources for immediate regional response.

In preparedness for Hurricane Irma and consistent with County and City plans, Broward County set up and arranged for operations of emergency shelters within the County, including one in the City of Pompano Beach. However, information from the County to municipalities regarding shelter status (e.g. at capacity) was unclear, and Pompano Beach received information through the news media regarding power and air conditioning problems at a shelter before the County was able to provide the information.

*IN JUNE, CITY AND
COUNTY STAFF
CONDUCTED A
SHELTER
FUNCTIONAL
EXERCISE.*

Finding 5.1: Shelters, operated by Broward County, lacked adequate power, and improvements in sheltering capability and capacity is needed.

Due to evacuation orders for all homes east of US – 1 and all mobile homes, a significant shelter operation was instituted for the County. Pompano Beach High School was open to provide shelter for those evacuated. That shelter reached its maximum capacity of 302 residents on Sunday, September 10, 2017. The next closest shelter was in Coconut Creek and did not reach capacity. Broward County manages the shelter operations for all municipalities. An early heard criticism was that there was not sufficient shelter capacity and that shelters were running with limited power and air conditioning. The City should work with the county to determine sheltering needs and available facilities to shelter individuals during incidents.

Recommendations:

- 5.1.1 Review and update emergency shelter operating criteria. Work with Broward County to review and update operating criteria for public emergency shelters operated by the County. Limitations and specifics of conditions at shelters should be made available to the public before and during an incident.
- 5.1.2 Seek a shelter task force with the County. Work with Broward County and the County Emergency Coordinating Council (ECC) to participate in a task force that identifies shelter needs and gaps to contribute to an emergency shelter strategy with the County.
- 5.1.3 Identify emergency shelter capacity needs within Pompano Beach. Work with the County and other partners to identify emergency

shelter needs for identified hazards and review the potential for additional shelter capacity.

- 5.1.4 Clarify PBEOC processes for situational awareness regarding shelter operations. Work with the County to identify essential elements of information to be updated and shared with municipalities regarding shelter operations. PBEOC procedures should include responsibility for maintaining up-to-date status regarding shelter operations (e.g., via a PBEOC position or the municipal liaison in the County Municipal Services Branch) and process for requesting additional shelter capacity.

Finding 5.2: Concern was expressed about the availability of transitional and temporary housing of displaced residents after County shelters were to close.

Once emergency public shelters operated by the County closed, residents whose homes were damaged needed intermediate- or long-term housing. While not identified as a significant issue after Irma, in a more severe incident, particularly one with higher winds or extensive flooding, availability of livable housing stock in the City could become a challenge for economic and community recovery.

Recommendation:

- 5.2.1 Develop an emergency shelter and housing strategy. The City should work with the County and non-profit organizations to develop an emergency shelter and post-disaster housing strategy, including housing for residents displaced from their homes because of damage.

IN APRIL AND MAY, THE
CITY CONDUCTED
VULNERABLE
POPULATION TRAINING
AND OUTREACH AND IS
PART OF ANNUAL
TRAINING

Finding 5.3: The City maintained communication with Assisted Living Facilities and provided routine checks.

In coordination with Broward County, the City maintained communication with the 15 assisted living facilities in the City to ensure that each facility had the resources necessary to care for their residents. These wellness checks, were conducted by the Pompano Beach Fire Prevention Bureau and were communicated back to the Broward County Emergency Operations Center through the City EOC. This is a best practice that the City has had for some time and will continue.

Recommendation:

- 5.3.1 Institutionalize wellness checks at assisted living facilities. Continue to implement wellness checks at assisted living facilities during emergency incidents, particularly those with power outages, to support safety and health of vulnerable populations.

Finding 5.4: Based on availability of running water as well as availability of commodities such as ice, food, and bottled water at open local businesses, commodity Point of Distribution (PODs) sites were not initially activated.

The City considered establishing a Commodity Point of Distribution site in the wake of Hurricane Irma. However, when the impacts of the storm were fully identified and critical services such as running water and availability of commodities through local merchants were determined, a site was not established. The City received complaints that ice was not provided to impacted residents. The City's decision-making threshold for water distribution has typically been when water service is disrupted. As FEMA no longer provides or reimburses for ice distribution as it is not a cost-effective strategy to provide food and water to those in need nor does it align with preparedness messages that focus on stockpiling non-perishables. However, ice may be needed to preserve certain medications. In those instances, when needs are determined, the City has plans to make every effort to ensure the need is met by utilizing 311 and the EOC hotline.

Requests for ice from residents in the Liberty Park and Sanders Park areas were communicated through elected officials. In response, an ice distribution center was established with support and donations from the United Way. The City utilized city trucks and employees to secure the donated Water and ice from the identified distribution site.

Recommendations:

- 5.4.1 Set and communicate criteria for opening a commodity Point of Distribution Site. Establish clear criteria for when a commodity Point of Distribution Site will be opened; criteria should include availability of commodities from local businesses, power restoration projections, and availability of safe running water. Information on when PODs will be established should be regularly provided to the public.
- 5.4.2 Provide information to residents on how to request commodities such as ice and the policies of distributing these commodities. The City should consider providing informational materials to residents regarding preparedness measures they should take that also include how to use the EOC hotline and 311 when needs are not being met.

Finding 5.5: The City responded quickly to looting.

Prior to Hurricane Irma making landfall, there was a sharp increase in calls related to looting as residents took precautions and evacuated portions of the City. In response, the City responded with additional police presence, and several arrests were made for crimes happening in progress. This additional show of police presence was facilitated by the ability for the City to work together to provide shelter for law enforcement. The Parks, Recreation and Cultural Arts Department provided interim locations for over 250 deputies during the storm.

Recommendation:

- 5.5.1 Sustain efforts to enhance law enforcement presence as a deterrent for looting. Work with the County Sheriff's Office to demonstrate a clear law enforcement presence during times of evacuation and immediate response to deter looting. This should include capabilities and procedures for pre-staging and shelter of law enforcement and support personnel during the height of the storm.

Finding 5.6: Regional Communication Centers provide regional strike team capability for rapid prioritization and deployment of responders. Pompano Beach stationed a City operational representative in the Regional Dispatch Center to assist with communications to the City and to prioritize 911 calls facilitated communication and efficient response.

To provide rapid emergency services during and immediately following Hurricane Irma despite immediate power or communication failures, a Fire Service operations staff member deployed to the Regional Communication Center prioritizing 911 calls to expedite post-landfall response. This best practice supported communications and allowed City responders to rapidly address the needs of the community once it was safe to deploy.

Recommendation:

- 5.6.1 Sustain efforts to assign a Pompano Beach Operations staff member to Regional Communication Centers during emergencies. Continue to implement this best practice for all known events that could result in a loss of power or communications.

Emergency Operations Center Management and Operations

The Emergency Operations Center (EOC) is the nerve center of the City's response to incidents, and the response to Hurricane Irma was no different. Limitations of staff and space make for a challenged response, and Hurricane Irma did not have the scale and severity of impacts that it might have had on the City had the track been

different (or that future storms may bring). The City's EOC is undersized, outdated, and poorly designed to support response operations. As currently configured, the EOC is not well-suited to manage large-scale incidents and cannot accommodate EOC staff when required to shelter-in-place, such as in the event of a passing hurricane. Recommended practices are for shift-change briefings when one shift of personnel hand off to the other; space limitations in the current EOC were at times inadequate to support section shift change briefings, which are designed to provide current status updates and position specifics to personnel staffing the next shift.

Finding 6.1: The City should consider adding staff to support the Emergency Manager.

In 2007, the City of Pompano Beach made the decision to designate and hire an Emergency Manager. The responsibilities of the Emergency Manager are to manage and coordinate City departments and personnel in protection, mitigation, preparedness, response, and recovery activities for hazards that could impact the City. During the response, the Emergency Manager worked continuously for four straight days with limited breaks. An alternate was identified; however, the alternate was also responsible for operations within the EOC. Based on the threats and vulnerabilities of the City and the potential for extended operations, additional staff is needed to support the Emergency Manager to enhance overall preparedness and support response operations.

Recommendations:

- 6.1.1 Hire at least one additional staff to support Emergency Management. Explore the benefit and feasibility of hiring at least one additional staff member to support emergency management activities.
- 6.1.2 Implement position-specific guides and training. The City's ESF 5 SOP outlines the roles of Incident Command System (ICS) sections and positions in the EOC. The City should identify or develop position-specific checklists relevant to the positions used in the PBEOC to support training and performance of EOC duties.

Finding 6.2: The City's EOC does not meet the needs of a large-scale response.

The City's EOC has limited capacity to manage a large-scale incident. The facility lacks space needed to house EOC response staff onsite, lacks break-out space for incident action planning, and lacks technology upgrades that would enhance response. During the incident, EOC staff were required to shelter-in-place at the EOC. For more than 48 hours, EOC representatives did not leave the facility. Sleeping conditions for staff were limited. Many slept under desks, in closets, and hallways while off shift, which lead to staff operating long hours without adequate rest.

Recommendations:

- 6.2.1 Fund EOC upgrades: Identify funds to establish an EOC facility in the City with space and technology to support coordination of City emergency operations and response.
- 6.2.2 Identify PBEOC space and support needs. Estimate staffing and roles in the EOC during each level of activation and outline requirements for the City's EOC.
- 6.2.3 Identify sleeping accommodations in proximity to PBEOC: Because travel to and from the EOC while hurricane conditions are present is not recommended, the City should identify and contract with a local hotel or facility close to the PBEOC (preferably co-located) to provide sleeping accommodations for EOC staff.

Finding 6.3: Backup power and communication capabilities could be enhanced at the EOC.

As outlined in recent reports on enhanced EOCs, high-tech tools fall short without a solid, disaster-resistant network (Pyzyk, 2017). Ensuring the EOC has a strong technical infrastructure foundation ensures a robust response. Unfortunately, throughout the response the EOC was impacted by multiple communications and power disruptions. The EOC was on generator power for a total of eight days due to power outages caused by Hurricane Irma. Though designated with Florida Power and Light as a Critical Facility, power restoration efforts at the EOC were delayed. In addition, the EOC was without normal communication capabilities for two days and without internet for three days due to a Windstream communications node failure. This significantly impacted the ability to coordinate and respond to impacts of Hurricane Irma.

Recommendations:

- 6.3.1 Incorporate and test back-up communications capabilities: The City should identify and fund backup communications capabilities at the PBEOC.
- 6.3.2 Establish restoration priority with Florida Power and Light (FP&L): Work with FP&L to designate the PBEOC as a priority for power restoration.

Finding 6.4: Further integration of GIS capabilities and mapping could provide needed decision support tools for response actions.

Recent research in effective emergency operations centers points to the integration of technologies, such as drones, with GIS capabilities in order to compare aerial footage with mapping technologies to best uncover impacts and prioritize resources. (Pyzyk, 2017) Though the City engaged a GIS expert early in the response, more can be done to integrate mapping capabilities to help develop decision support tools in the EOC.

Recommendation:

- 6.4.1 Establish and support GIS/mapping in the EOC: Identify technology, staffing, and support needs to provide GIS and mapping capabilities in the PBEOC to support situational awareness and decision making.

Finding 6.5: Integration of traffic cameras into the EOC would provide additional situational awareness.

Utilizing pre-existing technologies such as live streaming traffic and beach cameras and integrating them into the EOCs operations would provide for more real-time observations of impacts of events of all kinds.

Recommendation:

- 6.5.1 Establish strategies to integrate live streaming cameras: Identify resources, technology, and expertise to provide access to live stream cameras in the PBEOC to support situational awareness. This may require partnership with the Department of Transportation for the use of traffic cameras, however, beach cameras are operated by the City and can be used to determine real-time inundation.

Coordination with Response Partners

The City of Pompano Beach coordinated well with response partners including Broward County Emergency Management, FP&L, and the Broward County Sheriff's Office. Situational awareness tools such as WebEOC helped to provide the County with a full picture of impacts but did not provide the City of Pompano Beach with awareness of the full county's impacts. Coordination calls were helpful in providing needed information and should be sustained.

Finding 7.1: WebEOC status boards were utilized, but the system did not provide the City comprehensive situational awareness of impacts within the County.

The City of Pompano Beach uses an incident information management system called WebEOC to provide information on response activities, impacts, status of facilities, and resource requests to the City. Though the use of WebEOC in the City's EOC was

successful in that it provided the County with needed situational awareness, overall awareness of impacts occurring throughout the County and among neighboring cities could be improved between the City and the County.

Recommendations:

- 7.1.1 Work with the County to identify strategies to enhance situational awareness through WebEOC: The City should work with the County to identify ways to share status boards more effectively to promote comprehensive situational awareness throughout the County.
- 7.1.2 Develop guidance and provide training on WebEOC use. The City should work with County Emergency Management to examine optimal municipal WebEOC use and provide clear guidance and training for PBEOC staff on WebEOC use and procedures and how the system supports situational awareness at the City and County levels.

Finding 7.2: Pompano Beach staff at the County EOC enhanced coordination efforts along with daily conference calls with the County.

The City of Pompano Beach provided two staff to serve in Broward County EOC's Municipal Support Branch. These staff serve as a conduit of information between the City and the Broward County EOC. The work of these staff and daily conference calls supported coordination efforts within the County. At times, the schedule for Broward County coordination conference calls with federal partners changed during this incident. With the communications outage experienced by the PBEOC, this created confusion and potential for missed coordination calls for the PBEOC.

Recommendations:

- 7.2.1 Sustain daily conference calls with the County EOC Municipal Support Branch: The City should continue coordination efforts with the county through participation in daily conference calls as well as sending City staff to the County EOC.
- 7.2.2 Identify redundant means of conveying schedule changes. The City should work with the County and federal partners (FEMA) to designate redundant means of notifying municipalities regarding schedules for coordination calls and situation report development and dissemination.
- 7.2.3 Sustain coordination activities with the Emergency Management networks to continue enhanced collaboration. The City should continue to promote coordination activities with other emergency

managers throughout the region, state and nation in order to best coordinate preparedness, mitigation, response and recovery activities.

Restoration of Essential Services

The City of Pompano Beach was quick to restore essential services to residents. The initial push of debris from streets was completed within three hours of the storm passing, and a rapid impact assessment was conducted within two hours of the storm passing. However, communications and power restoration were slow, and back-up capabilities, such as operation of generators for traffic signals and communications systems were hampered due to theft of fuel.

Finding 8.1: Coordination with Florida Power and Light should be enhanced.

While most estimated restoration timelines set by FP&L were met, some were not which resulted in operational challenges and uncertainty for residents. Residents of the City of Pompano Beach were without power for several days. As noted above, critical facilities including the EOC also were without power and relied on generator power for as long as two weeks. Further coordination with Florida Power and Light could support accurate and timely communication of restoration activities as well as prioritization of restoration.

Recommendation:

- 8.1.1 Establish a working group with Florida Power and Light: The City should establish a working group with Florida Power and Light to discuss restoration activities, prioritization processes, and how best to coordinate and communicate efforts during an incident.

Finding 8.2: Generator power provided needed backup electricity for critical traffic intersections and facilities but was significantly impacted by fuel theft.

Generators were distributed to critical intersections and facilities during the power outage. This strategy only provided intermittent relief because of fuel theft at generator sites. Locking mechanisms and police presence were implemented but are costly strategies.

Recommendation:

- 8.2.1 Deploy locks or other security mechanisms on generators that power critical traffic intersections and facilities: The City should identify strategies to secure generators to limit fuel theft and sustain back up power capability.

Finding 8.3: Debris removal efforts were rapid and successful, though the initial debris site was moved after complaints.

The City worked quickly to clear the roads once safe, completing the first push of debris from City streets within 3 hours. Debris removal efforts were completed within 8 weeks of the storm passing. The City was in a full-scale collection operation five days after the storm cleared. This statistic is in stark contrast to the challenges other Floridians faced in clearing debris left from Hurricane Irma. Though initial first push of debris removal was a success, the location of the City's initial debris site was contested. Originally, the City had identified a property at the base of the landfill as the debris management site for the City. This was the same location the City used during Hurricane Wilma. Unfortunately, this site was not available during Hurricane Irma due to Waste Management utilizing it for an air-curtain incinerator operation. To keep operations moving forward, the City chose a commercial property located west of Dixie Highway. The location was chosen in part because it was a property the City owns and is zoned as commercial. After residents complained, the debris management site was moved to a property at the Isles Casino.

Recommendation:

- 8.3.1 Confirm debris site criteria and provide rationale for debris sites: The City should clearly identify and communicate debris site criteria and pre-identify debris sites. The city should prepare public messaging for release in or after an incident to explain debris site selection and operations. Prepare to work with elected officials to address constituent concerns.

Finding 8.4: Fuel and propane shortages did not – but could have – impacted response.

Leading up to and after Hurricane Irma, Floridians experienced wide-spread fuel shortages. Though the residents of Pompano Beach did not experience these effects as much as neighboring jurisdictions, the City should consider how to respond in the event of fuel shortages. The City experienced low propane levels. A review of the size of the City's propane tanks and processes for refilling prior to known events would enhance overall resiliency.

Recommendations:

- 8.4.1 Review the City's fuel station policy: The City should review and clarify its policy for providing motor fuel to City employees who are expected to use a personal owned vehicle to report to work.

- 8.4.2 Propane stockpile: The City should review processes for storage and ordering propane prior to a developing incident, such as a hurricane.

Finding 8.5: Damage Assessments were rapid, coordinated, and included enhanced technology.

Prior to Hurricane Irma, Pompano Beach officials entered a contract with a drone provider to provide fly-over capabilities for damage assessments in the aftermath of an incident. Though not needed for this incident, this strategy would be effective in a larger scale event. The Broward County Sheriff's Office supported in the rapid damage assessment process and communicated and coordinated well with the PBEOC. Efforts should be made to further institutionalize and coordinate these activities through the City Building Official, who is responsible for coordinating damage assessments for the City.

*IN JUNE, THE CITY
CONDUCTED A
RAPID IMPACT
ASSESSMENT
EXERCISE.*

Recommendations:

- 8.5.1 Continue to use drone technologies to support damage assessments: Consider how best to integrate a drone contract into a comprehensive damage assessment process including transitioning that contract to the City Building Official's office.
- 8.5.2 Develop a comprehensive damage assessment SOP: Develop a comprehensive damage assessment SOP that integrates efforts of the Broward County Sheriff's Department and the City Building Official. Address use of GIS in mapping and analysis for damage assessment.

Facilitating Recovery

Recovery efforts involved not only City officials but the County, State, and the Federal Emergency Management Agency (FEMA) to provide assistance to those impacted. All parties coordinated well together and proved that pre-planning supports effective implementation of recovery programs. The State of Florida received a federal disaster declaration on September 10, 2017 (DR-4337). Broward County was declared for Individual Assistance and Public Assistance for all categories.

More than 4,000 Pompano residents registered for federal Individual Assistance (IA) after Hurricane Irma. The only Disaster Recovery Center in Broward County was established in Pompano Beach at the Larkins Center as a result of efforts by the City's Emergency Manager. This allowed for residents to have easy access to County,

City, and FEMA personnel to identify and apply for relevant recovery programs. Because recovery is a community-based effort, Pompano should continue to engage the residents and businesses on preparedness and mitigation activities that would limit disruptions and impacts to known hazards.

To the City's benefit, the City Disaster Cost Recovery Team illustrates a unique and valuable model which has been shared as a best practice throughout the region and State. The team consists of the Emergency Manager, Finance Director and Risk Manager who collectively work together to ensure maximized reimbursement of insurance dollars as well as public reimbursement. This process has been built over the last decade within the City of Pompano Beach and ultimately benefits the residents.

Based on the unprecedented hurricane season, along with damaging fire activity on the West Coast, recovery efforts coordinated by FEMA have been slow. With more than 25.8 million people affected by hurricanes Harvey, Irma and Maria this year and 4.5 million survivors who have registered for FEMA's Individual Assistance, there have been some expected delays in coordination efforts with FEMA. For example, the FEMA Public Assistance Scoping Meeting – a meeting held between the City and FEMA to review damages, gather documentation and develop a list of recovery projects is typically scheduled within 21 days of an assigned FEMA Program Delivery Coordinator but did not occur until December 13, 2017, three months after Hurricane Irma passed.

Finding 9.1: The City leaned forward to support recovery efforts.

Realizing that the location of the Mobile Recovery Intake Center (MRIC) would be of importance when it came to impacted resident's ability to access the center and therefore aid, the City's Emergency Manager was quick to offer and facilitate the use of the Larkins Center as the County's only MRIC at that time. Recovery intake centers serve as a central location where applicants can go for information on FEMA or other disaster assistance programs. Because the City was quick to facilitate the use of the Larkins Center and supported the location of the intake center in Pompano Beach, residents were able to easily access and take advantage of all programs in which they were eligible, which supports the overall recovery for the City.

*THE CITY CONDUCTED
A COST RECOVERY
WORKSHOP IN MAY TO
SUPPORT FINANCIAL
RECOVERY EFFORTS
POST INCIDENT.*

The City also was prepared to calculate and collect impacts to public infrastructure and costs incurred in the response. Collecting and submitting these costs as part of FEMA's Public Assistance (PA) program will allow for partial reimbursement of costs and damages to city infrastructure.

Recommendation:

- 9.1.1 Expand recovery measures and needs to prepare for disaster recovery. The City should develop a Pompano Beach recovery plan or strategy that outlines recovery needs, priorities, programs, and processes and identifies departments and organizations (e.g., neighborhood associations, organizations that serve vulnerable populations, and the private sector) that should be involved in planning for long-term recovery

Finding 9.2: Despite the City's best efforts, Recovery and cost reimbursement may be slow based on the Nation's response to multiple disasters.

Though the City has done what they can to capture and prepare damage assessments, costs incurred, and projects for funding, the current response efforts throughout the Country is delaying the overall recovery process.

Recommendations:

- 9.2.1 Continue to lean forward and engage with the FEMA Program Delivery Coordinator. The City should continue efforts to coordinate and prepare for reimbursement through the FEMA Public Assistance process.

Finding 9.3: Continued education and community preparedness efforts will enhance the City's resilience.

Emergency preparedness, mitigation, response, and recovery require collective effort between government, businesses, and individuals. The City has implemented many programs, such as the Community Emergency Response Team (CERT) program, information sessions to community leaders and business, as well as comprehensive mitigation and preparedness planning efforts to enhance the resiliency of the City. These efforts should continue and focus on the outcomes of this report as well as lessons learned from events in other jurisdictions.

To continue efforts to coordinate with local businesses, the City should consider engaging the Chamber of Commerce in preparedness efforts as well as request representation in the EOC during a response to an incident.

Recommendations:

- 9.3.1 Continue community engagement and education efforts: The City should continue and enhance community engagement efforts, providing education opportunities on how residents can best prepare for the threats and hazards they could face. Pre-event outreach in

targeted communities to determine potential needs and to establish firm relationships would enhance future responses and full utilization of the CERT capability.

- 9.3.2 Engage with the Chamber of Commerce: The City should consider engaging the Chamber of Commerce to support outreach to local businesses on how best to be prepared for known hazards, such as hurricanes. As a natural point of contact to the business community, the City should consider inviting the Chamber of Commerce to the EOC to support the response to incidents and support the coordination efforts with the business community.

Next Steps

The City of Pompano Beach prepared rigorously and responded admirably to Hurricane Irma. Hurricane Irma tested infrastructure, processes, and response capabilities of the City, but the hurricane's impacts were less severe than they could have been because of the storm's track. This after action report captures both actions and activities that should be replicated in future incidents and those that need to be improved or adjusted to serve and protect the City in the future.

While the City's emergency management staff consists of one person, the City's overall emergency management program, represented in the PBERT, includes almost all City departments and multiple County, non-profit, and community organizations. Improving preparedness and response capabilities is the responsibility of that broadly defined emergency management program for the City and will require the efforts of a diverse set of agencies and organizations. To make the most of opportunities for improvement described in this report, the City should review and prioritize recommendations, establish an improvement plan, and track progress toward resolving or addressing improving items.