



Informal Practices for Hurricanes - Cedar Key and Rosewood Florida

This is the report for printing.
Also see the interactive online version
<http://arcg.is/1qnyDT>

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Introduction

Project Purpose

This project documents the informal practices for hurricane preparedness, response, and recovery in Cedar Key FL, and to some extent the neighboring Rosewood area, in order to:

1. Pass along knowledge to persons newly assisting with hurricane preparedness, response, and recovery in Cedar Key and Rosewood.
2. Share with residents and other communities the practices of small town and rural hurricane preparedness, response, and recovery.

This project is a special volunteer initiative between UF and Cedar Key, with assistance from the Cedar Key Water and Sewer District, Levy County, and regional government agencies. The project originated from conversations between a Cedar Key official, graduate students in the UF Student Planning Association, and an Urban and Regional Planning professor during the cleanup following Hurricane Hermine in 2016.

How do we define informal practices?

For the purposes of this project, we have defined informal practices as those that have a pattern or tradition, yet are not required and specified by organizations with governmental authority. That is, informal practices are discretionary and not fully institutionalized. Informal practices often occur in the civic and intergovernmental realms, and through the leadership of individual persons.

The line between informal practices and formal procedures can be blurry. Informal practices interact with formal procedures, and informal practices may become formal (and vice versa). Adhering to a strict definition is not of concern, since the main purpose of the project is to provide useful, accessible information about how to implement these valuable practices.

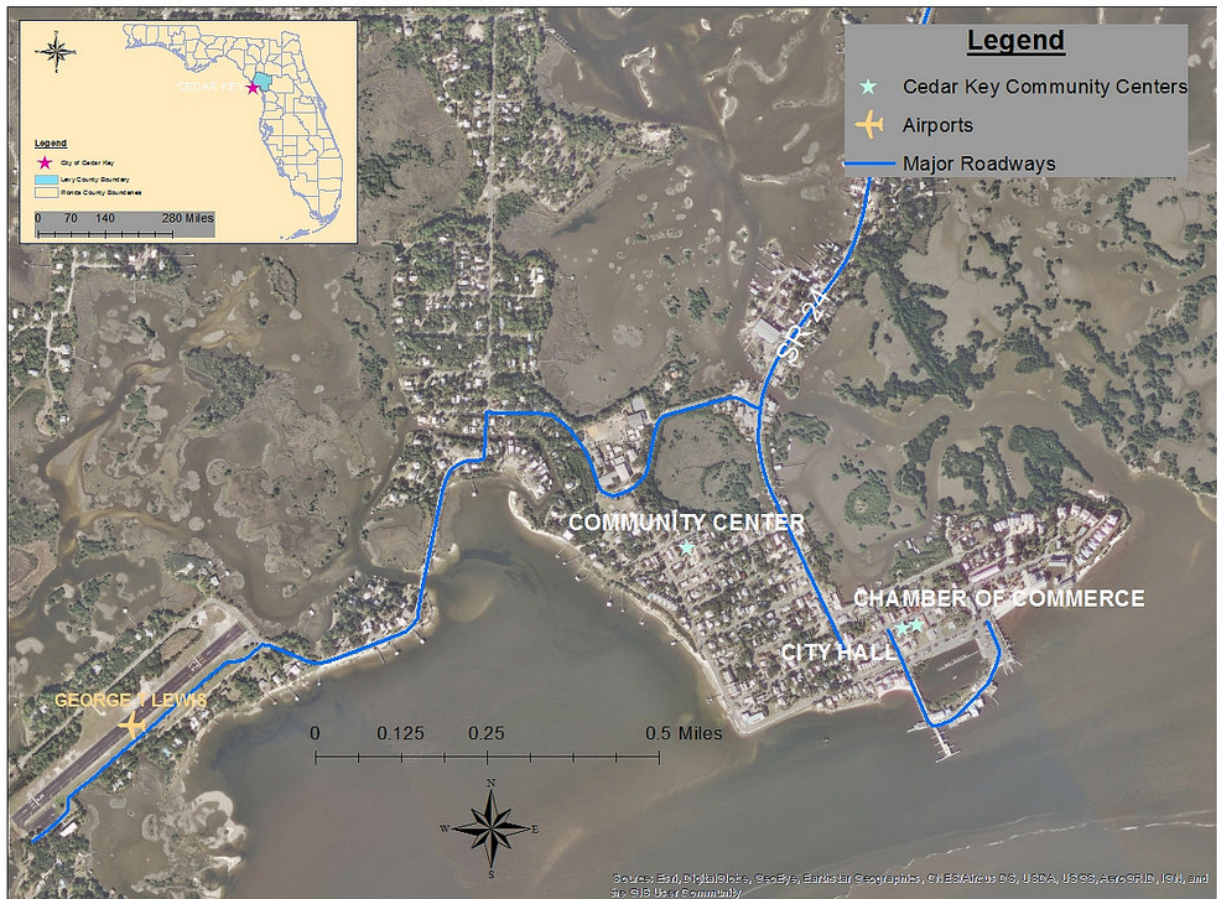
About Cedar Key and Rosewood

Cedar Key, population about 700, is an incorporated city located on a small cluster of islands along the Gulf Coast of Florida, about 60 miles west of Gainesville. There is one road (State Road 24) leading onto the islands, which is an important factor when considering emergency management. The islands are characterized by several substantial hills and low lying land surrounded by salt marshes, bayous, clam beds, and other tiny keys. The town remains a working waterfront, and it also caters to tourism, recreation, retirees, and "snow birds". It has quaint cottages, artist shops, and restaurants along the water. It is "a place where time stands still

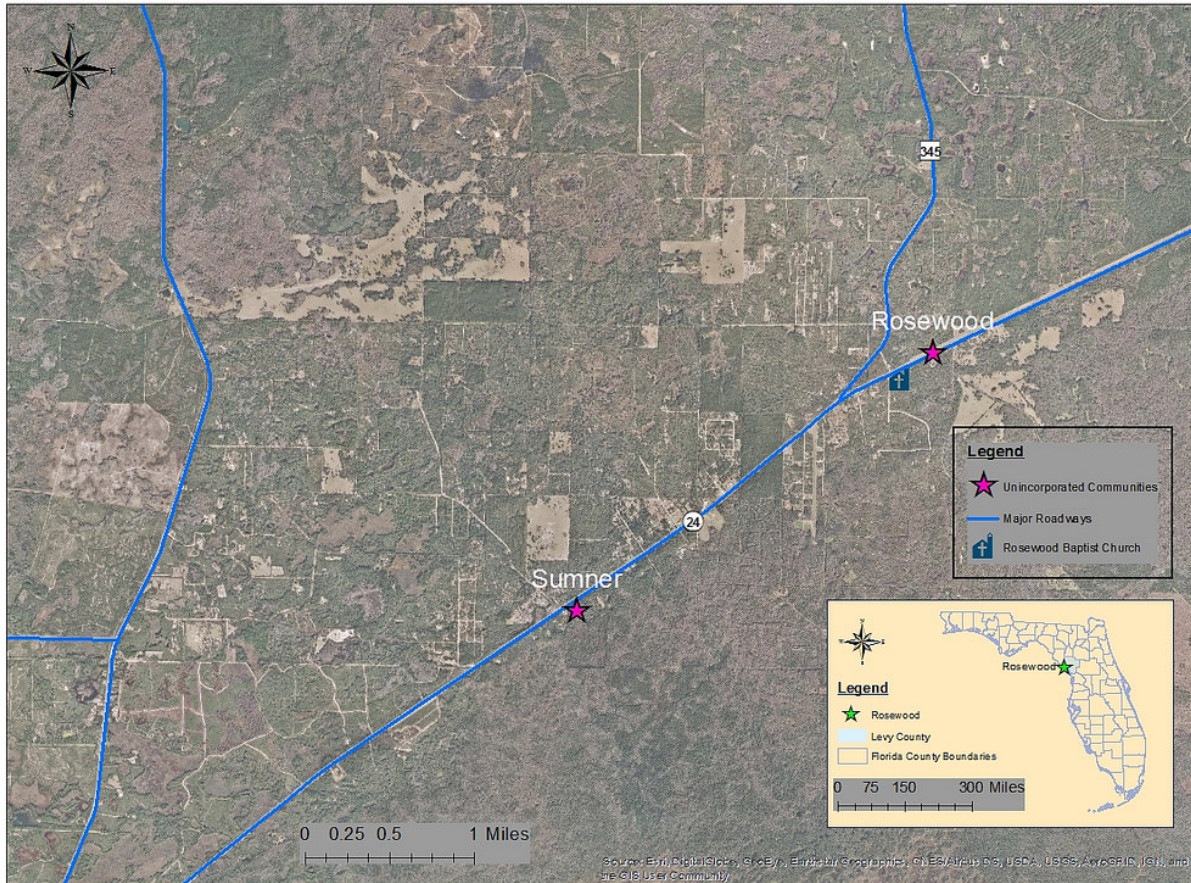
and allows you to enjoy the unique qualities of our coastal environment" (Cedar Key Chamber of Commerce, 2017).

Rosewood (and adjacent Sumner) are inland unincorporated areas branching to the north off SR 24 (and County Roads 347 and 345) about 5 to 12 miles from Cedar Key. The combined population is about 2,000 residents, many of whom are connected to Cedar Key and surrounding waters through employment, school, family, and activities. The Rosewood area is low lying and surrounded by extensive freshwater marshes and tree farms, with the nearest larger towns (Chiefland and Bronson) over 20 miles away.

Bronson, situated along SR 24 about 35 miles east of Cedar Key, is the county seat, and thus the location of Levy County Emergency Management, the Levy County Board of County Commissioners, and the Levy County Health Department.



General Map of downtown Cedar Key & Levy County (Made by: Jen Krouchick)



General Map of Unincorporated communities of Sumner and Rosewood, Levy County
(Made by: Jennifer Krouchick)

Research Process

The main source of information was interviews the project team conducted in 2017-18 with knowledgeable people involved in formal and informal emergency management practices in Cedar Key, Rosewood, and Levy County. The interviewees are listed in the Thanks section at the end.

We organized the information according to time frames covering hurricane (or tropical/major storm) preparedness, response, and recovery. To be comprehensive, we sought practices related to four aspects we identified: social/governance capacity, communications, finance, and the physical environment (buildings, infrastructure, and the natural environment).

Findings

Each informal practice is placed into one of the following time frames:

1. Pre-Hurricane Season
2. Pre-Event (hurricane/storm)
3. During Event
4. Short-term Post-Event
5. Long-term Post Event

While this project is focused on informal practices, we mention formal procedures to provide the context. The formal procedures relevant to all time frames are briefly described in a separate section. And, each time frame section includes formal procedures specific to that time frame.

Reference

Cedar Key City of Commerce (2017). Retrieved from cedarkey.org

Overall Formal Procedures

This section briefly describes formal emergency management plans, programs, and procedures that apply across the time frames of hurricane preparedness, response, and recovery.

County and Local Chain of Command

The Levy County Emergency Operations Center (EOC) Director, located in Bronson at Levy County Emergency Management, is in command during an emergency and makes all major decisions.

The Emergency Manager in Cedar Key (currently also serving as the Fire Chief) coordinates with the County EOC and is at the top of the chain of command for emergency events in Cedar Key. All local activities following an event should go through him/her.

Through conversations with the Emergency Manager for the City of Cedar Key, we learned that having an understanding a chain of command, including for informal practices, is essential to emergency management. If the chain of command is not followed, things can become chaotic following a major storm event.

Cedar Key Emergency Plans and Policies

The City of Cedar Key has a local ordinance, 2.18.00 (State of Local Emergency), that provides direction on determining a state of local emergency and additional details. The city code also gives the city authorization to activate the disaster emergency plans once a state of local emergency has been declared, (2.18.05 Activation of Disaster Emergency Plans). These official policies allow the city to take emergency measures such as evacuation orders and distribution of supplies, materials, and equipment as necessary. The declaration of a state of local emergency also permits the city to impose certain measures and regulations as needed (2.18.07 Imposition of Certain Emergency Measures or Regulations).

Cedar Key's Comprehensive Plan includes policies and objectives that relate to hurricanes: Objective 4-9 Coastal High Hazard Area (CHHA), Objective 4-10 Hurricane Evacuation, and Objective 4-11 Post - Hurricane Recovery & Redevelopment. Objective 4-9 includes a policy that directs public concentrations away from the CHHA. Objective 4-10 includes policies about the city's disaster preparedness plan and when evacuation should be considered. Objective 4-11 includes policies about response conditions and establishing priorities for recovery and redevelopment.

Water Supply and Wastewater Infrastructure

The Cedar Key Water and Sewer District is a distinct special purpose local government agency, which provides central potable water and wastewater treatment services. The District serves Cedar Key residents within and near the City limits. The District does not have customers in Rosewood or Sumner. Over the past few years, the District has documented many of their procedures. Rosewood area residents have individual drinking water wells and septic systems.

Levy County Plans

The County has two guiding documents when it comes to emergency management: Levy County Comprehensive Emergency Management Plan (CEMP) and Levy County Local Mitigation Strategy (LMS).

The CEMP establishes a framework to help reduce the loss of life and property, prepare response and recovery activities, identify resources necessary for response, and identify mitigation activities. The plan discusses hazards/vulnerability analysis, operations, training, recovery functions, and pre- and post-disaster mitigation functions, among many other things.

The LMS promotes proactive hazard mitigation and post-disaster recovery in a community. The document includes information about hazard identification/profiles, vulnerability assessment, mitigation initiatives, and funding sources. This information is very specific to the county and is a good source for communities within.

Long-term Funding

Receiving post-disaster recovery funding from the Federal Emergency Management Agency (FEMA) came up throughout our interviews. There are multiple grant programs that may be applicable to recovery and mitigation efforts. A few, but not all, programs are listed below. For more information about funding visit the Florida Division of Emergency Management website.

Recovery: Public Assistance (PA) Program: The State of Florida manages this program as a grantee from FEMA to provide assistance to state, tribal, and local governments, and certain types of private non-profits (FDEM, 2018). Through this grant program, FEMA provides emergency and permanent assistance for debris removal and emergency protective measures, as well as repair, replacement or restoration of disaster-damaged, publicly owned facilities. This is a reimbursement program, so all project costs are initially covered by the recipient. The grant covers up to 75% of project costs and the recipient is responsible for the remaining 25%.

Individual Assistance (IA) Program: The IA Program is "designed to coordinate assistance provided to individuals, households, and businesses recovering from disaster or emergency impacts" (FDEM 2018).

Mitigation: Hazard Mitigation Grant Program (HMGP): This program is very similar to the PA program listed above, but the focus is on mitigation projects. These projects should include activities that lessen the impacts of future storms to life and property in some way. Common projects include acquisition/demolition, elevations and wind retrofit, drainage, relocation, critical facility emergency generators, and wildfire mitigation.

Reference

FDEM (2018). Retrieved from <https://www.floridadisaster.org/dem/recovery/individual-assistance/>

FDEM (2018). Retrieved from <https://www.floridadisaster.org/dem/recovery/public-assistance-program/>

Pre-Hurricane Season

Formal Procedures

The purpose of this section is to list any formal emergency management processes to give context to some of the informal practices listed below.

Levy County Alert System

All county residents are encouraged to sign up for the Levy County Alert System. This allows the county to send alerts directly to residents via home phone, cell phone, text, or email. When signing up, residents can pick which method is preferred. For more information, visit www.levydisaster.com.

In Cedar Key, the Cedar Key Water and Sewer District (CKWSD) uses the Levy County Alert System to provide emergency notices to District customers. An example of an important notice is requiring all District customers to boil their water in an emergency situation. Prior to a major storm event, CKWSD uses the system to send out notices of shut-offs and special actions.

Formal Training & Run Throughs in Cedar Key

While interviewing the Emergency Manager in Cedar Key, we learned there are some formal training activities that take place throughout the year. Some of this training includes:

- Medical Training for all in the Fire Department
- Table top exercises of a complete run through in the community center (not every year)
- Checking emergency sirens (fire sirens)
- Emergency vehicle inspection

Informal Practices

Hurricane Prep Day

What: Hurricane Prep Day occurs annually in Cedar Key. The event takes place before the start of hurricane season in order to give people information about the upcoming season. Another important aspect of Prep Day is the collection of hazardous waste. This is important because in the event of a hurricane, it can be dangerous for the community and the environment to have hazardous waste sitting around. Also, each year there is a main area of focus of education that changes each year. Hurricane Prep Day is a convenient way to inform the community, collect hazardous waste, and have fun while doing it.

According to the Vice Mayor, this event is a success by using the 3 H's!

1. Hurricane Prep
2. Hazardous Waste - pickup is done once/year BEFORE hurricane season
3. Hot Dogs

The Cedar Key Water and Sewer District has prepared information about disaster and hazard impacts to water systems distributed on a flyer. This flyer is given to customers and handed out during the annual Cedar Key Hurricane Prep Day. Levy County Emergency Management also participates in the annual hurricane prep day and registers residents on site for notifications.

Over the years, there has been an issue getting people to attend Hurricane Prep Day. It is currently advertised in meetings and through social media. Sometimes mailings are utilized but there is concern about the cost of time and money. Two means of spreading notice that have been considered are attaching a message on the water bill and doing a robo call.



Photo from Cedar Key News article about Hurricane Prep Day. The photo shows the collection of hazardous waste from Cedar Key residents.



Presenting our findings at the 2018 Hurricane Prep Day
(Left to Right: Kristin Buckingham, Jen Krouchick, and Dr. Kathryn Frank).

Why: The main purpose of this event is to bring community members together to learn about hurricane preparations and provide an opportunity to drop off any hazardous waste. In doing so, the amount of hazardous waste is reduced that could cause a problem in the upcoming hurricane season.

This information allows for Levy County and Cedar Key to get more information out to all area residents in advance of hurricane season, and ensure they are informed in advance. Advanced registration of area residents at the Cedar Key Hurricane Prep Day enables Levy County to make sure more residents are informed.

Who: Designated by the Cedar Key EOC Director; the City of Cedar Key and Levy County Emergency Management also participate.

When: Planning for Hurricane Prep Day begins in March, with the actual event held in sometime May. It is important to have Prep Day as close to the start of hurricane season as possible so people do not forget about what they learned. Levy County Emergency Management also participates in other similar events throughout the year.

Where: The event is located in the Cedar Key Community Center.

Social Media

What: The Cedar Key Emergency Manager runs the social media account (Facebook). This tool is an extremely useful tool when it comes to educating residents before, during, and after a storm. The Facebook account is used to give residents information about storm updates, evacuations, and more.

While the Cedar Key Water & Sewer District (CKWSD) does not have a Facebook or Twitter, the District does communicate with customers in other ways. The CKWSD has a website that is kept up to date. There are also regular public meetings (notice and agenda are published on local media) and regular mailing to customers about water quality issues. Citizens are also encouraged to sign up for the Levy County alert system, which includes text messages, email, and phone options. AlertLevy is used to send important messages out to customers. Levy County also manages a Facebook page and utilizes it much like the Cedar Key account.

Why: Using social media in this context because it allows officials to give people vital information about the event and keep them updated as times goes on.

CKWSD does not use social media because there is so much back and forth and it can complicate open meeting and records requirements. There is also the issue of free access to government information. While many people do have and use social media, not all do. By putting information on their website, CKWSD ensures information can be accessible by all.

Who: Cedar Key's Emergency Manager. Cedar Key community members are also able to share the information on their Facebook pages allowing for a greater reach of information. Through Levy County's page, the target audience is all of Levy County.

When: Both Cedar Key and Levy County's pages are currently active and are utilized throughout the year.

Where: Accessed and maintained online by Cedar Key's Emergency Manager and Levy County.

Living Documentation

What: Along with formal documentation is the concept of living documentation. The Cedar Key Emergency Manager spoke about the importance of collecting ideas and processes learned over the years and creating formal documentation. With a limited staff, this can be a lengthy process. Once processes are documented formally, they will continually be updated if better processes are found. A good time to assess formal processes for potential changes is following a major storm event to see what worked well and what did not.

Why: Having living documents is important to keep processes updated and accurate and using the best practices available.

Who: The Cedar Key Emergency Manager will update processes as he/she sees fit.

When: Throughout the year as changes are discovered.

Where: In the formal process documents.

Drills and Training

What: Cedar Key staff participates in training and drills. The drills and much of the training is part of the formal process. This includes online training and table-top exercises. However, Cedar

Key also does informal drills that include checking the equipment, such as the vehicles and sirens, to make sure that everything is operable.

Levy County is also instituting a drone program that will cost approximately \$900 - \$1,400. This cost includes all the equipment, extra batteries, and extra parts. Operating a drone requires training and licensing.

Why: Training and drills keep staff up-to-date on procedures and ensures that they are ready to respond to an emergency. Drills also provide an opportunity to test equipment and make sure that it is operable.

Drones will make it significantly easier for staff to check areas and see what is occurring without putting staff in flooded areas or other dangerous situations.

Who: Cedar Key Emergency Manager & Levy County Emergency Manager receive training and coordinate training and drills for other emergency staff and personnel. Levy County Emergency Management are getting FAA Drone Licenses.

When: The staff primarily does training and drills during the off-season, from December through May, to prepare for hurricane season

Where: Training and drills occur in Levy County and online.

Preparation of Supplies

What: PODs are utilized to gather supplies that may be needed during hurricane season. Supplies include anything that may be needed in, during, and after storm events, such as MREs, water, blankets, and any other supplies needed by area residents.

Why: These PODs provide enough supplies to unincorporated areas throughout the county until the state can get into those areas with additional supplies after an event.

Who: Levy County Emergency Management sets up these PODs and is responsible for restocking before the hurricane season starts.

When: The PODS are restocked prior to the beginning of hurricane season yearly.

Where: Various locations throughout Levy County have PODS located. There are specific locations chosen for unincorporated areas such as Rosewood, which uses the Rosewood Baptist Center as the POD location. Supplies are shuttled in to the PODs directly for resupplying.

Drainage Improvement Projects

What: In Rosewood and Sumner, drainage ditches and culverts are maintained and improved, thus reducing severity and duration of flooding.

Why: The Rosewood and Sumner areas are prone to flooding due to the low, flat terrain. Existing drainage infrastructure requires maintenance, such as cleaning out. New development and storm patterns require additional drainage, such as more/larger ditches and culverts.

Who: Community and county leaders advocate regional, state, and federal agencies (e.g., Water Management District and Army Corps of Engineers) for drainage maintenance and improvement projects. Residents, neighborhoods, and the county may directly improve drainage on their properties.

When: Any time, especially after significant flooding, and prior to the hurricane season.

Where: In important places that are prone to flooding, such as County Road 345.

Pre-Event

Formal Procedures

The purpose of this section is to list any formal emergency management procedures to give context to some of the informal practices listed below.

Cedar Key Emergency Plans & Checklists

The Emergency Manager (currently the Fire Chief) in Cedar Key has many plans/checklists in place for major storms/events. While not all of these plans/checklists are specifically for the fire department, the emergency manager is responsible for overseeing everything including other departments.

City of Cedar Key Evacuation Plans: this plan includes a checklist of actions in the event of an ordered evacuation of Cedar Key. The actions include things like meeting of department heads, notice of evacuation, installation of evacuation signs, confirmation of notification, and more.

Hurricane Preparation Plan: this plan includes a checklist for multiple time frames before a storm. These actions are distributed between 36 hours, 24 hours, and 12 hours before the storm. This plan may be updated as needed.

Police Department Pre-Storm Checklist: this checklist includes actions that need to take place for the police department. The actions are divided between pre-event, during event, and post-event time frames. Some actions include placing personnel on telephone standby, advising anyone outdoors to return inside, assessing damage, and more.

Public Works Hurricane Checklist: this checklist includes actions items for the following areas in Cedar Key: City park, Marina, Public Works shop, Community Center, Cemetery, Cemetery Point Park, and overall City. The action items include things like taking pre-storm condition photos, gathering sandbags, lifting tools and equipment, turning off irrigation systems, and more.

Administration and Finance Plan: the purpose of this plan is to provide procedures for preparedness, response, and recovery to maintain and record all public documents that may be impacted by disasters. The plan also includes action items for the preparedness, response, and recovery phases.

Cedar Key Water & Sewer District (CKWSD) Hurricane Plan

CKWSD has a Hurricane Preparation Plan and Hurricane Preparedness Guild Pamphlet. The plan includes a checklist full of action items for different time frames before the storm including 48 hours, 36 hours, 24 hours, and 12 hours prior to a storm. The plan also stipulates that these action items are for a predicted wind speed of 39-54 mph. The pamphlet is for customers with information about "what you need to know about your water and sewer utilities before, during, and after a hurricane." There is general information and sewer and water specific information.

Informal Practices

Pre-Storm Warnings

What: If a storm is approaching, government staff and residents receive notices and instructions. There are two formal county and city communications that take place prior to an event: the Levy County Alert and the Cedar Key Water Department Alert. The Levy County Alert calls devices and gives information about mandatory evacuations. Cedar Key's Water Department also sends out an alert before an event to warn people if the water may be turned off.

Over time, officials in Cedar Key have learned the best informal method for warning people of an upcoming storm is to make person to person phone calls. In the past, officials would walk around the neighborhoods with megaphones but realized this was not very effective. In realizing the phone calls are the more effective method, it exposes the need for established informal phone trees.

Why: Each pre-storm warning is designed to maximize the opportunity for community members to be informed and stay safe. The informal method of calling people also allows for community members to keep track of each other's whereabouts, both before and after the storm.

Who: The Levy County Department of Emergency Management is the initial provider of pre-storm warnings, including to all county employees and subscribers to the alert system (see below). Local governments and agencies, such as the Cedar Key Water and Sewer District, may send related pre-storm information to residents and customers.

When: The Levy County Emergency Management Department receives a 5-day weather forecast every day. If a storm is approaching, the Department will send out the notice. Other government entities, such as the Cedar Key Water and Sewer District, may provide related pre-storm information on an as-needed basis.

Where: The Levy County Emergency Management Department maintains the Levy County Emergency Alert System, to which government staff and residents are encouraged to subscribe. Subscribers choose what alerts to receive and how (home phone, cell phone, text, or email).

Decision Makings

What: Leading up to an event, decisions are based on a combination of past experiences and official information, such as weather reports and tide pole numbers. Officials prepare for the worst-case scenario. If well water contamination or other water issues are a concern, the Florida Department of Health (Levy, Dixie, and Gilchrist Counties) takes the lead on management.

Why: Pre-event decision-making allows Cedar Key to act during an event without having to stop to make decisions or gather additional information or resources. This allows them to respond quicker and be better prepared during the event. Planning for the worst-case scenario helps ensure that they are ready for anything that could potentially happen during the event. The Health Department makes sure to have an employee on-site during events to take preventative action on any contaminated areas.

Who: The County and City Emergency Managers, Mayor, Police Chief, and the Cedar Key Water and Sewer District General Manager. Coordination between Levy County and the Health Department also takes place.

When: Primarily pre-event, but some decision-making happens during or after the event as needed.

Where: Local meetings, phone calls, e-mail and other communication.

Ad Hoc Coordination, Monitoring, and Response

What: *This type of activity occurs immediately prior, during, and after a storm.* Activities include: ad hoc intergovernmental meetings; monitoring of local conditions and damage assessments; and responses to resident requests.

Why: To make decisions, coordinate activities, predict and observe problems, communicate information, share equipment, and deliver supplies.

Who: Levy County Department of Emergency Management (including damage assessment teams with Mosquito Control employees), Levy County Health Department, City of Cedar Key (including the City's Emergency Manager, Police Chief, and Mayor), Cedar Key Water and Sewer District, Rosewood community leaders, and residents.

When: As needed.

Where: Meetings are held where needed. Monitoring is conducted at stations and sites known to indicate substantial flooding. Damage assessments occur in impacted areas. Residents report conditions at their properties and roads. Supplies are brought to residents (rather than residents come to the Levy County Emergency Management office).

Using Social Media

There are some great examples of how social media was used during storms in Cedar Key.

During Hurricane Hermine, Robert Robinson (the acting Emergency Manager) would provide updates on the Facebook account and tag his daughter in each post. This allowed her to share the information on multiple other platforms (like Twitter, Instagram, and Snapchat) and reach a larger audience. This spread of information also occurs much faster than traditional means of communication.

During Event

Informal Practices

Planning Ahead

What: During storm events, there is not a lot of activity that occurs. Having proper planning in place allows officials to be prepared for post-event issues. This can include actions like developing plans and backup plans prior to an event.

Why: Storm damage cannot be predicted and not much activity or planning can occur during a storm event. Prior planning allows officials to be prepared for post-event issues. Having a backup plan is beneficial because storm damage may make it difficult to follow the original plan. For example, one or more of the shelters or distribution areas may be damaged during the storm, and an alternative location may have to be used.

Who: City and county emergency managers, city officials, police, fire department, health department, and the water and sewer district.

When: Planning ahead primarily occurs before an event. However, other preparations can be made or discussed during or after an event.

Where: Cedar Key and the surrounding area.

Phased Activation

What: When speaking with the Director of the Levy County Emergency Management Department, he spoke of phased activation. Prior to a storm, certain events trigger the activation of emergency management activities.

Why: Phased activation ensures that operations occur. This reduces costs and ensures that activities run smoothly because staff and resources are utilized when needed.

Who: Emergency Manager and emergency personnel within the Levy County Emergency Management staff.

When: During events and peak storm season.

Where: Coordinated by the Levy County Emergency Management Office.

Short-term Post-Event

Formal Procedures

The purpose of this section is to list any formal emergency management procedures to give context to some of the informal practices listed below.

Cedar Key Water & Sewer District

CKWSD will send alerts to its customers following an emergency event, when necessary. One example is a water boil notice, which are rules mandated from the Florida Department of Environmental Protection (FDEP). These notices communicate when to boil water, when the system is off, and when it is turned back on.

Informal Practices

Managing Volunteers and Supplies

What: Following a storm, it is great to have volunteers but it can also be overwhelming if ill-prepared. Cedar Key officials have learned some informal practices that have helped keep volunteers on task and safe. Such practices include approaches to obtaining, managing, and documenting volunteers and the influx of donated supplies used for cleanup and resident welfare. For example: central management locations are chosen and communicated, pre-printed forms are used to document volunteers, and shared supplies are labeled for easier return after use.

Having a staging area ready before the volunteers arrive is also essential. In the past, there has been some confusion about gathering volunteers. Since then, the Cedar Key Emergency Manager has determined the fire station is a good place to stage volunteers.

Why: Time and time again, people prove to be very generous in donating their time and possessions so being properly prepared for volunteers allows officials to benefit from the volunteers and supplies offered, to receive FEMA credit for the volunteers' services, and to maintain an orderly process.

Who: The Cedar Key Emergency Manager oversees and coordinates all recovery activities in the City, including the management of volunteers and supplies. The Levy County Department of Emergency Management and Levy County Health Department provide regional leadership roles, as well as deliver emergency supplies, such as PODS containers and tanker trucks of potable water. Local leaders manage the volunteers and supplies. Volunteers come from the surrounding area.

When: Some resources are available from government agencies immediately following a storm. When citizens are allowed to enter the disaster area, many volunteers arrive independently bringing supplies.

Where: Central locations for managing volunteers and supplies have been established in Cedar Key and nearby Rosewood area. It has been determined that volunteer stations will be set up at the Cedar Key Fire Station and the Rosewood church, depending on the severity of the storm. Different sites may be chosen, if necessary.

Regional Aid

What: When preparing for emergency events, it is important not only to consider how your community will be affected but also how the region will be affected. This is especially the case for rural coastal communities where resources may be more limited.

Cedar Key learned this lesson when Hurricane Hermine hit the Gulf Coast. Following the storm residents from Rosewood, the town directly to the east, came to Cedar Key looking for aid. As a result, a second shelter was set up in Rosewood so the residents did not have to travel to get help.

Why: As storms continue to worsen and impact communities, especially rural coastal communities, in new ways it highlights the need for regional capacity building.

Who: The Cedar Key Emergency Manager decides where to send resources.

When: Cedar Key officials saw the need for regional aid following Hurricane Hermine, which hit the area on September 2, 2016 with a 9-foot storm surge.

Where: This specific case presented itself in Cedar Key and resulted in efforts that stretched into the neighboring town of Rosewood. The shelter in Rosewood was set up in one of the churches in town.

Regional Coordination

What: Communication, joint efforts, and sharing between communities and county governments within the extended regional area is essential following a major storm event. Coordination occurs between many different groups in this region occurs. For instance, counties and communities coordinate with the Tri-County Health Department. To run the shelters, the school boards coordinate with the Red Cross. Organizations delivering supplies, such as the Red Cross and Salvation Army, coordinate to make sure areas receive needed supplies.

Why: Good communication and networking allow for better coverage and recovery. Additionally, resources and manpower can be shifted to areas where it is needed.

Who: County and municipal governments and departments in addition to national and local support organizations, such as the Red Cross or Salvation Army.

When: This occurs following an event and throughout the year to address resupply and asset management.

Where: Coordination occurs throughout the region.

Long-term Post-Event

Formal Procedures

The purpose of this section is to list any formal emergency management procedures to give context to some of the informal practices listed below.

Long-term Funding

Receiving funding from FEMA following an emergency event can be a complicated and time consuming process. It takes education about what materials need to be completed and when they should be submitted.

After speaking with Cedar Key Water & Sewer District (CKWSD) officials, we learned that they pursued FEMA funding for "central public services; essential government services" and were reimbursed for expenses and other costs covered by insurance.

Informal Practices

Long-term Funding

What: The options for long term funding for storm related events and recovery involve federal, state, and local participation. FEMA funding, in addition to local self-insurance options, help the local community cover the costs from major weather-related events. Levy County handles all the FEMA forms at their location for area residents to get the process started.

The existing practice for obtaining long-term funding involves the city fronting the money initially for relief and repair efforts. This can cause a strain on the city's finances and can delay some relief and repair efforts if the funding runs dry. FEMA reimbursements take a long time to reach Cedar Key, which can add to the long-term funding struggles.

Why: Reimbursement from FEMA takes a significant amount of time, and only covers part of the funding for emergencies. The state and local government are responsible for portions of the funding. At the current time, in Cedar Key there are still reimbursements not received from FEMA for costs associated with Hurricane Hermine. If an emergency occurs, the City of Cedar Key can use funds to cover the expenses until reimbursement comes in. Building a self-insurance pool of funds allows the city to pay for these expenses up front and provides the option for time while waiting for reimbursement. Paperwork being filled out at the Levy County Emergency Management location allows county staff to ensure all the paperwork gets submitted quickly.

Who: FEMA, the State of Florida, Levy County, and the City of Cedar Key are all active participants in the long-term funding.

When: In the first few days following an event, Levy County Emergency Management assists residents with filing claims. Staff members complete damage assessment sheets within the first 48-72 hours to assist with the claim filing.

Where: The residents need to come into the Levy County Emergency Management building, or they can also reach out via the Levy County Emergency Management call center to inquire about starting the claim process.

Rebuilding and Recovery

What: There is an emergency management call center at the Levy County Emergency Management location. This call center also ends up serving as a citizen information line before, during, and after events.

Why: Often before, during, and after events, citizens are looking for information with no clear resources to utilize to obtain the information. The Levy County Emergency Management wants residents to have the ability to call in when they need to file for damages if they cannot make it to the physical location, and keep the line open. The line serves as a valuable resource to area citizens to point them in the correct location or provide with information.

Who: All County residents can call in and get information or assistance filing claims.

When: The line is operational all the time, before, during, and after storm events.

Where: The line is housed and operated out of the Levy County Emergency Management office.

Intern Program – Planning Ahead

What: Levy County has a pipeline of work that could be completed by interns through a potential intern program.

Why: A state intern program currently allocates some interns to Levy County for work throughout the year. With expansion of the program, through Levy County managing its own intern program, the potential exists for additional intern to gain valuable experience and complete some of the work in the existing pipeline at a lower cost to the county. Seminole County Emergency Management has a successful intern program with approximately 30 interns yearly that efficiently and cost effectively handles a portion of the workload annually, and allows the county staff to get more work handled.

Who: Levy County Emergency Management and staff in collaboration with University of Florida.

When: The ideal time frame to start this program would be off-season, with the possibility to expand the time frame to all year long.

Where: Interns would report into the Levy County Emergency Management location, with possible work being done in the field throughout the county.

Conclusion

Concluding Remarks

The purpose of this project was to document *informal* practices for hurricane preparedness, response, and recovery in Cedar Key and Rosewood, Florida, to enable the transfer of knowledge within and outside the communities.

Informal practices may be community traditions, or they may form over time through ideas to address needs and opportunities, and thus complement the formal procedures. Informal practices interact and overlap with daily job activities, spontaneous actions, and formal procedures.

We reported information mainly gathered through interviews conducted in 2017-18 with key involved persons in Cedar Key, Rosewood, and Levy County (listed in the Thanks section). We organized the information into one or more time frames, which we thought would be a logical way to access it. And we published the information in this document, which can be printed, and on the web, using ESRI Story Map, so that it would be available to all. The website is <https://changinglevycoast.org/2018/05/25/informal-practices-for-hurricanes/>, which also includes an interactive map.

Throughout our conversations with interviewees and feedback from Cedar Key stakeholders and residents, we noted some opportunities for future research, including the practices of property owners, historic resources, the special needs population, and the clam industry. For example, this [blog post](#) from a Cedar Key resident after Hurricane Hermine has information about what residents and businesses can and should do for hurricane preparedness and response. The information goes beyond the standard advice from agencies.

The information presented in this project provides a snapshot of the hurricane procedures and practices used in Cedar Key and Rosewood in 2017-18. Some procedures and practices will undoubtedly change in the future, and new ones are likely to emerge. This report can be used as a tool for documenting continuous improvement and evolution.

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We appreciate the time, effort, and information that has been bestowed on this project. We have been fortunate to meet with many knowledgeable individuals who helped bring this project to fruition. We would like to acknowledge the key persons who allowed us to interview them:

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