

June 8, 2005

***2004 Hurricane Season "After-Action Report"
Lessons Learned Regarding Improved County and Municipal
Hurricane Emergency Preparedness***

Volusia County, Florida



**Prepared for the Volusia County
Emergency Management Division**

Prepared by:

**emergency response planning & management, inc.
p.o. box 7065
princeton, n.j. 08543
609-466-3566**

2004 Hurricane Season After Action Report

Table of Contents

Page	Topic
1	PURPOSE
1	METHODOLOGY
2	SUMMARY OF THE 2004 HURRICANE SEASON
4	“SUCCESS STORIES”
5	AREAS FOR IMPROVEMENT
	Area for Improvement #1: Planning
5	<i>Experiences with the 2004 season indicated that the county and its municipalities would benefit from expanded or specialized planning efforts</i>
5	<u><i>Issue 1.1 – Municipal Comprehensive Emergency Management Planning</i></u>
6	<u><i>Issue 1.2 – Expand Continuity of Operations Planning (COOP)</i></u>
7	<u><i>Issue 1.3 – “Impact Assessment” vs. “Damage Assessment”</i></u>
7	<u><i>Issue 1.4 – Evacuation Reentry</i></u>
8	<u><i>Issue 1.5 – Traffic Control without Electric Power</i></u>
9	<u><i>Issue 1.6 -- Debris Removal and Management</i></u>
10	<u><i>Issue 1.7 – Responsibilities of Selected County Emergency Support Functions</i></u>
10	<u><i>Issue 1.8 – Inadequate Emergency Planning by Residential Health Care Facilities</i></u>
11	<u><i>Issue 1.9 – Distribution of Materials to Disaster Victims</i></u>
12	<u><i>Issue 1.10 – Pre-Positioning of Key Personnel</i></u>
12	<u><i>Issue 1.11 -- Flood Abatement</i></u>
13	<u><i>Issue 1.12 -- Evacuation Shelter Location, Type and Management</i></u>
14	<u><i>Issue 1.13 -- Priorities for Electric Power Restoration</i></u>
15	<u><i>Issue 1.14 – Providing Public Information and Instruction in a “Powerless” Environment</i></u>
16	<u><i>Issue 1.15 – Communications during Power and Telephone Outage</i></u>
16	<u><i>Issue 1.16 – Out-of-Area Repair Contractors</i></u>
17	<u><i>Issue 1.17 – Post-Event Employee Needs</i></u>
17	<u><i>Issue 1.18 – Long-term Disaster Recovery</i></u>

Table of Contents
(Continued)

Page	Topic
	Area for Improvement #2: Training
17	<i>The 2004 hurricane season indicated that additional, specialized training and/or educational programs for local government personnel could be beneficial for both reducing confusion during response and recovery operations, as well as improving the efficiency and effectiveness of these operations.</i>
18	<u>Issue 2.1 – Lack of Familiarity with Comprehensive Emergency Management Operations</u>
18	<u>Issue 2.2 – Municipal Liaison Familiarity with County EOC Operations</u>
18	<u>Issue 2.3 – County ESF Staff Familiarity with Other County ESF Capabilities</u>
19	<u>Issue 2.4 – Understanding Priorities for Power Restoration</u>
19	<u>Issue 2.5 – “Downed Power Lines” and Debris Removal</u>
20	<u>Issue 2.6 – Lack of Familiarity with Electronic EOC Management Systems</u>
20	<u>Issue 2.7 – Shelter Management</u>
21	<u>Issue 2.8 – Community Information Center Management of Incoming Telephone Calls</u>
21	<u>Issue 2.9 – Utilization of the 800 MHz Radio System</u>
22	<u>Issue 2.10 – Official Utilization of County Disaster-Related Websites</u>
	Area for Improvement #3 – Coordination
22	<i>Generally, there was widespread concurrence that inter-jurisdictional and inter-organizational coordination was very effective throughout the season. Nevertheless, there are issues involving coordination that warrant attention</i>
22	<u>Issue 3.1 – Municipal Liaisons in the County EOC</u>
23	<u>Issue 3.2 – Inter-jurisdictional Coordination Activities</u>
23	<u>Issue 3.3 – Concurrence on and Cooperation with Multi-jurisdictional Operations</u>
24	<u>Issue 3.4 – Multi-organizational Decision-Making</u>
24	<u>Issue 3.5 – “Real time” Information Availability in the County EOC</u>
25	<u>Issue 3.6 – Lack of Coordination with Municipalities Regarding Deployment of Resource Support</u>
26	<u>Issue 3.7 – Municipal Notification of County, State and Federal Operations</u>
26	<u>Issue 3.8 – Utility of the EM2000 System</u>
27	<u>Issue 3.9 – Coordination of Power Restoration Activities</u>
	Area for Improvement #4 – Facilities
28	<i>Managing the response and recovery efforts to three major storms was an excellent test of the various facilities utilized by County and municipal governments. While the adequacy of some facilities, especially at the municipal level, was demonstrated, others were shown to need improvement or replacement.</i>
28	<u>Issue 4.1 – Vulnerability of Municipal EOCs to Physical Damage and Operational Failure</u>
29	<u>Issue 4.2 – Inadequacies of the County EOC</u>

Table of Contents
(Continued)

Page	Topic
30	<u>Issue 4.3 – Centers for Distribution of Materials to Disaster Victims</u>
30	<u>Issue 4.4 – Emergency Worker Feeding Locations</u>
30	<u>Issue 4.5 – Vulnerabilities of Shelters</u>
31	<u>Issue 4.6 – Emergency Worker Family Shelters</u>
31	<u>Issue 4.6 – Secondary or Non-School Shelters</u>
31	<u>Issue 4.7 – Housing for Out-of-Area Personnel</u>
	Area for Improvement #5 – Evacuation and Sheltering
32	<i>There are several issues and recommended actions noted above under planning, training and facilities that are intended to address areas for improvement in the sheltering function in Volusia County. There remain, however, some specific issues regarding the evacuation and sheltering function.</i>
32	<u>Issue 5.1 -- Evacuation of Transportation-Dependent Individuals</u>
33	<u>Issue 5.2 – Multi-Organizational Coordination of Shelter Operations</u>
33	<u>Issue 5.3 – Evacuation of Assisted Living Facilities (ALFs)</u>
34	<u>Issue 5.4 – Out-of-Date Lists of Special Needs Individuals</u>
34	<u>Issue 5.5 – Identifying and Tracking Shelterees</u>
35	<u>Issue 5.6 – Identifying Individuals Authorized for Reentry into Evacuated Areas</u>
36	<u>Issue 5.7 – Sheltering for the Elderly and Disabled</u>
36	<u>Issue 5.8 – Sheltering of the Homeless</u>
	Area for Improvement #6 – Public Information
37	<i>The 2004 season demonstrated the success of the PIN and several other aspects of Volusia County’s public information program. Nevertheless, the season highlighted a number of public information issues that warrant continuing attention.</i>
37	<u>Issue 6.1 – Supplementing Pre-Season Public Information</u>
37	<u>Issue 6.2 – Adjusting Pre-Season Public Information for Changes Made Based on the 2004 Season</u>
38	<u>Issue 6.3 – Public Information Content during Response and Recovery</u>
41	<u>Issue 6.4 – Public Information Needs in the Post-Disaster Timeframe</u>
41	<u>Issue 6.5 – Addressing the Needs of Media Representatives</u>
	Area for Improvement #7 – Energy
41	<i>The 2004 hurricane season demonstrated that the prolonged loss of electrical power has many affects on both the public, local government and the emergency response organizations.</i>
42	<u>Issue 7.1 -- Lack of Generators for Critical Facilities</u>
43	<u>Issue 7.2 – Assessing and Reporting Impacts to the Power Distribution System</u>

Table of Contents
(Continued)

Page	Topic
	Area for Improvement #8 – Communications
44	<i>Effective communications are vital for coordination of emergency response, and the 2004 hurricane season demonstrated, in many ways, both the vulnerability and resiliency of the systems used by County and municipal response forces.</i>
44	<u>Issue 8.1 – Expansion of the 800 MHz Radio System</u>
44	<u>Issue 8.2 -- Battery Failure in Hand-held Radios</u>
45	<u>Issue 8.3 – Loss of Internet Service</u>
45	<u>Issue 8.4 – Communications for Shelters</u>
45	<u>Issue 8.5 -- Communications with Major Health Care Facilities</u>
46	<u>Issue 8.6 – ESF #16 Communications from the County EOC</u>
46	<u>Issue 8.7 – Initial Staff Mobilization during Communication System Failures</u>
	Area for Improvement #9 – Staffing
46	<i>The 2004 season indicated that there were specific functions or locations that were insufficiently staffed and recommended actions for staffing shortfalls are discussed</i>
47	<u>Issue 9.1 – Accessing Skilled County and Municipal Employees</u>
47	<u>Issue 9.2. -- Tracking and Display of Current Information in the County EOC</u>
47	<u>Issue 9.3 – Staffing of ESF #11</u>
48	<u>Issue 9.4 – Ensuring Adequate Emergency Preparedness of Health Care Facilities</u>
48	<u>Issue 9.5 – Training for Enhanced Emergency Preparedness</u>
49	<u>Issue 9.6 – Staffing of ESF #8</u>
49	<u>Issue 9.7 – Staffing Needs for Pet Friendly Shelter(s)</u>
49	<u>Issue 9.8 – Staffing for County Website Updating</u>
50	THE NEXT STEPS
50	SUMMARY AND CONCLUSION

**2004 Hurricane Season “After-Action Report”
Lessons Learned Regarding Improved County and Municipal Hurricane
Emergency Preparedness**

Volusia County, Florida

PURPOSE

This report is an analysis of county and municipal emergency response and disaster recovery operations during the 2004 hurricane season. Its purpose is to first identify areas for improvement regarding inter-jurisdictional and inter-organizational operations and secondly to propose recommended actions to address these areas.

METHODOLOGY

Emergency Response Planning & Management, Inc. (**erp&m**) was contracted by the Volusia County Emergency Management Division to prepare the analysis. To do so, **erp&m** reviewed written critiques submitted to the Division by:

- Municipalities
- County Emergency Support Functions (ESF)
- Other involved agencies and organizations

However, not all of these groups actually submitted written critiques. Therefore, **erp&m** attempted to contact by telephone the following:

- Each designated municipal emergency management coordinator
- The designate lead of an ESF that did not submit a written critique
- Other selected individuals as indicated by the preceding analysis

In addition, a meeting was held with the Volusia County Council of Governments regarding the analysis, as well as with the staff of the Emergency Management Division to gain detailed input.

The information gained was then used by **erp&m** to identify nine basic categories of issues to be addressed, and to define the issues falling into each category. Then, one or more recommendations are suggested for each of the defined issues. A broad range of recommended actions have been proposed, and these would need to be prioritized for attention by the relevant jurisdictions and organizations.

These findings were compiled into a draft report which was summarized at a meeting of the Volusia County City Managers group. The city managers provided additional input and recommendations at the meeting. Further, the city managers were provided a copy of the draft report for their further review and comment. The input received from the city managers has been incorporated into this final report.

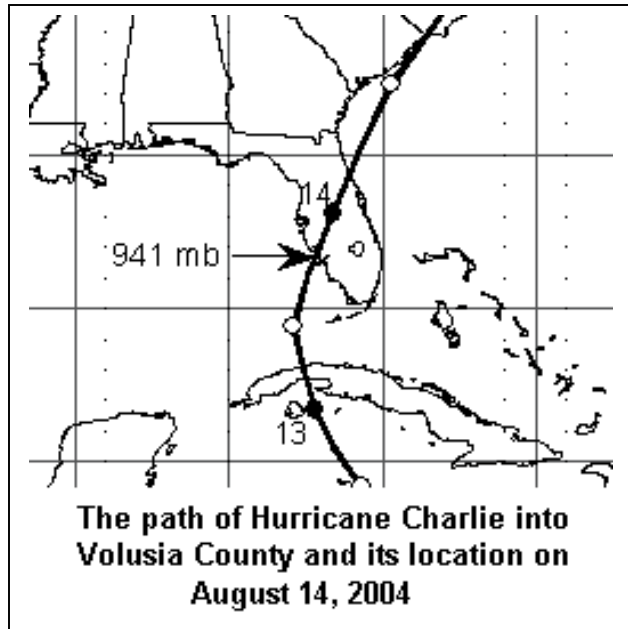
This evaluation attempts to consolidate the issues and recommended actions that many individual after action evaluations by municipalities, County agencies, and County ESFs provided. Rather than focus herein on individual actions needed to be made internally by a single organization, the intent is to address issues and recommended actions that are of concern to multiple organizations, facilities or jurisdictions.

It is recognized that some recommended actions overlap others, are prerequisites to others, or are integral components of others. This is noted where applicable. The issues and recommended actions are numbered sequentially to facilitate their identification and management.

SUMMARY OF THE 2004 HURRICANE SEASON

2004 was a hurricane season for the record books, with four hurricanes striking Florida, three of which significantly impacted Volusia County and its municipalities. Charlie, Frances and Jeanne each necessitated the full emergency response and disaster recovery operations from the local jurisdictions which are further evaluated below.

Hurricane Charley was the first of the three, with August 14, 2004 being the height of the storm in Volusia County. The hurricane entered Volusia County from the west, having done extensive damage as it crossed Central Florida. Maximum sustained winds were measured at 59 KT (88.5 MPH) in Ormond Beach, while the peak gusts in Ormond Beach reached 76 KT (114 MPH). A maximum gust of 84 KT (126 MPH) was



measured at the Daytona Beach International Airport.

As the first storm of the 2004 season, Charlie's winds created a substantial amount of debris and did extensive damage to the electrical power distribution system – two factors that County and municipal emergency response organizations would continue to grapple with for the rest of the season. At the peak of the storm, approximately



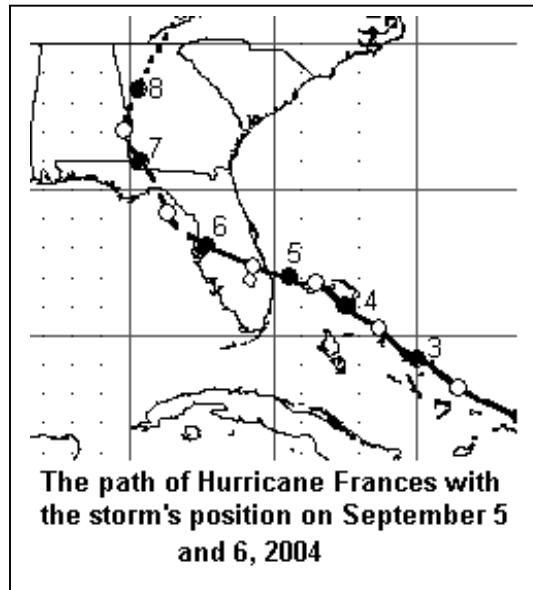
160,000 people were without power.

Charley was reported to have spawned two damaging tornadoes in Volusia County, an F1 tornado in South Daytona Beach and an F0 tornado in Daytona Beach Shores. The highest rainfall attributed to Charley was measured as 3.43 inches at the Airport.

Two deaths in Volusia County were attributed to Charlie, and property damage was initially estimated at \$106.9 million. Ten businesses, 111 single family and mobile homes, and one apartment building were destroyed. The City of Ormond Beach was one of the hardest hit jurisdictions, due to the strong northeast winds on the north side of the eyewall as Charley moved offshore.

Far too soon for Volusia County and its municipalities, Hurricane Frances arrived about 3 weeks later, with peak impacts for the County on September 5, 2004. Frances arrived from the Atlantic side, and was much slower moving storm than Charlie.

In Volusia County, Frances' highest wind gusts were measured at the Airport as 65 KT (97.5 MPH), with maximum sustained winds of 49 KT (73.5 MPH). Frances gave Volusia County more rainfall than other counties, with the highest measured amount in DeLand of 11.26 inches. The rainfall causes extensive flooding in DeLand, Deltona, and Oak Hill.



The initial estimated damages in Volusia County from Hurricane Frances indicated extensive destruction.

Damages occurred to nearly 500 commercial properties, almost 20,000 single family properties, 4800 mobile homes and over 1000 agricultural properties. Total initial damage estimates reached \$393 million. No tornadoes were reported in Volusia County, although they did occur in other Central Florida counties.



Damage from Hurricane Frances

The final storm of the remarkable 2004 season again arrived in Volusia County about three weeks later. Hurricane Jeanne entered Volusia County from the east, following a path somewhat similar to Frances. Hurricane Jeanne had its greatest effects on the County

on September 26, 2005, carrying sustained winds of 45 KT (67.5 MPH) and gusts up to 55 KT (82.5 MPH). Jeanne's rainfall was measured as the worst in the western areas of the county, with 4.5 inches recorded in DeLand and 3.4 inches in Pierson. The County's lakes and waterways were already full from the previous two storms, and there was nowhere for this additional water to go. Flooding was pronounced in the DeBary area, in spite of extensive pumping operations by the city.

Additional beach erosion was caused by Hurricane Jeanne, with estimates of the storm tide in south Volusia County at about 6 feet. Storm tides and associated damage in New Smyrna Beach were high, and beach erosion was high from New Smyrna Beach southward along the coast. Coastal erosion was a major concern for New Smyrna Beach, where at least 19 buildings were damaged so severely that city officials were concerned they would be carried away in the next tide. The city's seawall was also severely undermined.



Initial damage estimates in Volusia County from Hurricane Jeanne were approximately \$60 million. Flooding affected more than 200 properties countywide, including single family homes, apartments, and businesses. Hurricane Jeanne also created additional damages to hotels in the County, with 30 hotels not open or only partially opened two months after this storm.

The scale of these three events is illustrated by the period of activation of the County EOC. For Charlie, the County EOC was activated for 11.5 days, for Frances, 16.5 days and for Jeanne, 16 days, for a total of 44 days. In comparison, the last major countywide disaster was the 1998 wildfires, and for these, the County EOC was activated for 21 days. In the end, there was an estimated total of more than \$560 million in damages in the County from the three storms.

Overall, the three hurricanes of 2004 were a remarkable and unprecedented opportunity for Volusia County and its municipalities to measure the effectiveness of their response and recovery efforts, and their ability to work together as a team. An interesting aspect reported by nearly everyone interviewed for this evaluation was that effectiveness and efficiency of emergency operations improved with each storm. The "lessons learned" from each storm were helpful to resolving or avoiding problems in the next. The following pages are intended to continue to capture these experiences so that they can be similarly applied when hurricanes again strike Volusia County.

"SUCCESS STORIES"

While the focus of this analysis is to identify areas for improvement, it is worthwhile to briefly note some major "success stories" that emerged from the county and municipal response and recovery operations during the 2004 season, highlights of which are:

- There was widespread agreement that, while it was a very challenging season, overall everything went very well and far better than in previous years
- Jurisdiction and organization representatives repeatedly stated that many of the problems experienced in one storm were effectively resolved by the next
- The great majority of the municipal representatives felt that Volusia County “did a good job,” and “had things under control” for all of the events, and generally were effective in coordinating and communicating with the cities.
- Citizen volunteerism and cooperation was considered as a strong point, with several jurisdictions relying on volunteer assistance to support operations
- Generally, within both the County Emergency Operations Center (EOC) and municipal EOCs, there was a strong sense of “teamwork” and inter-organizational cooperation
- Municipalities initiated several expedient and creative operations to address specific problems as they arose, such as addressing intra-jurisdictional public information issues, managing immediate flooding issues, working with adjacent municipalities, etc.
- Public information was generally considered good, and the newly implemented Public Information Network (PIN) was an effective approach to supporting media management efforts.
- Telephone system failures were common and widespread, and frequently interrupted or delayed operations. However, the county’s 800 MHz generally functioned satisfactorily throughout the season.

Importantly, nearly all of the jurisdiction and organization representatives contacted by **erp&m** indicated that they had or were completing their own after-action evaluations and had initiated efforts to implement many of the needed improvements that were identified. It must be acknowledged that a significant number of the areas of improvement noted in the remainder of this report are now actively being addressed by the involved organizations. The recommendations made herein are, in these cases, simply intended to support these ongoing recommended actions and to place them in the context of the other identified issues.

AREAS FOR IMPROVEMENT

From the perspective that, overall, the County and municipal responses to the 3 storms were very successful, it is nevertheless the objective of this evaluation to identify areas where difficulties or shortcomings could be identified and recommendations formulated to address them. The nine areas for improvement so identified are discussed in this section.

Area for Improvement #1: Planning

Experiences with the 2004 season indicated that the county and its municipalities would benefit from expanded or specialized planning efforts, as follows:

Issue 1.1 – Municipal Comprehensive Emergency Management Planning

A number of municipalities indicated that they did not have emergency plans, that they

were out-of-date, or that they had other inadequacies. In addressing the recommended actions proposed for this issue, **erp&m** would also note the federal requirement that all local governments have an emergency plan in place by October 1, 2006 that is compliant with the requirements of the National Incident Management System (NIMS) and is consistent with the National Response Plan (NRP).

Recommendation 1.1.1 – Define a countywide standard, format or criteria for municipal emergency plans

In view of both the need for up-to-date, adequate emergency plans, as well as the upcoming federal requirements under NIMS and the NRP, the county needs to define the content, format and operational concepts for municipal emergency plans so that they can effectively support intra- and inter-jurisdictions response and recovery operations.

Recommendation 1.1.2 – Implement a NIMS-based municipal emergency planning program

Develop and implement a countywide program to encourage and assist all municipalities to prepare or update the jurisdictions' emergency plan in a manner consistent with NIMS and the NRP, as well as with the Volusia County Comprehensive Emergency Management Plan.

Issue 1.2 – Expand Continuity of Operations Planning (COOP)

For several jurisdictions and organizations, the 2004 hurricane season was a challenge to maintain operations in spite of post-impact conditions, and specifically the protracted loss of power and telephone communications. In some cases, a COOP-type response had to be implemented “on the spot,” and many organizations would have benefited if a COOP had been in place.

Recommendation 1.2.1 – Define COOP priority needs on a countywide basis

Given the number of jurisdictions and organizations in the county, an expanded COOP program would require significant time, effort, and resources. Therefore, it would be desirable to prioritize the effort, allowing it to be extended over several years, by using a consistent approach to identify COOP planning needs.

Recommendation 1.2.2 – Provide a COOP planning educational/training program

While the State of Florida is currently offering grant funding for local government COOP planning, it is not likely to be adequate to address all of the priority needed identified. It would be beneficial to provide education/training to municipal officials that would allow them to develop COOPs independently, while nevertheless using a format and approach that would result in consistent operational concepts on a countywide basis.

Recommendation 1.2.3 -- Evaluate current COOPs regarding power and communications loss

The 2004 season indicated that protracted power and communications losses could be formidable challenges to agency and jurisdiction operations. The COOPs that have

been and are being prepared should be specifically evaluated, and modified if indicated, regarding these vulnerabilities.

Issue 1.3 – “Impact Assessment” vs. “Damage Assessment”

There appeared to be some confusion regarding the role of municipal and county agencies in the immediate aftermath of an event regarding the extent or level of detail that assessments of the storms’ impact should be conducted. To initiate immediate emergency response operations, a plan to determine the major impacts of the event on the infrastructure and public is needed. This could be termed an “impact assessment.” Gathering more detailed information on the estimated level of damage to specific structures, particularly in terms of dollar value of property losses, could be termed “damage assessment.” Both procedures are very necessary to support response operations and recovery operations, respectively. Confusion regarding the timing and responsibility for the two processes resulted, in some jurisdictions, in duplicate efforts, in diverting response personnel from immediate duties, and later, in requiring unexpected involvement of municipal personnel.

Recommendation 1.3.1 – Develop a countywide procedure for impact assessment

A countywide procedure is needed that clearly differentiates impact assessment from damage assessment, and clarifies county and municipal agency responsibilities for each procedure. A countywide procedure for impact assessment would ensure that county and municipal EOCs, and command posts in the field, are receiving the information immediately needed. It would also ensure the most efficient allocation of response resources during this crucial time period. The detailed procedure would also define the personnel in each jurisdiction responsible, ensure the availability of specialized resources, e.g., helicopters, aerial photography, etc., and that reporting of impact is consistent, timely and accurate.

Issue 1.4 – Evacuation Reentry

While generally most individuals felt the evacuations went well, many acknowledged several difficulties regarding the reentry into evacuated areas. The reentry process is one clearly requiring inter-jurisdictional and inter-organizational coordination and cooperation. Indications of difficulties during the 2004 season with the reentry process included:

- Evacuees being allowed to return to areas with significant damages
- Shelterees, including people with special needs, being released to damaged homes without power, but not allowed back into shelters
- Sudden, and for some, unexpected decisions to de-activate shelters
- Difficulties in consolidation of shelters
- Managing the reentry processes and unique difficulties, e.g., the elderly, homeless, transportation resources, untimely closing of government offices, and similar
- Lack of effective coordination among separate jurisdictions of actions allowing reentry and imposing curfews

Several jurisdictions did prepare their own separate reentry plan. These varied substantially in format and level of detail, as well as in any attempt to address inter-jurisdictional issues.

Recommendation 1.4.1 – Develop a countywide evacuation reentry plan

Many or all of these difficulties with reentry could have been minimized or avoided if a detailed plan or procedure clarified how decisions were made, coordinated and implemented. This could be done through a comprehensive, countywide reentry plan that could define the following, among other considerations:

- Damage and impact information needs and timing
- Decision criteria
- Decision responsibility
- Inter-jurisdictional coordination and authorities for decisions
- Shelter deactivation and consolidation procedures
- Transportation resource deployment
- Traffic control, especially under power outage conditions
- Post reentry security and emergency services issues

Recommendation 1.4.2 – Establish authorities for implementation of the countywide reentry plan

Hurricane evacuation reentry in Volusia County is clearly involves the statutory and moral authority for public safety held by each separate local jurisdiction. The existing authority to, if necessary, impose the cooperation or compliance of an individual jurisdiction with the reentry plan in order to achieve necessary protections for all jurisdictions during and immediately after reentry must be known. If existing authorities are not adequate to ensure a coordinated, safe reentry process, then modifications should be sought perhaps through county ordinance, inter-jurisdictional agreements, or some similar mechanism. This authority would then be incorporated into the reentry plan.

Issue 1.5 – Traffic Control without Electric Power

The protracted power failures of the 2004 hurricane season had many adverse effects, one of which was to cause failure of traffic lights and other electrical devices normally used for traffic control. Not only does this create a safety hazard, but personnel and/or additional equipment must be deployed to key intersections for traffic control. In many cases, this diverted law enforcement personnel from other important assignments.

Recommendation 1.5.1 – Analysis of traffic control needs in the absence of electric power

The 2004 season provides a unique opportunity for a post-season evaluation of the impact on traffic control of prolonged power failure and the actions needed to successfully respond to the situation. The objective of this analysis would be to define key intersections or roadways vital for, for example, evacuation, re-entry, emergency services, economic recovery, etc. in order to develop priorities to address this

vulnerability. This analysis would probably need to be countywide and involve all jurisdictions.

Recommendation 1.5.2 – Develop a comprehensive plan for traffic control during prolonged power failures

Using the analysis from 1.5.1, a comprehensive plan could be developed, primarily to address three topics, based on the priorities established. First, which signals and/or other electric traffic control devices should have standby power permanently installed? Second, which should be pre-fitted to accept temporary installation of a generator when needed? Third, what additional equipment and/or devices are needed at locations that would not have standby power? Then, in light of the results of actions regarding the first three planning efforts, a detailed procedure should be available to ensure the most efficient use of county and municipal personnel for traffic direction, specifically in light of other needs for emergency services during such times.

Issue 1.6 -- Debris Removal and Management

In several jurisdictions, a wide variety of difficulties arose with debris removal and management. These included such situations as:

- Delays due to downed wires in the debris blocking streets
- Inadequate jurisdictional pre-event planning to secure debris contractors
- Inadequate pre-planned storage or disposal sites
- Delays in adequately staffing storage or disposal sites
- Unsafe transportation of debris
- Lack of uniform approaches to chipping of vegetative debris

Some of the delays that arose were significant, forestalling the ability of some jurisdictions to clear streets for several days, which obviously exacerbates the overall impact of the event on the public and the ability to implement emergency actions.

Recommendation 1.6.1 – Develop a countywide debris management plan

Many of the issues that arose during 2004 could be effectively addressed by developing a detailed, countywide debris management plan. This planning effort should involve the county and all municipalities to ensure adequate coordination during the planning. The debris plan should address both inter-jurisdictional coordination needs and responsibilities, as well as those that each jurisdiction must separately address. The plan would identify necessary pre-event contracting, the response to downed wires, designate emergency routes across jurisdictional lines, pre-designate storage and disposal locations and the responsibility for their staffing, establish countywide standards for debris processing and transport, and similar factors. A part of this plan would be to find approaches to assisting individual jurisdictions, wherever needed, to be prepared to fulfill their responsibilities for debris management. In addition, the plan would address the requirements of the Federal Emergency Management Agency and other regulations regarding debris removal, processing and disposal, including the financial documentation aspects of these operations.

Issue 1.7 – Responsibilities of Selected County Emergency Support Functions

The responsibilities of the county ESFs are addressed in the County's Comprehensive Emergency Management Plan and their implementing procedures. Operations during the 2004 hurricane season indicated that the responsibilities of selected county ESFs are not always clearly defined or feasible to implement. In addition, the timeframe for activation of selected county ESFs was indicated as an issue for further consideration.

Recommendation 1.7.1 – Reevaluate and modify County ESF Responsibilities

A planning effort is needed to reevaluate and modify selected ESFs, if so indicated. This effort should include at least the following considerations:

- Modifying the lead agency responsibility for ESF #11, Food and Water, to ensure the responsibilities for this function can be effectively addressed at all times.
- Clarifying the roles of ESF #15, Volunteers and Donations, to solicit or receive donated goods and services, and the method of interaction with other ESFs
- Evaluating hospital representation and participation in ESF #8, Health and Medical Services
- Assessing and strengthening the role of ESF #12 in coordination or support of power restoration
- Establishing a closer partnership between ESF #6, Mass Care, ESF #15, and ESF #18, Business and Industry, regarding donations made by businesses.
- Including the Department of Corrections as a support agency in ESF #16, Law Enforcement, or other ESFs if indicated
- Evaluate the timing of activation of specific ESFs, depending on their roles during the pre-event period, emergency response, and disaster recovery for more effective use of staff resources. (Several ESFs expressed concerns regarding the adequacy of staffing at the County EOC. Staffing concerns are addresses as a separate issue in this analysis.)

It should also be noted that, in the evaluation of the roles of the ESFs, the influence of the new NIMS requirements may be influential in determining how county ESFs interact with command staff and the municipalities. This topic is noted in Issue 1.1 above.

Issue 1.8 – Inadequate Emergency Planning by Residential Health Care Facilities

Under Florida law, residential health care facilities are required to have comprehensive emergency plans that include facility evacuation. During 2004, several difficulties with these plans emerged, including the following:

- Mutual aid facilities for sheltering residents/patients were close enough to also be impacted by the events
- Transportation resources fell short
- Facilities did not initiate evacuations in a timely manner
- Many did not have standby power and were severely affected by the prolonged power outage

- County and municipal management of and assistance to these facilities was more resource intensive than anticipated

Recommendation 1.8.1 – Improve Health Care Facility Emergency Planning

It could be hoped that the 2004 season will have resulted in these facilities reviewing and revising their emergency plans, based on their experiences. Nevertheless, a specific effort to either encourage or mandate the facilities to do so maybe warranted. Attention should be given to securing more remote mutual aid shelters, alternate transportation resources, and establishing a more fixed deadline for initiating evacuation, including under what circumstances in the post-event timeframe a facility evacuation would be warranted, e.g., continuing power outage. Based on the 2004 season, however, a major concern should be how the facilities will manage their operations and protect their patients/residents during prolonged power outages. As noted below, it may be very worthwhile to require such facilities to have standby power adequate for full facility operations.

Issue 1.9 – Distribution of Materials to Disaster Victims

The distribution of food, water, ice, and tarps to the public went well in several locations, but was not as successful in others. Where applicable, commonly occurring problems included the following:

- Disagreement over the number and location of public distribution centers
- Locally unexpected arrival of materials
- Significant delays or unexplained failure of materials to arrive
- Inadequate personnel and/or equipment to off-load materials
- Difficulties in staffing distribution sites for prolonged operations
- Long lines at the centers

Only some of these difficulties were within the capabilities of county or municipal organizations to control, although a stronger management effort by County ESF #11 is likely to have been beneficial. Nevertheless, this is one of the operations by local government that is “high profile” in the eyes of the public, increasing the importance of its effective and efficient functioning.

Recommendation 1.9.1 – Further Planning for Materials Distribution to the Public

Either within the framework of ESF #11 modification, or separately if indicated, a detailed plan for countywide distribution of food, ice, water, tarps and similar materials should be developed. This plan should permanently designate appropriate sites, perhaps varied with differing disaster scenarios, as well as fully plan for operations at those sites. Plans and responsibility for coordinated activation and deployment of personnel and equipment to the sites should also be included. The plan would include many other important aspects of site pre-planning, activation, operation and deactivation, including management of the related public information function. An important aspect of this recommended planning effort would be for the municipalities to understand, in advance, the geographic distribution of the sites, and, if indicated, formally commit to the staffing and operation of the sites.

Issue 1.10 – Pre-Positioning of Key Personnel

Several experiences indicated that emergency operations, especially early in the response period, would be made more efficient with planned pre-positioning of key types of personnel. This may be additionally important for events where there could be immediate failure of communications systems. Some of the issues regarding the timely pre-positioning of personnel and equipment include the following:

- Electric utility personnel with debris removal crews
- Evacuation traffic management personnel
- Public works crews and equipment
- Impact assessment personnel

The pre-positioning of electric utility personnel with municipal debris removal crews was one of the most frequently expressed concerns, principally due to delays caused by downed wires in debris. This concern was most often expressed in municipalities served by FP&L. Nevertheless, comments were made regarding the short notice for positioning of personnel for evacuation traffic management, inefficient positioning of public works personnel, and difficulties in deployment of impact assessment crews.

Recommendation 1.10.1 – Planning for pre-positioning of key personnel

There are several possible approaches to planning for the pre-positioning of personnel and equipment can be foreseen, such as by jurisdiction, by ESF, by function, etc. It is likely to be more effective if it is a countywide effort with the municipalities and applicable utilities. More specifically, because pre-positioning of an adequate number of utility personnel is likely to be problematic, the planning would offer an opportunity for a thorough exploration of this issue and identification of possible options.

Issue 1.11 -- Flood Abatement

Flooding was a significant impact in several jurisdictions, where response operations had to be quickly initiated to minimize increased damages. There were also situations where the expedient “flood fight” measures were of concern given their impact on adjacent properties. While the Volusia County Local Mitigation Plan should be addressing permanent solutions to flood vulnerabilities, it is likely that there will continue to be a need for expedient actions to protect properties from flood waters.

Recommendation 1.11.1 -- Planning for Expedient Flood Abatement During Disasters

The 2004 season provided a significant experience with “flood fighting” that should be captured for future use. The planning could identify the locations and jurisdictions most affected and identify the organizations that should have responsibility to take action. The planning could incorporate techniques used in 2004 that were helpful, as well as problem areas where impacts to other properties occurred and what options may be available. It would also include procedures within the existing emergency planning framework to monitor flooding situations, to locate and allocate resources and personnel, to assign responsibility for decision-making, especially for multi-jurisdiction situations, and similar operational concepts.

Issue 1.12 -- Evacuation Shelter Location, Type and Management

The 2004 season highlighted a number of countywide issues regarding the adequacy of the location, type, and management of evacuation shelters. The underlying concern regarding this issue is that several jurisdictional representatives indicated that the public's perspective on shelter location, type and management was instrumental to many individual's decision not to evacuate. Some of the public's perceptions that were influential or otherwise were problematic include the following:

- Inadequate space at the shelter accepting pets and the distance to the pet shelter
- The lack of shelters in the southeastern portion of the county and the perceived "long distances" for some evacuees to available shelters
- The lack of transportation for seniors from some jurisdictions to shelters
- The difficulties of seniors, the frail, bed bound, and other individuals in coping with sheltering at the general shelters, where they were assigned because they did not meet the criteria for "Persons with Special Needs" shelters
- Special needs or bed bound individuals appearing unannounced at hospitals requesting shelter
- Dealing with unpleasant behavior of other shelterees or a lack of sensitivity on the part of shelter management staff to the stress being experienced by shelterees, especially seniors
- Isolating specific categories of individuals from the general shelter population, e.g., sexual offenders
- Shelterees being confused about or uncooperative concerning what to bring and not bring into a shelter.

The difficulties encountered upon the evacuation reentry decision and the relationship to shelter deactivation are noted under Issue 1.4, but are closely interrelated to this issue. Several issues specifically regarding evacuation and sheltering are also addressed below.

Recommendation 1.12.1 -- Re-assess evacuation shelter locations and types

Perhaps the overriding concern should be that the public's attitude towards shelter locations and types appeared to have significant influence on their decision to evacuate. A careful assessment that balances the value and benefits of the currently identified shelter locations and types with these public perceptions may indicate some enhancements should be considered. Based on the information received during this evaluation, three basic factors should be re-assessed:

1. Can more suitable shelters be identified in the eastern and southern portions of the county?
2. Can more shelters that accept pets be identified in different areas of the county?
3. Could a shelter type between that offering services to people with special needs and the general public be defined and incorporated into the mix of shelter capabilities provided by the County, and/or, could the criteria for admittance to the people with special needs shelters be modified?

The objective of this re-assessment is to determine the need for and feasibility of actually modifying the County's shelter program to address these perceptions, given the limitations imposed by structures, available personnel, and other requirements.

Recommendation 1.12.2 -- Revise the County's shelter program

As indicated by the re-assessment conducted under Recommendation 1.12.1, the necessary planning for revision to the County's shelter program would be needed, and the results incorporated into County and municipal emergency plans, as well as in the public information and emergency instructions.

Issue 1.13 -- Priorities for Electric Power Restoration

A widely expressed concern was the difficulties regarding the priority for restoration of electric power to critical facilities. The optimum situation appeared to be in New Smyrna Beach, which has its own municipal power company with staff both in the field and city EOC. Most jurisdictions served by Progress Energy reported satisfactory cooperation and information exchange regarding power restoration. In comparison, the need for greater coordination by jurisdictions served by FP&L was most frequently noted by municipal representatives, although one municipality expressed a similar concern regarding Progress Energy. Generally, the types of concerns expressed involved the following:

- Lack of understanding of how decisions were made regarding restoration priority
- Confusion as to what type or category of facilities warranted priority
- Differences of opinion regarding the facilities warranting priority
- Lack of communication or ineffective exchange of information
- Expectations that nearly all facilities are priority, clearly eroding the effectiveness of designating facilities as priority
- Inadequate information regarding a facility's needs and functions and the actual necessity for priority power restoration

Of course, the protracted nature of the power loss in many communities placed substantial pressure on securing and installing temporary generators for critical facilities. Shortages of generators, proper sizing and installation problems, the need for refueling operations, and similar challenges to the widespread use of both permanent and temporary generators were concerns relevant to this issue as well.

Recommendation 1.13.1 – Enhanced planning for priority power restoration

The situation underlying this issue has many components, including the scope of the impact, the availability of resources, and the understanding of local officials and utility personnel regarding the characteristics of the situation. Many of these are addressed elsewhere in this report. Nevertheless, the experiences of many municipalities indicate that a cooperative, joint planning effort between the municipalities, the county, the electric utilities, specific facilities, and the county ESF #12 would be beneficial to avoiding the difficulties that arose. The planning process needs to address several concerns, including improved information regarding the functions of specific critical facilities and the actual power needs after a disaster. It also should address improved

methods for coordination and information exchange between County and municipal EOCs and the power companies, specifically FP&L, perhaps through revision to County ESF #12's responsibilities, capabilities and authorities. Further, methods need to be developed to ensure that plans are in place for critical facilities to cope with protracted loss of power.

Recommendation 1.13.2 -- Planning a "generator management" program

Similarly, anticipating widespread use of generators in future disasters, regardless of the outcome of planning for priority power restoration, it is recommended that County ESF #12 incorporate a "generator management" program into its planning. This plan would have to interface with the priority restoration planning, and would share information. It would also need to address all of the procedures and equipment involved with temporary generator utilization by critical facilities, from obtaining generators, safely installing them, refueling them, and retrieving them, as well as – even – preventing their theft. For permanently installed generators, the plan should also include procedures to ensure maintenance, the adequacy of the generator's capacity, and method to address refueling.

Recommendation 1.13.3 – Establishing a countywide approach for use of temporary generators

The widespread need for and use of temporary generators during the season by critical facilities indicated that planning a consistent, countywide approach to their use would be beneficial. ESF #12 may be the most suitable organization to conduct such planning. Such an approach would involve, to the extent feasible, establishing standards or "acceptable practices" regarding the type of temporary hookup hardware, fuel types and similar physical characteristics of pre-event installations by or for critical facilities. The extent to which the county, municipalities, and key private sector facilities had common features regarding temporary generator hookup, the more readily available generators could be shared between organizations when needed.

Recommendation 1.13.4 – Prepare and maintain a countywide inventory of available temporary generators

The substantial need for temporary generators after hurricanes is a very predictable situation for Volusia County and its municipalities. It would be very helpful if there was an up-to-date inventory of temporary generators, with appropriate technical information for each, readily available in the County EOC. This inventory would consist, presumably, of generators owned by local government agencies that would be made available on a mutual aid basis through ESF #12 and the County EOC. The agencies of ESF #12 would probably be best positioned to develop this inventory.

Issue 1.14 – Providing Public Information and Instruction in a "Powerless" Environment

Due to the power losses experienced, concerns over the ability to reach members of the public with important information and instructions was compromised by the inability of radio and television to continue broadcasting, as well as the capabilities of the public to receive these broadcasts. The 2004 season also demonstrated that this situation could occur simultaneously with general failure of the telephone system. Such a situation could easily prevent disaster victims in the general population from timely receipt of

information vital to their health and safety, e.g., “boil water” notices, or to their recovery from the event, e.g., the locations of disaster recovery centers.

Recommendation 1.14.1 – Planning for public information in a “powerless” environment

It is proposed that County ESF #14 take a primary role, working with other county and municipal agencies, to develop standby procedures for direct distribution of vital public information to impacted areas, such as through loud speakers on emergency services vehicles, distribution of printed flyers, signs and billboards. Advanced planning for the procedures, facilities and systems necessary to implement these operations could avoid unwarranted delays in the development and distribution of such information at the time they are needed.

Issue 1.15 – Communications during Power and Telephone Outage

Extended power failures and frequent failures of both cellular and land-line telephone systems had widespread effects during and after the three storms, with negative impacts on county and city emergency operations. As noted above, the 800 MHz radio system continued to function satisfactorily in most cases. However, some difficulties were experienced, such as one city EOC had no radios, long queues, some radios lacked the proper channels, including that for the County EOC, radios failed in some locations due to inability to charge batteries, etc.

Recommendation 1.15.1 – Planning for communications during power and telephone outage

County ESF #2, Communications, should lead a countywide effort to coordinate development and implementation of a plan to maintain communications among all jurisdictions regardless of the duration of a power or telephone system failure, with a minimum standard of linking all city EOCs with the County EOC. The planning would identify system needs, options for meeting these needs, e.g., expansion of the 800 MHz radio system, as well as the necessary protocols for radio system use under these conditions.

Issue 1.16 – Out-of-Area Repair Contractors

There was some concern expressed about the large number of repair contractors arriving in the county after the storms, and that local government controls to ensure that they were actually qualified did not seem to be adequate. However, the needs of the public for such assistance under these conditions exceed the capabilities of locally available professional contractors, making qualified repair contractors coming into the county a valuable resource.

Recommendation 1.16.1 – Temporary certification of repair contractors

A joint planning effort is needed by the county and municipal building departments to establish a countywide, consistent procedure for temporary certification of out-of-area repair contractors. The procedure would not only establish standards for temporary certification, e.g., acceptance of an out-of-state license, but also address procedures for implementing a system, including facilities and staffing, and enforcement provisions.

Issue 1.17 – Post-Event Employee Needs

Many jurisdictions have established provisions to ensure that evacuation shelter space is available for families of emergency response workers, and, where applicable, these planning efforts were beneficial during the 2004 season. However, many employees had property damage, and, like others members of the public, needed post-impact assistance, e.g. tarps. However, because they were “on duty,” some had difficulty arranging for this assistance.

Recommendation 1.17.1 - Provision of post-event employee assistance

Organized plans and procedures are needed to ensure that emergency workers are assisted in dealing with their damaged property, in order to help them more comfortably “remain on duty.” Joint planning between the county and all municipalities would be likely to be the most effective. The procedure would provide a method for employees to report damages to their personal property, be informed of assistance available, have reasonable priority in receiving the assistance, as well as personnel support in doing so.

Issue 1.18 – Long-term Disaster Recovery

The three storms of 2004, fortunately, were not strong enough to catastrophically destroy large areas of the county’s jurisdictions. However, Volusia County is clearly vulnerable to stronger, Category 4 or 5 storms, which could have this level of impact, requiring numerous, complex decisions regarding the redevelopment of ruined neighborhoods. The County currently has a disaster recovery plan as an annex to its CEMP. The annex, however, addresses those operations most typically conducted in the immediate aftermath of a disaster, and reflects currently available state and federal disaster relief programs, such as public and individual assistance. In comparison, under conditions of a catastrophic disaster, jurisdictions would confront “starting over” with planning neighborhood types, configurations and other characteristics because of the severe destruction. Implementation of such actions could actually last several years. There would be an urgent need for jurisdictions, both individually and jointly, to make decisions regarding the type, scope and schedule for reconstruction and redevelopment that would have substantial influence on property owners, as well as the community’s infrastructure, economic strength, and similar characteristics.

Recommendation 1.18.1 – Develop a long-term recovery plan

The County, with cooperative municipal representation, should develop a countywide, long-term recovery plan to address actions, operations and authorities needed in the aftermath of a large-scale disaster to guide and control reconstruction and redevelopment of severely damaged neighborhoods. The planning would define the authorities needed by local governments to control long-term redevelopment, the organizational structure and procedures to be implemented, the facilities needed to house the organization, methods for inter-jurisdictional coordination, and similar.

Area for Improvement #2: Training

The 2004 hurricane season indicated that additional, specialized training and/or educational programs for local government personnel could be beneficial for both

reducing confusion during response and recovery operations, as well as improving the efficiency and effectiveness of these operations. Issues and recommended actions are as follows:

Issue 2.1 – Lack of Familiarity with Comprehensive Emergency Management Operations

During the 2004 season, there were several instances where key individuals participating in both county and municipal response and recovery activities were unfamiliar with standard operational concepts used in emergency management, e.g., the role of an EOC, or how the tiered system of governmental response to emergencies functions. In a number of instances, this caused confusion or inefficient operations.

Recommendation 2.1.1 – Provide training in comprehensive emergency management operations

A training/educational program is needed for both county and city officials regarding the basic elements of comprehensive emergency management, as it is implemented in both Florida and Volusia County. This training/education program should focus on the response structure and its operations, the roles of specific organizations and facilities, and the typical responsibilities of key categories of officials, e.g., mayors. This training/educational program should be in a format that can be easily delivered within the county on a periodic basis.

Issue 2.2 – Municipal Liaison Familiarity with County EOC Operations

Nearly every municipality that deployed liaisons to the County EOC felt that this concept was beneficial to their capabilities for information exchange. Nevertheless, a number of jurisdictions indicated that, had their liaison staff were more familiar with County EOC operations, procedures and responsibilities of the ESFs, etc., this function would be even more effective. One example was the lack of familiarity with the EM 2000 system and how to input and track requests for assistance. Another was a lack of understanding of which of the county ESFs was the most appropriate to ask for assistance.

Recommendation 2.2.1 – Training for municipal liaisons to the County EOC

A comprehensive training program specifically for municipal liaisons on County EOC operations, procedures and responsibilities should be developed and provided to municipalities. It is suggested that it may be beneficial to format this training as both a “hands on” approach, for individuals pre-assigned the liaison function, as well as a “self study” format for those who are unexpectedly assigned as liaisons at the time of a disaster.

Issue 2.3 – County ESF Staff Familiarity with Other County ESF Capabilities

Some County ESF staff indicated that they felt that improved familiarity with the actual responsibilities and capabilities of the other County ESFs would have been beneficial as they attempted to manage specific requests for assistance, or as they looked for “partners” to cooperate on joint operations. While there was a widespread feeling that County EOC operations went well, addition training regarding ESF responsibilities and capabilities would have facilitated some operations.

Recommendation 2.3.1 -- "Cross-training" for County ESF staff

It is recognized that the 2004 season, as well as routine exercises, has significantly increased County ESF staff knowledge of the responsibilities and capabilities of other County ESFs. Nevertheless, looking forward to calmer hurricane seasons, it would be beneficial to have a training program and/or educational materials, e.g., checklists, that specifically and briefly address the responsibilities and capabilities of all ESFs. This training could be separate, or could be incorporated into existing county ESF staff training. Additional "job aids" for real time use in the EOC during activations regarding other ESF capabilities and responsibilities could be useful as well.

Issue 2.4 – Understanding Priorities for Power Restoration

There was significant uncertainty expressed - and often substantial frustration - regarding the priorities used by the electric utilities to restore power to specific facilities and the effectiveness of the information exchange with municipalities. This issue involves primarily those jurisdictions served by FP&L. For this analysis, advanced planning regarding this issue is addressed under Issue 1.13 and the focus here is educational. There appeared to be a common tendency for municipalities to question the sequence of power restoration, the sequence of power restoration for specific facilities, the disposition of requests for restoration of specific facilities made by the municipalities, and the status of restoration efforts. There were frequent complaints from municipal representatives regarding the lack of information communicated by FP&L. Information exchange with municipalities was of sufficient concern that one municipality, to get the best information regarding power restoration, established a feeding station for power crews and got current information "over lunch."

Recommendation 2.4.1 – Training of municipal officials in power restoration operations

Assuming a plan has been developed pursuant to Recommendation 1.13.1, a training or educational program is needed regarding the processes involved in power restoration and how restoration operations are prioritized. In accord with the plan developed, the training program would also define the information needed by the power companies, e.g., critical facilities without power, how that information can be provided to the power company, e.g. an available, knowledgeable point of contact, and the frequency and from whom municipalities can expect to receive information from the utilities. Like other training programs, there is probably a need for a formal presentation format, as well as a "self taught" format for municipal officials experiencing their first disaster operations.

Issue 2.5 – "Downed Power Lines" and Debris Removal

As noted under Issue 1.6, municipalities experienced sometimes significant delays in debris removal from roadways while waiting for power company representatives to ensure that "live wires" were not entangled in the debris. On occasion, debris removal was significantly delayed only to later determine that the suspect wires were telephone lines or TV cables. Clearly, this is an important safety issue for emergency workers, and debris removal cannot proceed without these assurances. Nevertheless, in spite of the obvious and expected limitations on the availability of power company personnel and equipment, several municipalities felt that some method was needed to resolve this issue so that unwarranted delays in debris removal could be minimized.

Recommendation 2.5.1 – Training for municipal officials regarding downed power lines

It may be highly beneficial for appropriate municipal personnel to develop the expertise to make determinations in the field regarding the type of cables that are entangled in debris and whether or not power lines are energized. If this capability was more readily available within both municipalities and county agencies, debris clearance could be expedited and power company resources could be more effectively utilized. However, given the clear safety hazard to emergency workers, there must be certainty regarding the adequacy of the skills of county and municipal personnel making these assessments. It is proposed that a training program be developed and conducted jointly by municipalities and the power companies to establish the capabilities of selected, skilled local government personnel to make such assessments in the field. Criteria would be required for selection of the local officials to participate, e.g., licensed engineers or electricians, certified building officials, etc. Procedures limiting municipal field operations to these trained individuals would also be required so that rigid control regarding these field decisions could be maintained.

Issue 2.6 – Lack of Familiarity with Electronic EOC Management Systems

During the 2004 season, the County EOC utilized an electronic EOC management system known as “EM2000” while the State EOC utilized similar system known as “Tracker.” Although there were individuals that said both systems worked well for them, a number of county ESF representatives and municipal liaisons to the County EOC expressed frustration regarding their abilities to effectively utilize these systems. Because of this uncertainty of how to use the systems, or perhaps due to limitations of the systems themselves, some individuals initiated “work around” approaches, e.g., passing notes.

Recommendation 2.6.1 – Provide additional training in the use of electronic EOC management systems

It is understood that training opportunities in the use of EM 2000 are made available through pre-season table-top exercises and similar. In addition, however, it may be very worthwhile to have specific training programs in the use of EM 2000, and more directly, how to input requests for assistance and subsequently track those requests. The format for this training could be both a formal training program with “hands on” experience, as well as a briefer and “self-taught” format that would be available to newly-arriving ESF staff or municipal liaisons. If additional municipalities purchase EM 2000 licenses, the training program should include operation of the system from the municipal EOC. In addition, if the state anticipates continuing use of the “Tracker” system, state staff or other knowledgeable individuals in Volusia County should incorporate use of the state’s system into the proposed training program. If the state elects to replace this system, Volusia County should aggressively seek training in the new system.

Issue 2.7 – Shelter Management

Two concerns regarding shelter management appeared to emerge from the 2004 hurricane season. First, municipal representatives reported feed back from their citizens regarding the first of these issues: the “sensitivity,” or lack thereof, of shelter management staff to the stress that shelterees were undergoing. This concern was

particularly expressed by seniors who had been housed in different shelters during the three storms. The second issue concerns security and law enforcement issues inherent in shelter operations, including individuals bringing inappropriate materials to the shelters, e.g., weapons, as well as the presence of individuals with prior criminal convictions, e.g., sex offenders, within the general shelter population.

Recommendation 2.7.1 -- Specialized training for shelter staff

The planning aspects at the foundation of this issue are addressed in Issue 1.12. The focus of this recommendation is development and implementation of a training program to address improvements in shelter operations. The reported differences in perception of individuals, especially seniors, to the “sensitivity” and “compassion” of shelter management staff needs to be addressed to strive for a consistent, high level of countywide care for all shelterees, regardless of the shelter in which they are located. This program could be especially developed and implemented, or included in the training now offered to shelter managers. The newer concepts and additional facilities envisioned under Issue 1.12, if implemented, would need to be incorporated into this training.

Recommendation 2.7.2 – Specialized training for shelter security staff

The concerns expressed regarding security issues within shelters – inappropriate behavior, security monitoring of incoming individuals, and management of previous offenders in the sheltered population – need to be resolved under Issue 1.12 above. Then the operational concepts developed therein incorporated into a training program targeted on shelter management and security staff.

Issue 2.8 – Community Information Center Management of Incoming Telephone Calls

There were concerns expressed, particularly by ESF #16, that incoming telephone calls to the CIC from members of the public were inappropriately routed for resolution by the county ESFs, or not resolved directly by CIC staff. The concern with this issue is the time taken to respond to calls that should not have been referred or should have been referred elsewhere.

Recommendation 2.8.1 – Additional training for CIC staff

A training program should be developed and implemented that would provide criteria for screening of call referrals from the CIC to the County ESFs, and enable CIC staff to more accurately identify the appropriate County ESF, County agency or municipality that should receive the call referral.

Issue 2.9 – Utilization of the 800 MHz Radio System

As noted, one of the “success stories” of this 2004 hurricane season was the resiliency of the 800 MHz radio system. However, perhaps due in part to its greater use in the face of the failure of other communications systems, difficulties were encountered in its use due to the lack of familiarity of county and municipal personnel with the proper channels and appropriate communications protocol.

Recommendation 2.9.1 – Training in the use of the 800 MHz radio system

A training/educational program or brief written instructional guidance regarding the use of the 800 MHz radio system that could be given to all likely users at both the county and municipal level is proposed to alleviate the difficulties encountered during 2004. This will be additionally important if the county elects to expand the 800 MHz radio system and place further reliance on it for communications during future disasters.

Issue 2.10 – Official Utilization of County Disaster-Related Websites

There were concerns expressed that there was a lack of familiarity of authorized personnel with the operation of the websites intended to communicate official disaster related information. For example, media representatives unfamiliar or unwilling to use the Public Information Website to access official media releases occasionally contacted ESF #14 directly to obtain information, unnecessarily disrupting operations.

Recommendation 2.10.1 – Provide educational materials regarding the use of County websites at the time of disaster

A brief written explanation of the purpose of official county websites during times of disaster, and the method to access information, should be available to provide individuals with official reason to be utilizing the sites. This information should be in a format that could be readily faxed or emailed to the inquiring user.

Area for Improvement #3 – Coordination

Generally, there was widespread concurrence that inter-jurisdictional and inter-organizational coordination was very effective throughout the season. Nevertheless, there are issues involving coordination that warrant attention:

Issue 3.1 – Municipal Liaisons in the County EOC

The Volusia County Comprehensive Emergency Management Plan incorporates provisions for municipalities to deploy liaisons to the County EOC in order to facilitate inter-jurisdictional coordination and information exchange. For the most part, municipalities did assign these liaisons and all that did so stated that it was a worthwhile use of personnel. A key reason is that there was always a dedicated individual in the County EOC for the municipality to contact and from whom to directly request assistance. The smaller municipalities did not consistently deploy such liaisons, most often stating that with such limited staff, the value of a liaison had to be “weighed” in comparison to the value of assigning the person to the municipality’s EOC. Often, when this occurred, the municipality did not have a direct point of contact, and, having to use the general EOC telephone numbers, could not expeditiously request assistance or information.

Recommendation 3.1.1 – Ensuring Municipal Liaisons in the County EOC

Municipalities should be strongly encouraged to deploy liaisons to the County EOC, and to have such individuals receive training as indicated in Recommendation 2.2.1. Nevertheless, recognizing the demands on the limited staff of smaller communities, the

County Emergency Management Division should ensure that, at all times, each municipality has a designated liaison, even if they could not deploy an individual to the County EOC. One approach would be to request individuals serving as liaisons for their municipality to also accept responsibility for the liaison function for adjacent municipalities that were unable to deploy a liaison.

Issue 3.2 – Inter-jurisdictional Coordination Activities

There was widespread concurrence that the County EOC was diligent in its efforts to facilitate inter-jurisdictional coordination and communication. This generally occurred through conference calls, EOC briefings, situation reports, electronic information exchange, meetings of executive groups and similar efforts. While there was agreement that these efforts were valuable, many individuals also noted that they became very time consuming, occasionally repetitive, or not always focused on priority issues.

Recommendation 3.2.1 – Streamlining inter-jurisdictional coordination issues

The 2004 season demonstrated that the County's coordination efforts should be continued in future events. Improvements could be gained, however, if policies and procedures are developed and implemented to streamline efforts to ensure adequate inter-jurisdictional coordination, to minimize the time required of the participants, and to maximize the quality of the information exchanged and decisions made. Some suggestions could include:

- Advanced but variable scheduling of conference calls, briefings, committee meetings, etc., commensurate with the intensity of emergency operations and the need for inter-jurisdictional policy or operational decision-making
- Advanced broadcast distribution (by fax, email, etc.) of an agenda for each call to assist with maintaining focus and limiting discussion to key decisions regarding inter-jurisdictional operations or urgent needs that cannot or are not been met through normally utilized channels.
- During conference calls and meetings, emphasizing inter-jurisdictional decision making on policy issues, e.g., evacuation, re-entry, curfews, etc. where inter-jurisdictional cooperation is vital for successful operations
- Avoiding using the conference calls to report on the current situation in a jurisdiction or to request resources and assistance that could be effectively accomplished through another mechanism.
- Splitting the county into two or more groups (perhaps an "Eastside MACS Group" and a "Westside MACS Group") and conducting separate conference calls, briefings, etc, with each.
- Conducting separate conference calls for specific functional areas that are highly active or instrumental to inter-jurisdictional coordination and provision of resources, e.g., Fire/Rescue, Law Enforcement, Public Works, etc.

Issue 3.3 – Concurrence on and Cooperation with Multi-jurisdictional Operations

For many jurisdictions, the 2004 season highlighted operations that required coordination and cooperation between multiple jurisdictions. Some obvious examples are the municipalities' roles in evacuation and sheltering, re-entry, curfews, the location and staffing of food/water/ice distribution centers, establishing disaster recovery centers,

etc. Some were successfully coordinated through the County EOC while others were coordinated between adjoining municipalities directly. However, some inter-jurisdictional operations were less successfully coordinated and are a cause for concern.

Recommendation 3.3.1 – Policy for concurrence and cooperation in multi-jurisdictional operations.

As recommended under Area for Improvement #1, there are several recommended actions specifically targeted on preparing plans for key operations that have multi-jurisdictional impacts. If it is assumed that these plans are completed successfully, there is a need for a policy commitment on the part of the County and all municipalities to comply with the plans' operational provisions. This is particularly necessary regarding procedures to coordinate decision-making and a commitment to implementing the decisions made. For example, the geographic configuration of the east side of the county requires coordination among jurisdictions of the evacuation reentry process. In addition, imposition of curfews and other security measures in the developed areas of adjacent jurisdictions must be consistent. A formal mechanism to ensure implementation of multi-jurisdictional cooperative actions, e.g., a temporary countywide ordinance, may be an appropriate component of such a policy.

Issue 3.4 – Multi-organizational Decision-Making

Generally, most County organizations and ESFs stated that the level of coordination of decision-making was high. Nevertheless, some decisions, such as some evacuations, deactivation of shelters, arrival of relief supplies, etc. seemed to some organization representatives to be precipitous. Further, the organizations that would have to implement the decisions felt they were not always involved in the decision process and had little or no opportunity to provide input regarding the immediate ramifications of the decisions. A frequent comment received was, "When they decided to do this, we really had to scramble to be ready!"

Recommendation 3.4.1 – Provide enhanced coordination of multi-organizational decision-making.

The advanced planning recommended under Area for Improvement #1 would be specifically intended to incorporate procedures to ensure that all of the jurisdictions and organizations impacted by decisions are provide an opportunity to participate in decision-making and to ensure that the ramifications of the decision are accurately known. Beyond this advanced planning, however, county executives and management personnel should ensure that organizations that would have to implement decisions have been identified, informed about the decisions to be made, and their input requested. It is recognized that, during disasters, it will still always be necessary for organizations to "scramble to be ready," but efforts to include these organizations in decision-making could minimize this problem.

Issue 3.5 – "Real time" Information Availability in the County EOC

A number of County ESF representatives, plus reports from other operations dependent on the EOC for information, e.g., the CIC, indicated that it was difficult to maintain current awareness regarding the "real time" status of key operations and facilities. Examples given included not knowing which ESFs were actually staffed at a point in time

and prepared to act on requests for assistance, or which shelters were activated, full or deactivated. A vital component of adequate coordination within an EOC and with its closely associated facilities is to ensure that personnel, whenever possible, have continual access to “real time” information about the status of basic operations.

Recommendation 3.5.1 - Provide electronic display of key “real time” data in the County EOC and associated facilities

Two approaches to this recommendation could be considered. First is to consider the capabilities of the EM 2000 software. If the display of key operations or facility activations is a component of EM 2000, e.g., activations of county ESFs, municipal EOCs, shelters, distribution points, and similar, as well as important operational milestones, such as initiation or completion of an evacuation, then personnel need additional training in the use of this function. The second approach presumes that EM 2000 is not suitable for this purpose. In this case, it is proposed that the key information needed by all or most personnel in the EOC and closely associated facilities on a real time basis be defined. Then, this information should be incorporated into a software program to prominently display the information on ESF computer screens and/or a projected wall display in the EOC and associated facilities. This would be followed by ensuring that the EOC has adequate staffing and procedures to confirm that displays are kept up-to-date.

Issue 3.6 – Lack of Coordination with Municipalities Regarding Deployment of Resource Support

The municipal representatives expressed several times that the arrival of resources deployed by state or federal agencies were often unannounced, or, if announced, then significantly delayed. While the resources, e.g., food, ice and tarps, were clearly needed, the untimely nature of their actual arrival in the jurisdiction created inefficiencies on the part of municipal response organizations. It is recognized that the control of such a situation is perhaps beyond the Volusia County EOC, and is often due to extreme conditions in the aftermath of a major disaster. Nevertheless, improvements in the coordination with municipalities of such resource deployments could be very beneficial.

Recommendation 3.6.1 – Request current information from the State EOC regarding resource deployments to municipalities

Some of the specific circumstances relevant to this issue involved trucks with food, water, ice and tarps that were deployed through the State EOC. These would either arrive unannounced, or would be significantly delayed without notification. Modern technology, e.g., GPS transmitters, cell phones and/or radios, if employed by the state or their contractors, could alleviate, in part, this problem. In addition to a procedure that informed the transporter of the resource what its destination was, there should be a companion procedure to notify the receiving jurisdiction any unexpected changes to the time of arrival. Volusia County should request the state to develop and ensure the utilization of this procedure by government and contracted transporters.

Recommendation 3.6.2 – Monitor the state and federal deployment of resources

It must be recognized that state and federal agencies may not be able to notify local agencies regarding schedule changes for delivery of resources due to disaster

conditions. To balance this reality, the County EOC, either through the relevant ESF and/or through ESF #7 or #5, should incorporate into their procedures steps to determine the time of departure and any method of contacting the transporter directly. In turn, the ESF would notify the municipal EOC of any available information regarding arrival of the resource.

Issue 3.7 – Municipal Notification of County, State and Federal Operations

Many municipalities stated that there was usually good coordination with the County EOC regarding operations to be activated in their jurisdiction. However, some municipalities stated that they did not consistently receive advanced notifications of county, state or federal operations occurring within their jurisdiction, or, in some cases, only learned about these events through the media. Examples were the opening of a shelter and activation of a disaster recovery center. While such operations may be regional in purpose, the hosting jurisdiction maintained that their operations were influenced nonetheless. In these situations, the concerns were that local operations were disrupted to accommodate these unanticipated activations, in part through expectations that municipal agencies would provide support. In addition, municipal officials were unable to provide accurate information to the jurisdiction's residents regarding these operations.

Recommendation 3.7.1 – Ensure timely notification of host municipalities of anticipated county, state or federal operations

Like Recommendation 3.6.2, the County EOC may not be consistently aware of state or federal response or recovery actions. It would be valuable, nevertheless, to ensure that County ESF procedures include a required notification of the host municipality as soon as the anticipated county, state or federal operation in their jurisdiction becomes known, irrespective of whether operation is regional or local in scope, or whether it actually would be managed through the County EOC. .

Issue 3.8 – Utility of the EM2000 System

The 2004 season provided an excellent opportunity to thoroughly explore the utility of the EM 2000 system as it interfaced with the individuals expected to use it in the County and municipal EOCs. Generally, statements indicated that the system was useful, although, as noted in Area for Improvement #2 above, several individuals lacked adequate familiarity in its use. Nevertheless, comments were received regarding its utility which should be addressed. These can be summarized as follows:

- Several specific modifications to the EM 2000 system were recommended by the County EOC Operations staff/ESF #5
- Only a few municipal EOCs have installed the EM 2000 system, and some of those that have not stated that it would be good to do so on a countywide basis.
- The EM 2000 system requires the operator to undertake specific actions to determine the status of the response to requests for assistance or resources. If the operator was unaware of these actions, or if there was insufficient time to do so on a routine basis, then requesting ESFs or individuals were not aware “if and when” actions had been taken on their earlier request. In some cases, individuals reported a “black hole” type of situation where, seemingly,

a request was made and no response of any type was received. The identical concern was also expressed regarding the local use of the state's Tracker system.

Recommendation 3.8.1 – Modifications to the EM 2000 system

The modifications to the EM 2000 system made by the County EOC operations staff/ESF #5 should be implemented. In addition, if possible within the framework of the system, it would be desirable to have an automated function to more obviously and periodically display the status of resource requests. It would be best if this could be automatically done, with little or no action required by the operator. Currently, the system requires that the operator take specific actions to determine the status of resource requests. This makes the process is vulnerable to being left undone when operators are busy with other activities.

Recommended Acton 3.8.2 – Modifications to ESF procedures regarding the EM 2000 system

County ESF implementation procedures should be modified, wherever needed, to ensure operators use EM 2000 on a regular basis to determine the status of resource requests and to take corrective actions if indicated. This is a companion recommendation to that given in Recommendation 2.6.1 to provide additional training regarding use of the EM 2000 system

Recommendation 3.8.3 – Use of the EM 2000 system in municipal EOCs

Some municipal representatives stated that it would be worthwhile to have EM 2000 in municipal EOCs connected to the County's EM 2000 system. They maintained that this would improve county – municipal coordination, particularly regarding requests for resources. This would involve, however, a commitment to meeting the financial, training and procedural requirements for installation and use of the system. It is recommended that an evaluation of the cost, desirability, and approach to installing and using EM 2000 on a countywide basis be conducted. Then, depending on the outcome, the County and involved municipalities could jointly pursue countywide installation of EM 2000.

Issue 3.9 – Coordination of Power Restoration Activities

A commonly expressed municipal concern was the lack of coordination and information exchange regarding power restoration activities by FP&L. All municipal representatives acknowledged the significant challenges for utilities to regarding power restoration on the scale made necessary by the three storms. Nevertheless, most were intent on improving coordination and information exchange regarding this issue.

The recommended actions proposed for this issue are intended to be companion actions to those recommended in Recommendation 1.13.1. Without this linkage, the recommended actions below are less likely to be fully effective.

Recommendation 3.9.1. – Utility liaisons to County ESF #12

During and after events that result in major damages to the electric power system, ESF #12 should have a full time liaison, present in the county EOC and empowered with

appropriate authorities for decision-making, from each of the impacted utility companies. The liaison should be able to secure and relay to county and municipal agencies current information regarding utility restoration operations and their priority. Further, the liaison should be empowered, whenever indicated, to secure modifications to restoration operations within the County.

Recommendation 3.9.2 – Utility participation in county – municipal conference calls

For events with major damages to the electric power system, it will be important to include attention to the priority of power restoration in the County – municipal conference calls, when necessary, and therefore, the utility liaisons will need to be included as participants to be involved in any decision-making on this matter.

Recommendation 3.9.3 – Restoration status reports through ESF #12.

In view of the relatively frequent uncertainty in municipal EOCs regarding the status of power restoration in their jurisdictions and, especially, the priorities being utilized, ESF #12 should incorporate into their procedures a periodic status report regarding these factors and ensure its distribution directly to municipal EOCs. This report would be distributed outside of, and prior to, any conference call to be held in which the agenda includes power restoration status.

Area for Improvement #4 – Facilities

Managing the response and recovery efforts to three major storms was an excellent test of the various facilities utilized by County and municipal governments. While the adequacy of some facilities, especially at the municipal level, was demonstrated, others were shown to need improvement or replacement. This section highlights the facilities that were shown to need additional attention.

Issue 4.1 – Vulnerability of Municipal EOCs to Physical Damage and Operational Failure

The season highlighted that a few of the buildings utilized by municipalities as EOCs were vulnerable to both physical damages from the impacts of the storms, as well as operational failures, such as power and communications losses. These vulnerabilities include being flooded, large unprotected windows vulnerable to failure, and lack of adequate standby generator capacity. As a result of this experience, some of these municipalities are now taking action to mitigate these vulnerabilities, but recommended actions may be needed to ensure, on a countywide basis, that each municipality will always have a functional, adequate facility to utilize as an EOC.

Recommendation 4.1.1 – Mitigation of municipal EOC vulnerabilities

The municipalities that experienced physical damages or operational disruptions to their EOC facilities should ensure that they are mitigated as expeditiously as feasible. Municipal representative should ensure that the Volusia County local mitigation plan includes proposed initiatives for the identified vulnerabilities for their EOCs. Further, the plan should consider that, under the Mitigation 20/20™ approach utilized, initiatives for mitigation of the vulnerabilities of municipal EOCs should be designated as “Priority for Implementation” in an attempt to expedite their implementation.

Recommendation 4.1.2 – Assistance in securing mitigation initiative funding

When questioned if grant funding under the currently available federal Hazard Mitigation Grant Program (HMGP) was being sought for mitigation initiatives to reduce or eliminate the vulnerabilities to municipal EOCs, some municipal representatives said it was not, in some cases because of the time, complexity and local cost of the HMGP process. It is proposed that Volusia County or larger municipalities experienced with the HMGP process, offer assistance and technical support to smaller municipalities to secure funding through the HMGP or other programs to mitigate the vulnerabilities of municipal EOCs.

Issue 4.2 – Inadequacies of the County EOC

Almost universally, personnel considered the County EOC to be inadequate for the scale of the operations necessary following a major hurricane. Many different problem areas were cited for this conclusion, including but not limited to the following:

- There are no bunk rooms or otherwise adequate sleeping areas
- There is no adequate “R & R” room to temporarily escape the stress of staffing operations
- Kitchen facilities are inadequate
- The space in the operations room is too small to house all of the operations and personnel that need to be positioned within it
- Space at individual work stations is inadequate, resulting in the actual curtailing of representation of organizations or disciplines that should be represented
- Furnishings are inadequate, to the point of complaints of “stealing chairs”
- The crowded environment exacerbates the noise problem that is often common to all EOCs when fully operational
- Telephone drops were found to be inadequate at many work stations, requiring important operations by various organizations to “share a phone”
- Space for municipal liaisons was cramped, even when not all municipalities were represented.
- The wall space is insufficient to support adequate electronic displays, as proposed in Recommendation 3.5.1

In some cases, some municipalities reported that their liaisons were reluctant to be deployed to the County EOC or to remain in position there for protracted periods due to the conditions and the space limitations.

The 2004 season was a clear demonstration of the need for an adequate, modernized County EOC that is capable of readily accommodating all of the functions, personnel and equipment that are necessary for a response to a catastrophic disaster. An important perspective in considering this issue is that, while there were three storms “back-to-back,” none of them had the catastrophic effect of a Category 4 or 5 hurricane making landfall in Volusia County. It is very possible that a catastrophic disaster could stress the capabilities and adequacy of the County EOC significantly beyond that experienced during the 2004 season.

Recommendation 4.2.1 – Expedite design and construction of a larger, modernized County EOC

It is understood that Volusia County is currently planning a new EOC for construction in approximately five years hence. It is recommended that this schedule be expedited to the maximum extent feasible.

Issue 4.3 – Centers for Distribution of Materials to Disaster Victims

Issue 1.9 summarizes the difficulties encountered regarding establishing and staffing centers for distribution of food, water and ice to disaster victims, including debate over the location of a number of the centers. Of the centers established, some had characteristics that indicated to the jurisdictions they should be made permanent, while operations at others were reported as limited by space, equipment, etc.

Recommendation 4.3.1 – Designation of permanent distribution centers

This is a companion recommendation to Recommendation 1.9.1, which, if implemented, would result in a comprehensive plan for the distribution of materials to disaster victims. It is expected that this plan would identify sites throughout the County where distribution centers are needed. This recommendation is to ensure that the necessary steps are taken to make these sites permanently available, e.g., through purchase, inter-local agreements, contracts or MOUs, as well as physically modified, as indicated, to effectively serve as permanently designated distribution centers, e.g., pre-wired for a standby generator.

Issue 4.4 – Emergency Worker Feeding Locations

The 2004 season indicated that, in several locations, adequate permanent or mobile facilities were not available for feeding of emergency workers in a number of municipalities. The lack of power was frequently an issue in trying to provide adequate food and beverages for emergency workers.

Recommendation 4.4.1 – Establish additional facilities for emergency worker feeding

Actions are needed to ensure that each municipality has pre-planned the necessary facilities for feeding of emergency workers. These facilities could be fixed or mobile, but should be of a size that they would be adequate for the number of workers needed to respond to a major disaster and that would be fully functional during an extended power outage.

Issue 4.5 – Vulnerabilities of Shelters

While most of the school buildings utilized as shelters functioned well, the 2004 season indicated that some have vulnerabilities that can significantly disrupt their effective use. In one case, a shelter was flooded, and in others, the absence of standby power meant that shelterees were left, literally, “in the dark.”

Recommendation 4.5.1 – Mitigation of shelter vulnerabilities

In a manner similar to Recommendation 4.1.1, the vulnerabilities of designated shelters,

including the absence of adequate standby power for all facility systems, should be addressed through the County's local mitigation planning program or through actions by the Volusia County School Board directly. Until such mitigation actions are completed, these facilities should be removed from the list of available shelters.

Issue 4.6 – Emergency Worker Family Shelters

A number of municipalities had pre-planned facilities to serve as shelters for the families of emergency workers, and others had not. For those that had provided such facilities, they found it beneficial to the overall response by alleviating family-related concerns on the part of many emergency workers.

Recommendation 4.6.1 – Establish additional emergency worker family shelters

Actions should be taken so that the County and each municipality have identified and pre-planned the equipping and staffing of shelters for the families of emergency workers. Like other shelters, these should be capable of functioning under conditions of prolonged power failure. In addition, County ESF #6 could assist smaller municipalities in identifying and staffing employee family shelters, perhaps through joint facilities with other municipalities or the County.

Issue 4.6 – Secondary or Non-School Shelters

Volusia County, as elsewhere in the State of Florida, uses schools to meet nearly all of its public shelter needs for hurricane evacuations. This poses a dilemma for the reentry process, as noted under Issue #1.4, when schools need to be re-opened, even though in many cases, shelterees are unable to return to their homes.

Recommendation 4.6.1 – Identification of additional non-school shelters

Recommendation 1.4.1 proposes that the County develop a comprehensive, countywide evacuation reentry plan. This plan must address the dilemma of deactivating school shelters even when a large number of individuals will continue to need shelter. It is therefore proposed that a countywide effort be undertaken to identify a number of non-school facilities that would be suitable for use as shelters, and to take the necessary steps to secure them for this purpose, e.g., through MOUs, contracts, etc. In doing so, it is suggested that facilities be identified that have more than a reasonable chance of surviving hurricane force winds, have suitable amenities, e.g., kitchens, and would be able to function during a prolonged power failure, e.g., could be pre-wired for standby generators.

Issue 4.7 – Housing for Out-of-Area Personnel

The 2004 season demonstrated that there will be an influx of out-of-area personnel in the immediate aftermath of a major event, and many of these will actually be essential to Volusia County's disaster recovery process, including utility personnel, the media, contractors, etc. ESF #18 was frequently tasked with finding available hotel rooms for such individuals, which became difficult in light of the amount of damage to hotels themselves and the extent to which available hotel rooms were occupied by residents who had evacuated their homes.

Recommendation 4.7.1 – Prearrangement of hotel space for out-of-area workers

It is proposed that the County, through ESF #18 and with the cooperation of ESF #14 and #12, develop pre-event agreements with hotels for the housing of at least a specified minimum number of key categories of personnel, i.e., utility workers, media and contract personnel known to be necessary for supporting emergency operations, e.g., communications technicians. Hotels in various areas of the county that would be likely to remain undamaged following a hurricane should be pre-identified, and agreements arranged with their management for reserving blocks of rooms. These agreements could be activated prior to an evacuation to ensure the rooms remained available for incoming emergency workers, and are not taken by evacuees.

Area for Improvement #5 – Evacuation and Sheltering

There are several issues and recommended actions noted above under planning, training and facilities that are intended to address areas for improvement in the sheltering function in Volusia County. There remain, however, some specific issues regarding the evacuation and sheltering function.

Issue 5.1 -- Evacuation of Transportation-Dependent Individuals

There were some problems reported by County and municipal representatives related to the provision of evacuation transportation by the County. These include the lack of bus transportation for senior residents of Oak Hill, which reportedly resulted in several hundred individuals not being evacuated. In addition, the capacity to support ambulance-based evacuations emerged as a problem during the 2004 season, especially in view of the potential for having to transport individuals to remote facilities outside of the county.

Recommendation 5.1.1 – Increased capacity to ambulance-based evacuations

The limitations on the capacity for ambulance-based evacuation should be addressed, particularly when considering the potential for either a large mass casualty incident or extensive damage to health care facilities in Volusia County. Options for increasing the number of ambulances and staff for use during mass evacuations should be explored. These could include private sources, such as the Daytona International Speedway, private ambulance companies, healthcare facilities, etc., as well as from public sources, e.g., from adjacent counties. When sources are identified, perhaps agreements, MOUs, etc. could be developed between the source and the County. The objective of this action would be to have a mechanism in place which could be immediately activated from either County ESF #1 or #8 to mobilize significant ambulance capacity beyond that available through EVAC.

Recommendation 5.1.2 – Assurance of evacuation resources for transportation-dependent individuals

It is unclear whether the lack of transportation resources made available to Oak Hill was a procedural or capacity issue. Nevertheless, it would be worthwhile to evaluate both procedures and capacity to evacuate transportation-dependent individuals from all communities, to ensure that countywide evacuations could be conducted on a timely

basis. If not, then similar arrangements as suggested in Recommendation 5.1.1 to increase capacity through pre-event arrangements with the private sector or with adjacent counties may be warranted.

Issue 5.2 – Multi-Organizational Coordination of Shelter Operations

As noted under Issue 1.4, the shelter deactivation process experienced some difficulties and, therefore, was proposed to be addressed under a newly developed, countywide evacuation reentry plan. Representatives of County ESF #6 also stated that coordination of shelter operations, including deactivation, could be enhanced if the Volusia County School Board assigned a full time staff liaison to ESF #6.

Recommendation 5.2.1 – School Board staffing of ESF #6

The School Board should ensure that a representative to ESF #6 is assigned and trained in the operations of that ESF.

Issue 5.3 – Evacuation of Assisted Living Facilities (ALFs)

There were several reports of difficulties encountered with ALFs that did not evacuate on a timely basis, or encountered difficulties in securing transportation or suitable shelter space. This adversely affected not only the residents of the ALFs, but also required additional time on the part of emergency services agencies to address the facilities' problems.

Recommendation 5.3.1 – Encourage ALFs to secure more remote shelter facilities and excess transportation resources

ALFs are required by state statute to have a comprehensive emergency management plan that incorporates both procedures and resources for the evacuation and sheltering of all residents and staff. These plans identify shelters that are within Volusia County or in adjacent counties, but in 2004, many of these facilities were also impacted by the storms, making them unavailable. Volusia County should consider adoption of a policy requiring that ALFs secure sheltering capacity several counties removed from Volusia County and enforcing this policy through the facility emergency plan review and approval process.

Recommendation 5.3.2 – Require timely evacuation of ALFs

In several cases, the difficulties with ALF evacuations were because they waited too long to implement the initial evacuation, or subsequently, were unwilling to evacuate even though power outages were having adverse affects on their residents. From the perspective of some ALFs, it must seem easier and less expensive to request County or municipal agencies to assist them in remaining in their facility -- perhaps by providing a generator, ice or water -- than it is for them to evacuate using their own plan and resources. It would therefore be advantageous for the County to be legally positioned, perhaps by ordinance, to require ALFs to implement their emergency plans, including evacuation to shelter facilities, and then establish the procedures to do so. For evacuations from hurricane surge zones, such powers and procedures could be used to require an early evacuation, prior to that for the general public, as well as to require an evacuation due to post-event conditions such as prolonged utility outages.

Recommendation 5.3.3 – Confirm preparedness of ALFs for evacuation

Although ALFs must have their comprehensive emergency management plans, including evacuation plans, approved by the county, it is questionable whether all ALFs are actually prepared to implement the procedures they have included in their plans. The County should establish a process, perhaps on an annual basis, to attempt to confirm the ALFs' true capability to evacuate, e.g., on-site interviews with staff, visual inspection of vehicles, etc.

Issue 5.4 – Out-of-Date Lists of Special Needs Individuals

The County and municipalities have established procedures for the notification, evacuation and sheltering of individuals that have special needs. The starting point for this procedure is the County's Persons with Special Needs database. The 2004 season indicated that the database was out-of-date in some cases.

Recommendation 5.4.1 – Implement procedures to keep the database of persons with special needs up-to-date

In reality, it is recognized that contact information for special needs individuals probably changes in some way on a daily basis. However, at the start of each season, an effort by the County and its municipalities to update the database is needed. In addition, it would be valuable if procedures called for confirming the accuracy of the list in advance of each hurricane, perhaps upon declaration of a hurricane watch for Volusia County. This could be a shared responsibility of County and municipal personnel, depending on the jurisdiction of residence of the special needs individuals.

Issue 5.5 – Identifying and Tracking Shelterees

In response to telephone inquiries from family members and similar situations, it was demonstrated that there was not a system to identify, on a countywide basis, in which shelter specific individuals were located and whether they had left the shelter. Not having an accurate listing of sheltered individuals could become a substantial problem for the County should there be events that not only required large scale evacuations, but also resulted in large numbers of casualties. Knowing who was in a shelter and who was not could become vital to search and rescue operations, as well as to handling family inquiries from outside of the affected area. Because the County actually shelters very large numbers of individuals, to be practical, such a system would have to be electronic.

A second component of this issue is to identify individuals in shelters that may be inappropriate to mix with the general population under such conditions, e.g., convicted sex offenders, violent felons, etc.

Recommendation 5.5.1 – Develop and implement a countywide shelteree identification and tracking system

Each shelter should be equipped with an electronic system to log in and log out shelterees, and to relay that information on a routine basis, e.g., daily, to a central location, such as ESF #6 at the County EOC. A possible system would be an electronic

system that associates a bar code on a wrist bracelet or ID badge with a person's name, address, age, etc. With appropriate software, this information could be consolidated in a computer file at each shelter and then transmitted to the County EOC. As individuals leave the shelter, the bracelet or ID badge would be returned, scanned, and the updated information added to the database, and subsequently transmitted to the County EOC.

Recommendation 5.5.2 – Develop procedures to control and access data from the shelteree identification and tracking system

As noted, the tracking system recommended could be used for a variety of purposes, such as responding to family inquiries. It could also be used by law enforcement personnel to identify previously convicted criminals that should be separated from the general population sheltered in the facility, individuals known to need medical attention, etc., through comparison to other existing databases. When indicated, steps could then be taken to separate these individuals from the general population in shelter. To do so, both the County EOC and the shelter staff would need procedures to take such actions, and if indicated, facilities to shelter the separated individuals would also be needed.

Note: If the above two recommended actions are implemented, the County will need to confirm that the gathering, processing and utilization of such personal information is allowable under state and federal law, and that separation of individuals from the general population sheltered is similarly permissible.

Issue 5.6 – Identifying Individuals Authorized for Reentry into Evacuated Areas

During 2004, the issue of controlling reentry into evacuated areas emerged. Two considerations can be included in this issue: Reentry of property owners/residents, and reentry of critical personnel, e.g., insurance adjustors, owners of food and drug stores, etc. The criteria for reentry, and the method of controlling it, are intended to be addressed in detail in the countywide reentry plan suggested in Recommendation 1.4.1. This issue is raised here should the County and municipalities elect not to implement Recommendation 1.4.1.

Recommendation 5.6.1 – Develop a consistent approach to identifying individuals to be authorized for reentry

It is suggested that the reentry process can be most effectively controlled if there is a consistent approach to “who” is to be permitted reentry, “when” that is to occur, and “how” it is to be implemented. The County, working with the municipalities with identified evacuation zones, should establish a consistent approach to reentry control. As an example, color-coded windshield placards could be prepared and distributed by each municipality for their residents, property owners, and key business owners/operators. Display of these placards at all times during and following reentry would signify to law enforcement personnel that these individuals were authorized reentry. A second and third set of placards could be used by the county and the municipalities for distribution to properly authorized individuals coming into the evacuated areas from the outside. One set could authorize advanced entry for such individuals as building inspectors, the operators of facilities using or storing hazardous materials, or for owner/operators of critical community services, e.g., doctors, food store operators. This would allow advanced preparation for the general public's reentry. The second could be issued to

individuals such as insurance adjustors, cleanup contractors, corporate representatives to hotel chains, etc. that were needed in the area to assist owners of damaged property.

Issue 5.7 – Sheltering for the Elderly and Disabled

As noted in Issue 1.12, concern was expressed that the elderly, disabled and bed bound, not meeting the criteria for housing in special needs shelters, nevertheless have difficulty with the physical and emotional stress of being in a shelter for the general population, as well as require additional attention from the shelter staff to meet their needs. Pending the outcome of any action pursuant to the recommended actions for Issue 1.12, there will remain a need to address the physical needs of these individuals during sheltering.

Recommendation 5.7.1 -- Supplement shelter equipment and supplies for sheltering of the elderly and disabled

It is recommended that the equipment and supplies needed to better serve the elderly and disabled be defined, perhaps through ESF #6, including, for example cots fitted with air mattresses or pads, padded chairs, wheelchairs, etc. Once defined, a source for this supplemental equipment and supplies should be identified and/or a cache is purchased and stored either centrally or at individual shelters. Procedures would also be needed to maintain, distribute and return the equipment upon shelter deactivation.

Recommendation 5.7.2 – Procedures for identification of suitable shelter space for the elderly, disabled and bed bound

County ESF #6, in coordination with ESF #8, should evaluate the feasibility of securing shelter space for the elderly and disabled in vacant beds in licensed nursing homes and ALFs. This evaluation would need to consider reimbursement of the costs, the feasibility of transporting individuals to these facilities, and the acceptability of this process to the facilities. If determined to be feasible, procedures should be developed to identify vacant beds prior to an evacuation and to transfer individuals to and from the relevant facilities.

Issue 5.8 – Sheltering of the Homeless

There were difficulties encountered in with evacuation and sheltering of the homeless, including the mixing of the homeless with the general public in shelters and not having participation in shelter management from organizations that normally assist this population.

Recommendation 5.8.1 – Develop improved capabilities to evacuate and shelter the homeless

It is proposed that the Emergency Management Division, the School Board, and Votran identify agencies and organizations normally providing assistance and services to the homeless population and solicit their involvement in the evacuation and sheltering of homeless individuals through actions such as:

- Defining a comprehensive strategy for evacuation and sheltering of this population

- Ensuring the adequacy of shelter spaces for the homeless, that such shelters have adequate physical characteristics, and that effective security services can be provided
- Providing shelter management staff with specific training and experience in assisting the homeless
- Consideration of modifications to ESF #6 procedures, as needed, for coordination of shelter operations for the homeless
- Integrating shelter deactivation procedures and reentry with those utilized for all shelters

Area for Improvement #6 – Public Information

As noted above, the 2004 season demonstrated the success of the PIN and several other aspects of Volusia County's public information program. Nevertheless, the season highlighted a number of public information issues that warrant continuing attention.

Issue 6.1 – Supplementing Pre-Season Public Information

Experience from 2004 indicates that the pre-season public information programs conducted by the County and its municipalities need to include emphasis on specific actions, in addition to the information currently distributed. The goal remains to appropriately modify public behavior before, during and after a hurricane, and the following issues emerged as warranting additional attention:

- The public should be adequately prepared, e.g., food, water, etc. to be self-sustaining for the first 72 hours after an event, in view of the likelihood of utility and communications systems failures
- Items that cannot be brought to a shelter; Items that should be brought to a shelter
- "Fuel up early and evacuate early"
- Contacting out-of-area family members in anticipation of a communications system failure
- Identify how to obtain information regarding the status of evacuations, damages, etc., if planning on leaving the area completely.
- Preparedness of seniors, the frail, and bed bound for evacuation and sheltering

Recommendation 6.1.1 – Modifications to pre-season public information

The current pre-season public information materials and activities should be evaluated for the above noted considerations and modified appropriately.

Issue 6.2 – Adjusting Pre-Season Public Information for Changes Made Based on the 2004 Season

This evaluation of the 2004 hurricane season has identified a number of recommended actions that, if implemented, would impact the public in several ways. For example, if action is taken to identify more shelters of different types and locations, as discussed under Issue 1.12, this information will need to be communicated to the public.

Recommendation 6.2.1 – Develop a program to modify pre-season public information materials to incorporate recommended actions from the 2004 hurricane season

It is proposed that, as County and municipal officials select recommended actions noted herein for implementation, that an evaluation of the selected actions be made to determine which would require modification to pre-season public information materials. Once identified, a plan for timely modification of the materials will need to be implemented to minimize public uncertainty or confusion when the new actions are implemented.

Issue 6.3 – Public Information Content during Response and Recovery

Volusia County's public information program was able to prepare and distribute a very substantial amount of information, and generally there was widespread agreement that the operation was successful. Nevertheless, the 2004 season highlighted issues with public information that occur during response and recovery operations that warrant attention. These issues include the following:

- The status of actions that are typically a source of public concern and frustration, e.g., power restoration and priorities, distribution of ice/food/water, etc.
- Ensuring accurate and timely information exchange between the County ESFs, municipalities and the CIC in support of public information operations
- Distributing public information to displaced members of the public
- Ensuring the visually and hearing impaired can access public information
- Translating information into Spanish and signing for the hearing impaired
- Distribution of accurate and current information on the overall status of operations to response personnel that directly interact with the public
- Distribution of jurisdiction-specific public information
- More rigorous attention to identifying the sequence of media releases

These issues are address below. Note that all of these issues are applicable to Recommendation #1.14.1, developing a plan for distribution of information during times of extended power failure.

Recommendation 6.3.1 – Development and distribution of current information on issues of direct public concern

The experience with the 2004 season indicated that a more aggressive public information program to provide current information on the status of operations of direct concern to the public may have been beneficial. Two issues specifically appear to warrant further attention. The first is the status of and priority for power restoration, which is also addressed under Issue 1.13. The second is the procedures for distribution of food, water, ice and tarps, which is also discussed in Issue 1.9. The focus of this recommendation is on the associated public information needs and procedures for these two issues.

It is recommended that the modifications to ESF roles proposed in Recommendation 1.7.1 for ESF #11 and ESF #12 include specific procedures for developing and releasing, through ESF #14, public information, respectively, regarding the distribution of

materials to disaster victims and the current status and priority of power restoration. The priority for power restoration appears to be a topic not fully covered in the media releases during the season. The frustrations expressed by the public to municipal officials over these two factors should be recognized by ESF #11 and ESF #12, and addressed as a part of the modifications their areas of responsibility. The procedures would provide for the two ESFs to take proactive roles to gather and process current information and ensure that it is transmitted promptly to ESF #14 and the CIC.

Recommendation 6.3.2 – Ensure timely and complete information exchange within the County EOC to support public information operations

Concerns were expressed that the CIC had difficulty processing the most current information for public distribution using paper copies of the media releases and situation reports issued by the county. In addition, some of the County ESFs indicated that they were unaware of the scope and content of information being released to the public. It is proposed that a procedure and, if indicated, computer/network capabilities be considered to electronically exchange information important to public information operations. This procedure would identify the current status of specific issues of direct concern to the public for each relevant ESF to document and compile into a format useful to the CIC and ESF #14. In turn, ESF #14 and, as applicable, the CIC should similarly compile and distribute to County ESFs a synopsis of current information being given to the public.

Recommendation 6.3.3 – Procedures for distribution of needed information to displaced members of the public

It was noted that current public information was not consistently available to two general groups of individuals, those sheltered in county facilities and those that had left Volusia County because of the storms. It is suggested that a procedure be developed that would provide current information most relevant to displaced individuals, such as the status of damage assessments, power restoration, etc. In addition, a mechanism for the delivery of this information would also be needed, particularly during periods of prolonged power and telephone system outage. The most attention to this matter should probably be directed at ensuring current public information is made quickly available to all County shelters for posting or announcement to shelterees. This is to support their decision whether or not to leave the shelter and return to their homes. Nevertheless, the same information would also be needed by individuals that left the County. In this case, perhaps a procedure to provide information to broadcasters and/or emergency management organizations in areas frequently utilized by evacuees from Volusia County, e.g., Orlando, Tampa, Tallahassee, etc., could be developed.

Recommendation 6.3.4 – Establish a policy for translating key public information into Spanish and the use of signing for the hearing impaired

During the 2004 season, the County translated portions of key public information releases into Spanish, providing it to translators assisting the CIC and during media briefings. It was noted, however, that only portions of the information provided to the CIC were translated and that there was a tendency for the media to cut away during translations of the public announcements. Similarly, suggestions have been raised regarding the use of sign language during briefings. There apparently is uncertainty regarding the level of need for these translation services, and if they should be

discontinued or further developed. This issue should be further evaluated and a policy regarding which, if any, public information needs such translation and, if so, the optimum approach to doing so. The continuing increase in the number of individuals with Spanish as their first language in Florida would indicate that, at some point in time, this will become necessary for Volusia County. At this point, it is suggested that the policy, at a minimum, require the full text of public information related to any health and safety issue, e.g., boil water orders, or to damage assessment, be translated into Spanish and delivered through a suitable format.

Recommendation 6.3.5 – Develop procedures to provide key public information to emergency workers that directly interact with the public

One helpful approach used by some municipalities to improve distribution of public information was to ensure that emergency workers in the field that would have direct contact with the public had current information regarding the status of key disaster relief information. Examples would be what distribution centers were open and where they were located, telephone numbers of public information hotlines, where medical treatment is available, etc. It is suggested that a countywide procedure be developed to define the key information normally needed or desired by the public immediately after a disaster. The procedure would also include a method to distribute current updates of this information to a range of operational centers for subsequent printing and distribution to emergency workers deployed from those locations. For example, key information could be prepared during the night shift at the County EOC, transmitted to municipal EOC for printing and distribution in the morning to the supervisors of debris clearance crews. The printout could be kept in the cab of the crew's truck should members of the public question them as they cleared a street.

Recommendation 6.3.6 -- Develop a countywide capability to provide jurisdiction-specific public information

It was generally agreed by municipal representatives that the County made a diligent attempt to provide information relevant to each municipality during their public information operations. Nevertheless, it was noted that, very frequently, this made broadcasts, briefings, etc., long and required that members of the public listen to a significant volume of information that was not relevant to them or their concerns. Some municipalities assumed a more assertive role in establishing methods to provide the public information that was relevant only to that jurisdiction, e.g., using broadcasts over short-range AM radios. These were felt to be more effective in communicating with the public. It is suggested that the County, in cooperation with its municipalities, investigate feasible methods to accomplish this on a countywide basis, and, if indicated, develop the capability to do so. In many ways, this is a companion to Recommendation 1.14.1, providing public information in a "powerless" environment. When broadcasts over commercial radio and television would not be effective in reaching the County's population, the abilities of each municipality to support direct distribution of public information will become a vital component of any countywide effort.

Recommendation 6.3.7 – Procedures to ensure proper numbering of media releases

It was noted by some County ESF representatives that the media releases issued by the County had conflicting or repetitive sequential numbers, which caused some confusion.

It is suggested that ESF #14 evaluate its current procedures for numbering of media releases and, if indicated, modify them to prevent such inaccuracies.

Issue 6.4 – Public Information Needs in the Post-Disaster Timeframe

Typically, the state and federal agencies that establish disaster relief and recovery programs implement a post-disaster public information program regarding benefits available, the locations of disaster recovery centers, etc., related to the programs they will be implementing. Nevertheless, the 2004 season highlighted that there is a need for some specific post-disaster public information, in addition to that noted above and in Recommendation 6.3.1 that are related to public health and safety, as follows:

- The safe and proper use of home generators
- The proper and safe manner to install tarps
- Facts regarding flooded septic tanks and drain fields

Recommended Action 6.4.1 – Develop a Post-Disaster Public Information Program

In a manner similar to the pre-season public information effort conducted by the County, it is proposed that a post-impact public information program be formulated to address commonly experienced problems or concerns, such as the above three topics. In addition, topics such as safe drinking water, food preservation and spoilage, and similar issues could be addressed. Print-ready masters of suitable brochures on these topics could be prepared so that written materials, as indicated, could be quickly written and distributed, should power failures limit the use of the broadcast media.

Issue 6.5 – Addressing the Needs of Media Representatives

ESF #14 representatives indicated that the 2004 season highlighted issues involved in meeting the needs and wishes of media representatives, including:

- Scheduling of media briefings
- Access to the CEOC and operations personnel
- Sleeping arrangements
- Alerting the media to immediate information
- Telephone requests from the media for information

Recommendation 6.5.1 – Program modifications to address the needs of the media

ESF #14 has formulated recommended actions and/or has proposed additional evaluation of these issues that should be completed as suggested.

Area for Improvement #7 – Energy

The 2004 hurricane season demonstrated that the prolonged loss of electrical power has many affects on both the public, local government and emergency response organizations. These issues are addressed in this section.

Issue 7.1 -- Lack of Generators for Critical Facilities

The 2004 hurricane season clearly demonstrated the need for a large number of standby generators for critical facilities so that they could maintain operation. These critical facilities encompassed a wide range of categories, including:

- Water and sewer systems
- Emergency response facilities
- Communications centers, relay stations, etc.
- Health care and assisted living facilities
- Evacuation shelters
- Traffic and roadway safety signals
- Critically needed commercial facilities, e.g., hotels for housing incoming emergency workers

There are five circumstances that were applicable to critical facilities, when relevant to their operations:

1. There were no standby generators of any type
2. Facilities had standby generators that only operated lights
3. Facilities were not pre-wired to facilitate temporary generator installation, and generator capacity requirements were not readily available
4. Maintenance on permanently installed generators was inadequate
5. There were simply not enough generators available to fill all requests

Aspects of this issue are also addressed under Area for Improvement #1, Planning, (Recommendations 1.13.3 and 1.13.4) regarding developing a consistent, countywide approach to pre-event actions regarding the use temporary generators and developing a countywide inventory of temporary generators.

Recommendation 7.1.1 – Require installation of permanent standby generators for selected categories of critical facilities

Under Issue 1.13, it is suggested that additional planning is needed to define a feasible approach to more effectively meeting the needs of critical facilities for temporary standby power until power restoration was complete. This recommendation is focused on ensuring that installed standby power is available for specific categories of critical facilities. The County, in cooperation with the municipalities, needs to make a determination which critical facilities, by size, function, location, or consequences of disruption should be required to have installed standby power of sufficient capacity to allow them to continue to fulfill their function. The list given above of the categories of critical facilities could be a basis to do so, with the concept that any facility that should not lose operational capacity would have a generator. Upon such a determination, a method to ensure actual implementation would be needed, e.g., a countywide ordinance, followed by efforts for inspection or enforcement. This ordinance should include requirements regarding mechanical maintenance of the generator and the integrity of its fuel.

Recommendation 7.1.2 – Require selected critical facilities to be pre-wired for temporary installation of standby generators.

As a companion to Recommendation 7.1.1, it may be that the County would determine that installation of a permanent standby generator for specific types of critical facilities is not warranted, but the need have standby power would emerge after say 24 or 48 hours, such as with a small ALF. Again, a determination of this category of facility and establishing a method to enforce this action would be needed. The countywide approach to standardizing the physical modifications (See Recommendation 1.13.3) should be considered as a pre-requisite to implementing this recommendation.)

Recommendation 7.1.3 – Provide financial assistance for critical facilities to purchase and install generators or to be pre-wired for temporary generators

For some owners/operators of critical facilities, e.g., a small ALF, permanently installing standby generators or pre-wiring the facility for a temporary generator may be a significant financial burden. To increase the likelihood that such facilities would comply with these requirements, it is suggested that the County implement a financial assistance program for this purpose, e.g., a low interest revolving loan program.

Issue 7.2 – Assessing and Reporting Impacts to the Power Distribution System

Municipal and County representatives indicated that, generally, they are in a very good position to quickly identify the damages to the power distribution system during initial impact surveys of their jurisdiction. The visual observations of “downed lines” made by local emergency responders were said to have been reported to the power companies. In some cases, it was not clear if this information was used by the power companies, or if the field assessments were simply repeated by the utilities. It was also not clear as to whether repeated assessments delayed subsequent operations, particularly debris clearance. There are several related recommended actions noted above that are relevant to this issue. The focus here, however, is the exchange and utilization of initial assessments of impact of the event to the power distribution system.

Recommendation 7.2.1 – Develop improved procedures for sharing impact information regarding the power distribution system

There appears to be a need for a uniform countywide procedure to expedite the assessment of impact of an event on the power distribution system by municipal response organizations, particularly where there are downed lines, and to facilitate the reporting of such information to the County EOC and/or the relevant power company directly. The power companies would then have a procedure to utilize this information, to minimize duplicate impact reports, and to respond more expeditiously to priority areas. The capabilities of the County and municipal emergency response personnel to identify and report impacts could then be better utilized to begin actions to isolate live wires, clear debris, and begin programs to respond to the energy needs of critical facilities. ESF #12 could develop a strong role in this process to assist in the coordination of reporting to the power companies as well as providing information flow regarding the response back to the municipal EOCs.

Area for Improvement #8 – Communications

Effective communications are vital for coordination of emergency response, and the 2004 hurricane season demonstrated, in many ways, both the vulnerability and resiliency of the systems used by County and municipal response forces. Overall, the 800 MHz radio system was the only countywide communications system to function reasonably effectively throughout the season. Cellular and land line phones were not as reliable, and several organizations had difficulty due to the prolonged failure of the Nextel system. The communications-related issues that should be addressed are described in this section.

Issue 8.1 – Expansion of the 800 MHz Radio System

Because of the demonstrated greater reliability of the 800 MHz radio system above land line and cellular telephones, all key locations important to County and municipal response to major disasters should have rapid access to the 800 MHz system. In addition, adequate pre-planning, e.g., programming radios, and distribution to these facilities should be completed, to the extent feasible, prior to initiation of emergency operations.

Recommendation 8.1.1 – Expand and enhance the 800 MHz radio system

If implemented, Recommendation 1.15 would result in an analysis of the most effective approach to maintaining a communications capability during failures of both the power and telephone systems. It is expected that this analysis would result in recommendations relevant to this suggested action, which assumes that, based on present knowledge, the 800 MHz radio system should be expanded and improved due to its greater reliability. Expansion is needed to ensure that each municipal EOC has access to the system. In addition, there are other key facilities that should be added to the system as indicated, including shelters, hospitals, utilities and other critical facilities. Increasing the number of channels available would also be of assistance, as would purchase and distribution of a large number of battery charging units of the type for use in motor vehicles. Implementation of Recommendation 2.9.1 regarding training in the use of the system and Recommendation 1.15, planning for communications during power and telephone system outages, are important companion actions important to the success of this action.

Issue 8.2 -- Battery Failure in Hand-held Radios

It was noted that, in those municipal EOCs not served by a generator, radio batteries could not be recharged, and eventually communications capabilities were lost.

Recommendation 8.2.1 – Generators for municipal EOCs

As noted in Recommended Actions 7.7.1 and 7.7.2, critical facilities should be required to either have standby generators permanently installed or be pre-wired for temporary installation of a generator. For smaller municipalities, the County should provide assistance, if needed, to complete these recommendations to ensure that battery operated radios will continue to be functional throughout a power outage. In addition, municipal organizations should be encouraged to purchase recharging units of the type for use in motor vehicles.

Issue 8.3 – Loss of Internet Service

Damages to the telephone network in the County resulted in the inability to utilize the Internet for communications between the County and some municipalities regarding emergency operations.

Recommendation 8.3.1 – Develop alternatives for Internet communication during telephone system failure

The County should explore alternatives to maintaining Internet communications with municipal EOCs during telephone system failure, e.g. via wireless or satellite access, etc.

Issue 8.4 – Communications for Shelters

Shelter managers were provided with an 800 MHz radio, which occasionally were inoperable for a variety of reasons. For some shelters, RACES operators provided backup communication. It was also demonstrated that there is a need for communications systems within shelters for specific personnel, e.g., security and management staff.

Recommendation 8.4.1 -- Ensure redundant radio communications capabilities for all shelters

In the interest of ensuring each shelter always has operational communications capabilities, it is proposed that, in addition to hardwire and cellular telephones, each shelter be equipped and staffed for redundant radio communications capabilities in a consistent approach, e.g., 800 MHz, RACES, and/or satellite telephones. This recommendation should be applied on a consistent basis with all shelters to ensure interoperability of the redundant systems.

Recommendation 8.4.2 -- Establish a capability for communications within shelters

In order to ensure an efficient and secure functioning of each shelter, there is a need for communications capabilities among shelter staff, including security staff. A consistent approach for all shelters to provide this capability should be developed to facilitate interoperability among all shelter, regardless of the facility to which personnel are deployed.

Issue 8.5 -- Communications with Major Health Care Facilities

In light of the widespread and frequent failure of the land line and cellular telephone system, there were concerns expressed regarding maintaining the capability of larger health care facilities to communicate with the County and municipal EOCs. In some cases, RACES operators deployed to hospitals experienced difficulties due to the lack of external antennas.

Recommendation 8.5.1 – Ensure communications capabilities with major health care facilities

A countywide approach should be implemented to ensure that the systems, procedures and training are available to maintain communications with all major health care facilities under conditions of power and telephone system outage. In addition to maintaining communications with those medical facilities needed to receive disaster victims, those facilities housing large numbers of patients that may need assistance, e.g., nursing homes above a certain number of beds, should be included in the system.

Issue 8.6 – ESF #16 Communications from the County EOC

County ESF #16 experienced difficulty communicating with Sheriff's Office personnel from the ESF #16 radio terminal in the County EOC, and there is no direct access to the Sheriff's Office computer network. In addition, the ESF #16 does not have a direct inward dial telephone line for officers to quickly respond to a page from EOC staff. Variations in the assignment of talk groups over the period of operations also lead to confusion on the part of patrol supervisors regarding how to contact ESF #16.

Recommendation 8.6.1 – Enhance the communications of ESF #16 in the County EOC

ESF #16, in coordination with the Emergency Management Division, should take action to upgrade the radio terminal, computer access and telephone systems accessible from the ESF #16 workstation. In addition, the Sheriff's Office should complete a procedure to have a consistent designation for radio talk groups within the ESF #16 function for all major disasters, and provide the necessary training to ensure effective use of the procedure.

Issue 8.7 – Initial Staff Mobilization during Communication System Failures

A number of municipal and ESF representatives noted that some initial operations were delayed due to the failure of the telephone systems and the inability to contact staff needed for those operations.

Recommendation 8.7.1 -- Standing orders for staff mobilization during communication system failures

Each municipality and County ESF should examine its procedures and training program to ensure that there are standing orders for essential staff to report for duty in the absence of a direct call out for deployment. If indicated, modifications to the procedures and training programs should be made to ensure the timely availability of personnel to initiate operations.

Area for Improvement #9 – Staffing

The 2004 season indicated that there were specific functions or locations that were insufficiently staffed and recommended actions for staffing shortfalls are discussed in this section. It should also be emphasized that implementation of several of the following suggested recommended actions would place additional employees in the County EOC. However, with the current facility there is not actually room to accommodate them. For these, completion of Recommendation 4.2.1 would need to be implemented as well.

Issue 9.1 – Accessing Skilled County and Municipal Employees

The impacts that resulted from three storms required large numbers of County and municipal employees to be mobilized for response and recovery operations, many of whom are not normally involved with emergency services operations. Often, specific skills and capabilities were needed and there was no efficient way to rapidly identify if these skill sets were available from unassigned local government personnel.

Recommendation 9.1.1 – Develop and maintain a database of local government employees' skills and capabilities

It would be valuable for County and municipal personnel offices and/or supervisory personnel to cooperatively develop computerized database of local government personnel with skills and capabilities relevant to response and recovery operations. When prepared, this database should be accessible through the County EOC, and should include information such as training completed, certifications and licenses held, or relevant skills that have been developed through the individuals' normal employee position.

Note: Documenting County and municipal compliance pursuant to NIMS by October 1, 2006 will necessitate a local system for defining the skills and capabilities of individuals in accord with federal guidelines. A system such as that described above would be necessary, most likely, to be able to demonstrate compliance with NIMS.

Issue 9.2. -- Tracking and Display of Current Information in the County EOC

County ESF #5, Information and Planning, must process a significant amount of information, and ensure that others receive it on a timely basis. The 2004 season resulted in such a volume of information that required processing by ESF #5 that it was very difficult to stay current with this process, for an adequate number of trained staff was not available. This sometimes influenced the timeliness of operations. For example, had adequate staff been available, the EM 2000 system could have been queried to identify unfilled requests for resources, and to minimize the "black hole" effect noted above concerning municipal requests for assistance. In addition, as noted in Recommendation 3.5.1, there is a need for improved display and distribution of "real time" information in the County EOC for the benefit of all ESFs. Implementation of this action would require additional staff for ESF #5.

Recommendation 9.2.1 – Designate and train additional staff for County ESF #5

Several additional individuals from County agencies other than the Emergency Management Division should be designated as support staff for ESF #5 and trained in implementation of its operations, including operation of the EM 2000 system and any new electronic displays installed pursuant to Recommendation 3.5.1.

Issue 9.3 – Staffing of ESF #11

As noted in this evaluation, there were several issues centering the availability and distribution of food, water and ice following the disasters. As noted in Recommendation 1.7.1, it is suggested that the designation of the primary agency for ESF #11 be reevaluated and, if needed, reassigned. In addition, it has been noted that a more

aggressive role is indicated for ESF #11 for more effective coordination of food, water and ice distribution. This will require adequately trained staff resources for ensuring that this ESF is fully operational at all times necessary.

Recommendation 9.3.1 – Ensure ESF #11 is fully staffed at all times necessary

The designated lead agency for ESF #11 should take action to ensure that there is a full cadre of trained individuals, supported by adequate procedures and equipment, to effectively manage the ESF's responsibilities, including close interaction with state and federal resources when they are activated for Volusia County.

Issue 9.4 – Ensuring Adequate Emergency Preparedness of Health Care Facilities

As noted in Issue 1.8, the 2004 season demonstrated that many of the residential health care facilities were not adequately prepared or trained to successfully implement the emergency plans they are to have developed in accord with state regulations. This appears to be particularly an issue for the smaller facilities. There is a significant need for a dedicated, skilled individual in the Emergency Management Division to work towards ensuring that these facilities develop more effective emergency preparedness programs and are capable of actually implementing their emergency plans.

Recommendation 9.4.1 – Provide a full-time individual to improve health care facility emergency preparedness

Addressing the true preparedness needs of the residential health care facilities in Volusia County requires that a specialized, full time position be added to the staff of the Emergency Management Division for this purpose. This position could be responsible for developing a countywide program through assisting or providing technical guidance to facilities, conducting onsite evaluations, supporting facility training efforts, and implementing similar functions, as necessary to achieve the objective of Recommended Acton 5.3.3. During EOC activations, this individual would work directly with ESF #8 and other County ESFs to implement any requirements regarding early evacuations of ALFs, as suggested in Recommendation 4.3.2, and to coordinate with County ESFs to address unexpected needs of these facilities in the post-impact timeframe.

Issue 9.5 – Training for Enhanced Emergency Preparedness

As noted under Area for Improvement #2, the 2004 hurricane season highlighted that there is a significant need for additional and enhanced training for municipal and County officials and others regarding response and recovery operations. Currently, these types of training programs are provided by Emergency Management Division personnel whose primary duties are not training. Because of the importance of training to preparedness of County and municipal officials, and the large number of jurisdictions and organizations involved in Volusia County, the Emergency Management Division should have available additional resources to establish a comprehensive training program. This program should be specifically tailored to meet the needs of Volusia County and its municipalities.

Recommendation 9.5.1 – Provide a designated Training/Exercise Officer for the Emergency Management Division to establish and implement a comprehensive training program.

A new, fulltime position in the Emergency Management Division should be provided with the responsibility to establish and implement a comprehensive training and exercise program for Volusia County and its municipalities. This position would be responsible for developing and conducting a “county-specific” program, including the recommended actions addressed under Area for Improvement #2, as well as for coordinating training by others, e.g., state agencies. Further, the position would take the lead in working with other positions in the Emergency Management Division to develop, conduct and evaluate exercises. A key role for this position would be to assist municipalities to address their emergency preparedness training and exercise needs.

Issue 9.6 – Staffing of ESF #8

As noted in Issue 1.7, the roles of selected County ESFs, including ESF #8, to include representation of major hospitals, are proposed for reassessment, which could result in additional staffing for ESF #8. In addition, it was noted that ESF #8’s staff in the County EOC should include a liaison from EMS/EVAC, given the responsibilities for coordination of ambulance-based transportation.

Recommendation 9.6.1 – Augment ESF #8 staffing with an EMS/EVAC liaison

County EMS should designate and securing training and equipment for EMS and EVAC to be represented on the ESF #8 staff.

Issue 9.7 – Staffing Needs for Pet Friendly Shelter(s)

County ESF #17 representatives stated that there was insufficient staff at the pet friendly shelter activated at the Fair Grounds during the 2004 season. In addition, as noted in Recommended Actions 1.12.1 and 1.12.2, there is a need to reassess the County’s shelter program, which could result in designation of one or more additional pet friendly shelters.

Recommendation 9.7.1 – Designate and train additional staff for pet friendly shelters

ESF #17 should lead an effort to designate and train additional individuals to assist with staffing of pet friendly shelters.

Issue 9.8 – Staffing for County Website Updating

The County and PIN websites were demonstrated to be successful methods for supporting timely public information distribution throughout the storm events. However, additional staff is needed to ensure effective updating of the websites.

Recommendation 9.8.1 – Designate and train additional staff for website updating

Additional staff should be designated and trained by ESF #14 specifically to update the County and PIN website.

THE NEXT STEPS

This evaluation has identified a number of issues and recommended actions within nine general categories. Following review and acceptance of this report, it is suggested that appropriate county officials take the following actions:

- Prioritize the issues, and consider the urgency and feasibility of implementation of specific recommendations within each issue
- Further confirm the validity of the recommendation
- Assign one or more county agencies to be responsible for implementing the recommendation
- Invite, where indicated, participation by municipal representatives, utilities, and/or other organizations
- Establish a schedule for completion of the recommendations commensurate with the importance and feasibility of implementation
- Monitor implementation through completion
- Make adjustments to other documents, procedures, etc., as necessary upon completion of each recommendation

SUMMARY AND CONCLUSION

It may easily be concluded that the 2004 hurricane season was a significant test of the emergency management capabilities of Volusia County and its municipalities. Overall, there is general agreement that the effectiveness of the response efforts, as well as the level of local government cooperation and coordination, were very high. Nevertheless, in the interests of continuing to improve the emergency preparedness of Volusia County and its municipalities, this after action evaluation identified nine general areas in which improvements would be beneficial. Several different issues were defined within each, and one or more recommended actions to address each issue proposed.

A suggested approach to implementing the recommended actions by the County is also provided. Implementation of the recommended actions will continue to maintain Volusia County's emergency management program at its high level of excellence for the benefit of all its citizens, visitors and businesses.