

**METRO-DADE**

**Dade County Metropolitan Planning Organization  
Dade County Office of Emergency Management**



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The Gothard Group, Inc.  
Herbert Saffir Consulting Engineers  
Marlin Engineering, Inc.**

**Technical Report No. 4**

**POLICY AND PROCEDURES REVIEW**

**TECHNICAL REPORT 4:  
POLICY AND PROCEDURES REVIEW**

Prepared for:

DADE COUNTY METROPOLITAN PLANNING ORGANIZATION  
and  
DADE COUNTY OFFICE OF EMERGENCY MANAGEMENT

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## EXECUTIVE SUMMARY

The Dade County Metropolitan Planning Organization (MPO) undertook the Dade County Transportation System Hurricane Emergency Preparedness Study to review, and where appropriate, enhance hurricane emergency preparedness planning directed at the Dade County transportation system. The firm of Post, Buckley, Schuh & Jernigan, Inc. was retained by the MPO to lead the consultant team conducting the study which was financed by U.S. DOT Planning Emergency Relief (PLER) funds administered through the MPO. Project work was closely coordinated with the Dade County Office of Emergency Management (OEM), and project efforts integrated input from transportation planning, operating, and supporting agencies at local, state, and federal levels as well as incorporating recently updated information from the South Florida Water Management District and the National Hurricane Center.

The objectives of the study were to systematically identify principal physical, functional and personnel resources within the transportation system, to evaluate the system's exposure and vulnerability to deal with hurricane events, and to review and assess typical plans and procedures associated with the system's hurricane preparedness and response capabilities. Principal tasks of the study were:

1. Inventory key transportation system components pertinent to the transportation system, and key human resources of the system relevant to hurricane preparedness and response;
2. Assess susceptibility of transportation system to hurricane occurrence by evaluating exposure, vulnerability, and survivability issues; and
3. Review transportation system preparedness procedures, identifying both effective and less effective points in them, and to develop and offer proposals for refinement.

Technical Report #4 provides an assessment of the emergency preparedness manuals of six most populated cities in Dade County, agencies in the transportation sector such as Dade County Public Works and the Metro-Dade Transit Agency, non-transportation agencies such as Metro-Dade Police Department, and state agencies such as the Florida Department of Transportation. This is the fourth in the series of technical reports documenting the tasks of the study.

The plan review is not intended to diminish the value of the existing agency plans but rather to gauge whether the plans contain specific information relevant to the successful implementation of emergency response activities.

Technical Report #4, includes reviews and evaluation of the hurricane preparedness manuals and plans cited above, and presents suggestions as to how these transportation agencies can be better prepared to handle major hurricane emergencies. This report has been prepared as a planning document, designed to illustrate how an agency can develop and integrate a system of preparations into its normal state of operations that will facilitate that agency's ability to maintain and even possibly enhance community mobility preceding and following a hurricane. In addition, the report is expected to help agencies establish or incorporate possibly new mechanisms to improve their response to these emergency situations.

The first step towards improved emergency preparedness is an assessment of the magnitude of hurricane emergency situations. This assessment takes into consideration the storm severity which may impact the agencies and the general public. A second principal approach in developing readiness for hurricane emergencies is initiating or expanding coordination between agencies to avoid potential duplication of actions and to increase effectiveness. Interagency cooperation agreements, also called mutual-aid agreements, along with intra-agency and interagency communication networks, and personnel training, are all methods of increasing coordination within and between agencies during hurricane threats and occurrences. These should be vigorously pursued.

A third significant step for improving preparedness is assessing the number, location, and status of equipment, supplies, and personnel resources of an agency, and developing a management plan for their marshalling, disposition and use preceding, during and following a hurricane.

A carefully researched, developed, and implemented management plan can save precious time and allow response efforts to be more effective by functioning more efficiently in a preplanned manner - insofar as possible during a natural disaster such as a major storm. Although most agencies do indeed track and keep records of their own resources as part of day-to-day operations, relatively few have given thought to how to track these resources once in the middle of an actual emergency. Likewise, few agencies share these records with other agencies in order to develop an overall list of resources and their availability during emergencies.

Perhaps the most valuable resource an agency must monitor and manage throughout an emergency is its personnel. In emergency conditions, extraordinary efforts and sacrifices are often experienced by and called for on the part of agency employees. Agencies need to monitor their employees and have means of rotating them out for rest and to possibly attend to the details of personal impacts of hurricane emergencies.

Finally, the most important overall factor which must be considered is the public. The public wants and needs accurate, timely and credible information, and a functioning transportation system. Therefore, transportation agencies need to be prepared to effectively collect and disseminate travel and transportation system status information during emergencies, and to respond in an organized manner to restore operation as quickly as possible.



## 1.0 INTRODUCTION

The purpose of the review of agency manuals is to provide an assessment of the emergency preparedness manuals of Metro-Dade County departments and municipalities, and state agencies involved in supporting transportation system elements of the County Peacetime Emergency Plan. In the event of future hurricane emergencies, the findings of the Technical Report #4 review and assessment may assist transportation agencies by providing the vehicle for improving emergency preparedness procedures, enhancing lines of communication, and increasing intra- and intergovernmental coordination, all of which can be critical during the onset, duration and aftermath of a hurricane. The reviews and assessments provided in this report are not intended to diminish the value of existing agency plans but rather, to gauge whether the emergency response manuals contain specific information relevant to the successful implementation of emergency response activities, and to offer examples of excellence in emergency planning for hurricanes from the plans and manuals examined.

A relevant factor in successfully implementing plans is the level of understanding within and between county departments, cities, and state agencies, of the internal and external support services provided by each entity. This understanding of the services provided and the service delivery procedures of each agency by the others, along with knowledge of the chain of command and primary contacts for each entity, will go a long way towards assuring an emergency response that is adequate, timely, and coordinated.

It was not possible to develop a totally comprehensive assessment because some entities submitted only the portions of their plan that dealt with transportation issues, while others submitted their basic operations plan but not copies of individual office or unit plans. It is also unclear if separate recovery plans, in addition to pre-storm preparedness plans, exist as none were submitted for review. This study views the preparation of response and recovery plans as another, and significant, part of preparedness; an agency needs to be prepared for problems and contingencies, and things that can go wrong even with pre-planning. In addition, the Metro-Dade

County Peacetime Emergency Plan is currently undergoing extensive revisions. An understanding of changes in the County plan was obtained through discussions with the County Office of Emergency Management and by reviewing the plan in its current state of revision. Therefore, some of the observations made regarding missing plan elements may be due to the absence of a complete city/agency/department plan, or changes in the County's plan that have not yet been completed or conveyed to agencies and municipalities.

Initial plan reviews performed by the study team focused on structure as well as the presence of specific content elements established for the review. The content elements were intended to serve as a basis for the plan review and to assist in the familiarization process. They are as follows:

Purpose of Plan	Pre-Hurricane Operations
Definitions	During-Hurricane Operations
Emergency Operation Levels	Post-Hurricane Operations
Emergency Operations Center (EOC)	Communications
EOC Management Responsibilities	Specific Agency Responsibilities
Emergency Operation Plan	Damage Assessment
Evacuation Areas	Emergency Contact List
Shelters	

Secondary plan reviews were performed to identify specific transportation system issues. These issues are discussed in both the City and Agency Review section and the Recommendations for Improved Preparedness section.

Finally, to help with the familiarization process, the review offers examples from several of the plans that best exemplify the above criteria. The agencies and following municipalities included in this review are:

## COUNTY AGENCIES - TRANSPORTATION

- Dade County Public Works Department
- Metro-Dade Transit Agency
- Dade County Aviation Department (MIA)
- Dade County Seaport Department (Port of Miami)

## COUNTY AGENCIES-NON-TRANSPORTATION

- Dade County Office of Emergency Management
- Metro-Dade Fire Rescue Department
- Metro-Dade Police Department

## MUNICIPALITIES

- City of Coral Gables
- City of Hialeah
- City of Homestead
- City of Miami
- City of Miami Beach (Police Department)
- City of North Miami

## STATE AGENCIES

- Florida Department of Transportation,  
(District 6)
- Florida Highway Patrol

## 2.0 REVIEW OF HURRICANE EMERGENCY PREPAREDNESS PLANS

This section of the report provides a review of the emergency preparedness plan for the Metro-Dade County agencies and municipalities. The review of the manuals will assist all responding Dade County agencies with an understanding of each municipality's emergency preparedness procedures in this event of future emergencies. It also will assist to open lines of communications and increase intergovernmental coordination which are critical during the onset, in the midst of, and in the aftermath of a hurricane emergency.

### 2.1 MUNICIPALITIES AND MUNICIPAL DEPARTMENTS

#### 2.1.1 City of Coral Gables

The City of Coral Gables advised that they are currently in the process of updating their *Basic Emergency Operations Plan*. However, the City submitted for review an operations plan that was updated in 1990.

Municipal department hurricane emergency responsibilities are detailed and presented in a consistent manner. Each section begins with description of the department's scope, purpose and general responsibilities. This is followed by a concept of hurricane emergency operations and a detailed description of staff responsibilities.

The "Damage Assessment and Expenditure Reporting" section for Coral Gables is the most extensive of all the municipal, county, and state emergency preparedness plans reviewed. Contained within are report flow charts and situation report, damage assessment report and expenditure/obligation report forms. The inclusion of these resources is useful; however, completed samples would have made them a more effective tool. Grouping all the reporting information in one area enables the user to access the required resources in an efficient manner.

Additionally, the inclusion of maps, charts and report forms throughout the Basic Emergency Operation Plan its understandability and thus decreases the response time of the user because samples of each have been provided.

The use of tabs also makes it easy to find a particular response function despite a confusing Table of Contents. A good Table of Contents can speed preparedness and response activities, and smooth the flow of administrative requirements during all phases of a hurricane emergency situation.

The "Authorities" section explains the statutory authority of government officials and agencies during hurricane emergencies. The "Authorities" section of the plan is not one of the content elements established for review but its inclusion provides the legal basis for the plan and is suggested for use in all agency plans.

### 2.1.2 City of Hialeah

The City of Hialeah *Hurricane Emergency Plan*, prepared in November 1993, is very thorough, yet somewhat fragmented in its presentation. A color-coded tabbing system separates the general City of Hialeah hurricane operational plan from specific department response functions. Although tabbed sections provide an easy method to find specific agency responsibilities, the plan lacks an easy to use flow chart that outlines specific responsibilities from an "at-a-glance" view.

The plan is divided into three sections. The first section, which is marked with white tabs, provides background information and a description of emergency operational levels such as EOC, police, communication, evacuation, shelters, Red Cross, damage assessment and hazard analysis responsibilities. This section defines the operational level as well as specific instructions for each department during the watch, warning and recovery phases.

The first section of the City of Hialeah Hurricane Emergency Plan also contains information on the emergency operations center and its management responsibilities, and is considered the best of its type of all plans reviewed. The section includes information on the staffing level by scale of the emergency, a chart indicating which departments respond to response and recovery operations, and an Emergency Operation Center (EOC) staff emergency contact list; (1) provides contact information for other allied municipal departments; and (2) provides detailed step-by-step information for emergency management coordination. Additionally, this plan provides an EOC checklist and sample forms such as a visitor and staff log sheet, a telephone log sheet and an EOC map.

The second section is marked with red tabs and contains the response procedures for fire, support services, communication, prevention rescue, training, and logistics. Although this section lacks uniformity in its presentation, the procedures are well defined and flow in a sequential manner.

The final section, marked with white tabs, outlines the response procedures and assignments for the City of Hialeah's service departments: water and sewer, parks and recreation, solid waste, public works, and building and zoning.

The emergency contact list is broken into separate lists for each department and included within each tabbed section. An "at-a-glance" contact list, which is not present in the plan, would enable personnel to reach key individuals, from any department, without the burden of searching through a lengthy document.

Other noted elements include a very detailed shelters description and its role in the overall operations plan. This section outlines the duties of the shelter manager and support staff, procurement of supplies, registration procedures, and food distribution processes. Also provided is a flow chart of the steps required in opening shelters and a listing of 1993 Greater Miami Chapter American Red Cross approved facilities for the Hialeah community. The shelter list provides each facility's name, address and capacity.

The color coded tabbing system is recommended for use by all agencies as it provides easy reference points when using the plan. In addition, the damage assessment plan is recommended as a template for other organizations because of its detail, its use of process flow charts, and its presentation of reporting forms.

### 2.1.3 City of Homestead

Along with Metro-Dade Transit Agency, the City of Homestead's Emergency Preparedness Plan is the easiest to understand. All criteria points established for the review are included in the plan and presented in an orderly and consistent manner. The plan begins with a "How to Use" sheet that is immediately followed by an in-depth table of contents. The table of contents is a quick resource to locate key assignments, procedures, and attachments.

The City of Homestead's plan is unique because its plan is based on actual implementation. In addition to the criteria established for the review, Homestead's plan incorporates post-hurricane procedures that are intended to provide necessities and attempt to maintain the quality of life for its residents. Specifically, the appendix includes a food distribution plan and map, which indicates the 14 distribution sites located in Homestead and Florida City. Additional appendices outline the procedures for securing individual assistance following a storm from state and federal funds, sample damage assessment worksheets for business/industry and homeowners, and sample Federal Emergency Management Agency Notice of Interest in Applying for Federal Disaster Assistance forms.

The City of Homestead's "Response Operations" section, which includes evacuation procedures, pre-hurricane, in-storm and post-hurricane duties, is considered the best example from the plans reviewed. This section is clear and concise. It provides a systematic approach of each department's responsibilities without a lot of extraneous information for post-hurricane response functions. It contains the evacuation zone map and addresses secondary issues such as traffic

control, critical roadway segments, bridges, and transportation issues. Included as an attachment is a detailed hurricane plan for each department.

A recommended model for the protection of computer information systems is the City of Homestead's Computer Information Systems (CIS) Disaster Plan Addition. The Plan is designed in three phases, pre-hurricane preparations, in-storm actions and post-hurricane responses. The department's initial task is to back up all primary programs and data to magnetic tape. This material will be stored off site. In the event of destruction to the City's system, mainframe vendors are to be contacted to make necessary arrangements for the delivery and installation of a compatible computer systems. CIS employees will assist other departments in data back-up to secure relevant information, i.e., customer lists, street maps, vehicle data. Because the CIS coordinates the Police Department's Computer Assisted Dispatch System, provisions for continued operation during an emergency are provided within the plan.

The city's emergency contact list is also included as an attachment; however, the list lacks any reference as to whom is responsible for which city department. Additionally, the City includes a master contact list of all municipalities and disaster relief services.

#### 2.1.4 City of Miami

The City of Miami's Emergency Response Plan provides a concise explanation of the plan's emergency operation functions. These functions parallel the state and federal "Emergency Response Functions" (ERFs). The ERFs are functions associated with the response and recovery from a disaster. They are assigned to a lead organization or department who is to coordinate that function. The plan opens by defining the purpose of the plan and presenting a description of the plan's structure. This is followed by a listing of the city's emergency response functions, and concludes with a description of notification levels and notification procedures during an emergency. However, the City's plan does not have a Table of Contents.



The "Emergency Response Functions" chart is a noteworthy element of Miami's plan. It identifies all of the emergency response functions and appropriate City department(s) responsible for providing each particular emergency response. It is both a welcome and essential component of the plan, because of the plan's lack of a table of contents.

Because the City of Miami's plan lacks a table of contents, it is very difficult to find a description of the response function and responsible and to gauge how inclusive the plan is on the review criteria elements. Once the area is located, the plan provides the lead department, support departments, purpose and scope of service. This format makes it easy for any responding agency to review what is expected of the agency. There is, however, a lack of detail and explanation as to how the responding department is to implement and support the other response functions.

For example, the Communications Department is responsible for securing and sheltering communications equipment upon notification of a potential disaster and then providing a systematic assessment of damages to the City's communications network. Although stated, there are no procedures outlined as to how this will be accomplished. The police and fire rescue departments are listed as the supporting department. However, within the Communications' scope, there are no references as to how these other departments are to provide back-up with the Communications' function and visa versa. In order to make this more effective, cross references between lead and supporting departments should be incorporated in future revisions.

The City's Emergency Response Plan includes a security plan which helps identify the emergency personnel by having them wear differently colored IDs. This system will help maintain the order and will help in securing the Emergency Operation Center.

The plan does not include or reference an emergency contact list but instead has contact numbers buried within the text of particular sections. This makes it difficult to quickly find emergency contact information.

### 2.1.5 City of Miami Beach Police Department (MBPD)

Based on information received at the time of the study, a full document to review was not available from the City of Miami Beach. However, the Miami Beach Police Department has an *Emergency Hurricane Operations Plan* that addresses several content criteria established for the review. A thorough comparison could not be performed because it only outlines the responsibilities of the police department and not the entire city.

The plan begins with a well defined purpose and mission. Both sections immediately inform the user of what to expect when reviewing the plan as well as guidelines in its implementation. Based on the plans reviewed, this format is recommended for all plans.

The Plan presents the information in an organized format with a detailed Table of Contents. This format will assist the MBPD employee in readily identifying his/her duties and responsibilities during any phase of the response function. In addition, the appendices provide the MBPD employee with precise instructions and information about the following areas: MBPD vehicle storage locations, individual preparedness information, emergency operations center information, a hurricane command kit, the fire station backup facility, an emergency supplies inventory, and auxiliary personnel and equipment.

Overall, the plan, as it relates to the response function of the Police Department, is thorough in its presentation. However, the inclusion of a contact list would be an invaluable addition.

### 2.1.6 City of North Miami

As of June 14, 1994, the City of North Miami was in the process of updating the City's Hurricane Plan for 1994. However, based on the date of the study team's request, the 1993 version was submitted for this review.

The City's plan lacks a cohesive structure because the Table of Contents, and the plan elements themselves, are not laid out in a standard format, making it difficult for the reader to find a specific section.

The plan provides considerable detail. Topics range from administrative/departmental plans and regulations to citizen hurricane preparedness tips and even includes actions such as newspaper vendor machine removal. The addition of a master contact list as opposed to (or in addition to) a list at the end of each departmental plan would assist the coordination of communications between city departments.

Although the plan does not seem to follow any particular order, the individual agency responsibilities are clear and concise, as is evidenced by the Parks and Recreation Department's responsibilities. The Parks section outlines specific actions to be taken when coordinating the department's daily operations of the department, the pre-storm preparedness, and post-storm response. This organizational approach eliminates the drudgery of sorting through an entire document.

The City of North Miami devotes an entire section to damage assessment reporting, in accordance to its Administrative Regulation 1-4, revised June 1990, and disaster expense reporting, in accordance with Administrative Regulation 1-22, revised August 1990. The objective, responsibilities and procedures prior, during and after a disaster are provided, as are the area assignments for Public Works, Parks and Recreation, and Building and Zoning. Included as Attachment A is the Damage Assessment Team, which lists the contact person for each department. This list would be much more effective if telephone numbers were included. Also included in Attachment A are completed samples of the Federal Emergency Management Agency Preliminary Damage Assessment - Public Property form, and the Metro-Dade Preliminary Housing Damage Assessment Report and Preliminary Business and Industry Damage Assessment Report. A Damage Assessment Zone map is also included.

## 2.2 DADE COUNTY AGENCIES AND DEPARTMENTS

### 2.2.1 Dade County Aviation Department (MIA)

The emergency contact list and specific agency responsibilities sections of the 1993 Metro-Dade Aviation Department's *Hurricane Procedures* plan are two of the best examples from those reviewed.

The contact list is very detailed. The list is divided into 21 sections and includes county and state departments, hospitals, assistance agencies and service vendors as well as the company name and contact and the telephone numbers for business and non-business hours. The types of agencies and companies included in the list are:

Emergency Notification Agencies	Aviation Department Divisions
County Manager's Office	Aviation Department Emergency Personnel
Fire Department-Airport District	Removal of Disabled Aircraft Companies
Police Department-Airport Division	Aircraft Service Companies
Other Dade County Departments	Vehicle Fueling Services
Federal Government Agencies	Transportation Services
Military Installations	Utilities Services
Florida State Departments	Communications
Medical Offices	Escalator and Elevator Service
Hospitals	Common Assistance Agencies
Non/Minor Injured Assembly Areas	

The agency responsibilities are sequential and easy to follow. The format for each section is consistent and provides direction for pre-hurricane, hurricane advisory, hurricane watch, hurricane warning, hurricane, and post-hurricane response functions and assignments. Additionally, the

"Tasks Arranged in Time Order" section follows the same format and consistency as found in the agency responsibilities section.

This format allows the user to readily identify the tasks required to be performed, and who is responsible for performing the assignment. However, provisions for protecting computers and other technical equipment is one very important area not addressed. An example is the Metro-Dade Police Department, Airport District. Upon notice of a hurricane watch, this department is required to contact DCAD Maintenance Division and instruct them to secure exterior glass, remove files to elevated areas and perform emergency generator tests. This format is also effective for all airport tenants because it clearly defines their responsibilities during all stages of preparedness. In the paragraph dealing with damage assessment an attached example is referred to but is not included.

Another element besides the use of a Table of Contents, which makes the plan easy to read and apply, is the use of bold titles and headlines. Employing this graphic style enables the reader to go more directly to specific information without leafing through an entire section of the manual. This approach to formatting emergency preparedness manuals is highly recommended for all such documents.

### 2.2.2 Dade County Seaport Department (Port of Miami)

The Port of Miami Hurricane Plan 1993-1994 specific agency responsibilities section is similar in scope and layout to that developed by the Metro Dade Aviation Department.

The plan provides a consistent format for relaying hurricane response procedures for the Port's major operations: Cargo and Cruise Operations Division, Engineering, Construction Management, Housekeeping and Facilities Maintenance Divisions. This includes a general overview of responsibilities, organizational chart, crew assignments, duties, list of materials in the event of a hurricane, preparation and work schedules and an emergency contact list.

Unique from the other plans reviewed is the Port's Work Schedules for Crews. This schedule provides specific instruction for preparedness at the start of the hurricane season, prior to hurricane season (April and May), and instructions for actions to follow in preparing for a specifically forecast hurricane, during a hurricane, and for post-hurricane readiness. The level of detail describing each department's schedule varies depending on the size and operational function of each Department. For example, the Facilities Management Division has a detailed work schedule for each of the Port's nine divisions at the start of the hurricane season. This includes the removal of covers off passenger walkways, securing all parking lot signs, conducting surveillance of exterior of all maintenance buildings, and the procurement and installation of shutters for all glass store fronts in Buildings 1001, 1005, Maintenance and Security Complex and 1007 Conference Room. In contrast, the Public Relations and Administration Divisions detailed hurricane procedures require all electrical equipment to be unplugged from wall outlets, word processing equipment and file cabinets to be covered with visquine and furniture and plants to be moved away from windows.

It is the responsibility of each Division to prepare an essential equipment list. Any item on this list is to be stored in a location away from windows and wrapped in protective covering. Items on these lists include copiers, printers, computer terminals, typewriters, telephones, radios, calculators and other audio visual equipment.

The use of bold titles and headlines enables the reader to find specific division responsibilities outlined in the table of contents. Although the emergency contact list is added to the end of each division's specific responsibilities, a master list should be provided at the end of the document. This measure would act as a quick reference guide to key personnel, no matter what division they may be in.

The inclusion of the Miami Tugs and Barges and Seaport Tenants Contact Lists is a good example for other tenant-based Dade County Departments. These lists provide the name of the company, essential employee(s), telephone numbers and port location. Considering the size of

the port and number of tenants, a map detailing the location and identity of each tenant could be included to expedite contacting firms by Port officials in hurricane emergencies.

### 2.2.3 Metro-Dade Fire Rescue

A September 7, 1993 draft of the Metro-Dade Fire Rescue's Hurricane Policy and Procedures plan was submitted for review. Although the plan outlines the necessary response actions to be performed, it does not delve into the agency's specific responsibilities. It also makes reference to addenda without cross-referencing the citations with a number or letter. This omission makes it difficult to locate the referenced item. This same observation applies to the policy and procedure section that makes references to certain appendixes that are not included in the plan; the "Pre-Season Facility Checklist" section is one example.

For service agencies, in particular, a "services provided" section is recommended such as the outline included in the agency's November 23, 1993 submission to the Metropolitan Planning Organization Transportation System Emergency Preparedness Study Committee, an attachment to the September plan. The fact sheet presents a brief overview of the external and internal support services provided by the agency. Although it was intended to provide a quick overview of the Department's services, additional information about each particular service area should be incorporated in future updates.

The plan lacks continuity in some areas, which hampers easy access to specific information. A table of contents would greatly help the reader to more easily locate the required information or instructions, and is definitely recommended.

The key contact list includes only high-ranking officials. This list should be expanded to include contacts from the agency's various bureaus, key technical personnel and specialists, as well as fire-rescue station locations and telephone and fax numbers.

#### 2.2.4 Metro-Dade Police Department (MDPD)

Eight hurricane plans were submitted for the MDPD, which includes the Hurricane and/or Severe Storm Plan for the headquarters complex, individual hurricane plans for the specific substations, department entities and police operation, and the MDPD's Standard Operating Procedure 4-07: Mobilization and Emergency Operations Plan draft dated October 17, 1993.

A review of the Standard Operating Procedure 4-07 was not performed because of its inclusion of response procedures for all disturbances, riots, and unlawful assemblies, as well as emergency operations plan. The study team chose to review the Hurricane and/or Severe Storm Plan for the headquarters complex, issued July 21, 1992 and revised June 1, 1993, which "defines the responsibilities and operation of the Facilities Management Division as they pertain to hurricane preparation, storm alert, store operation, reporting procedure and clean up" for all Dade County-owned and leased buildings.

The MDPD Hurricane Preparedness Plan's use of color tabs and labeled subsections is a good example of a "quick find" tool that could be incorporated into other plans. Unfortunately, the tabs do not enable the user to find specific information. Although provided, the Table of Contents only tells the user which tabbed section contains the hurricane plans for all the Headquarter Complex and all Metro-Dade police station locations. The omission of detailed references makes it difficult for the user to find certain information.

The specific content elements are obscure in the plan, thus making it difficult to locate and comprehend the procedural elements and their implementation. To facilitate quicker, more efficient location of such information, the addition of a Table of Contents would assist the user in identifying and then locating specific areas of information and directions. Expansion of the following sections is recommended: pre-hurricane procedures, in-storm actions, and post-hurricane procedures; communication; Emergency Operation Center (EOC) management responsibilities; and the emergency contact list. Although attached as Appendices H through K



is a May 28, 1993 memorandum from the Office of Emergency Management listing the contacts and telephone numbers of all County departments and facilities, the contact list(s) should be listed in the recommended Table of Contents, and perhaps made a part of the main document.

Atypical of the plans reviewed, the MDPD's plan contained a standardized memorandum to be distributed to all employees regarding hurricane preparedness. This memorandum directs employees to remove all items from window sills, disconnect and move all computers, typewriters, and other portable electronic items from work stations facing windows and place them in interior offices, and transfer data saved on the computer's hard drive to floppy disks or other recoverable sources. Such a memo, issued to employees in a hurricane watch situation, is a useful tool to remind workers that their individual offices may be subject to storm damages and that they should secure their individual work areas. If computer networking is available to work sections or groups, or on a departmental basis, E-Mail distribution of such notices can be efficient in disseminating this information. It is recommended that this approach be developed and followed for all agencies.

The standard operating procedure for assessment of damage for the MDPD is to "survey geographical areas, assess damage and report conditions through the appropriate channels to the Emergency Operations Center."

#### 2.2.5 Metro-Dade Transit Agency (MDTA)

The MDTA 1994 Hurricane Plan, effective June 1994, has several examples that could be used as guidelines for other agencies. These include the Table of Contents, the emergency contact list, the color printout of the evacuation zones, and the format for operational procedures.

The table of contents is divided into five sections: Introduction, Administrative Procedures, Operational Plans, Training, Communications, and Damage Assessment. The use of page numbers provides the user the ability to locate information in an efficient manner. The Table

of Contents is divided into subsections under each heading, providing quick reference to a particular department's response functions and assignments.

MDTA's definition section is unique compared to all reviewed plans. Besides defining the terms required by law, MDTA includes terms used throughout its plan. This is an approach that is highly recommended for all reviewed agency hurricane emergency preparedness plans.

The plan's emergency contact list is very well done. The plan provides a contact list of essential personnel for each department identified in the Operational Plan.

The color printout of the evacuation zones is well designed. It strengthens the attached narrative instructions and provides the Transit Agency with a visual presentation of their department's designated response area.

As a county department, MDTA is responsible for providing an accurate record of damages and expenses incurred during the preparedness, recovery and restoration efforts. This information is submitted to the County's "Damage Survey Team," which is managed by the Department of Public Works, in accordance with the Metropolitan Dade County Comprehensive Recovery Plan.

Worth mentioning is MDTA's Site Specific Preparations procedures. This section provides the user with instructions for securing windows, dumpsters, doors, parking lots, fuel islands, flags and bus washing areas for all bus stations, maintenance garages, facilities stockroom and administration buildings. For example, MDTA requires all doors to be secured and all windowed areas to be shuttered, taped or boarded.

Overall, the specific detail and continuity are excellent, making it easy to find specific information contained in the plan. It is recommended that the Operational Plan format used by MDTA be the template for all service departments. For example, for the Metrorail/Metromover Department, the team leader is immediately identified, as is the location of each facility, a site

manager and co-captain for the facility, the nature and area of their responsibility, a listing of the essential employees on call (complete with name, title, site, and communication numbers), materials and equipment needed, and the procedures to be followed, before, during and after a hurricane. A pool car inventory is provided which lists the vehicle number, and to whom it will be assigned, along with its make and model, for each service area of MDTA.

Additionally, the specifics for bus evacuation pick-up points and assigned shelters, bus runs to be cut in order of priority, and transportation of Persons with Special Needs are all covered. One possible oversight is there is no mention as to the procedures for recalling the fleet during any stages of an emergency. MDTA is a liaison to the Metro-Dade EOC and will direct evacuation efforts for all residents affected by the Hurricane. The Public Affairs Task Force is responsible for informing the general public through the news media of transit service changes affecting taxi, Metrobus, Metrorail and Metromover. Changes include route deviation, schedule changes, hours of operation, evacuation pick-up points, and other information.

Unique to this plan is a form the agency developed for employee use in applying for grants to assist with personal recovery efforts. This type of planning for an employees' personal welfare should help the speediest possible return of the Agency's full work force to active duty.

#### 2.2.6 Metro-Dade Public Works Department/Traffic Signals and Signs Division

The Public Works Department's Standard Operating Procedures for Hurricane Preparedness and Operations plan for the Traffic Signals and Sign Division, originally prepared in April 1993 and revised in July 1993, is clear, concise and outlines specific steps that should be taken in the event of an emergency. However, it does not have a Table of Contents.

Certain review criteria do not apply, such as shelters and evacuation areas, because the Traffic Signals and Sign Division's plan is one element of the comprehensive plan for the entire Public Works Department. The comprehensive plan is a good example of a large department plan, and

a good example of tying together many division plans, and the division plan reviewed is a good example of Standard Operating Procedures for any large department's division's to follow, especially, the pre-, during and post-hurricane duties section. Similar to the plans submitted by the City of Homestead and the City of Hialeah, the tasks to be performed for each phase are immediately defined, followed by a detailed description of staff assignments.

Although the plan is clear in defining specific tasks that must be accomplished, the detail of how to accomplish those tasks is lacking in some areas. For example, the pre-season hurricane activities section requires that specific supplies be contracted for yet there is no guidance concerning the quantity of each item to order, the place of delivery or receipt of such items, and/or of their subsequent distribution, or the time frame in which to order them.

As with many of the plans reviewed, it lacked a Table of Contents, which would have provided quick access to the plan's detailed appendices: Staff Assignments, which is broken down by position, Essential Personnel Assignments, Radio Unit Numbers, Inter-Agency Quick Reference List and a Division Essential Equipment List.

## 2.3 STATE AGENCIES AND DEPARTMENTS

### 2.3.1 Florida Department of Transportation (FDOT)

The FDOT Construction Hurricane Plan District 6, dated June 24, 1993 and revised February 7, 1994, is a separate document from the District 6 Natural Disaster Preparedness Plan. The Construction Hurricane Plan summarizes construction operation and responsibilities regarding their response to and recovery from a hurricane. The Natural Disaster Operating Plan is a comprehensive document that details action to be taken in the event of a natural disaster to those employees of the District that are charged with administering a response to such a disaster. The DOT considers hurricanes as natural disasters, and the two plans could be advantageously combined into one plan for continuity and clarity of response procedures. Because it appears that

the Department responds differently according to the type of disaster facing it, there could and should be developed separate appendices designated specifically for each general type of disaster, including separate, fully developed hurricane preparedness and response appendix.

Similar to the City of Miami Beach (Police Department), the purpose of the plan is clearly stated and informs the user of his/her responsibilities as they relate to FDOT construction operations.

The FDOT's Disaster Assessment section of the Natural Disaster Operating Plan contains practical and easily applied instructions. The assignments are divided into three sections, Aerial Surveys, Ground Surveys and Established Work Priorities. This section provides the time frames in which the assessments are to be performed, the team members assigned to the task, and the categories used to establish the work priorities.

Overall, the plan was thorough in its description of agency responsibilities, but lacked specifics needed to carry out those responsibilities. One measure that would enable the reader to locate certain topics of the plan easier would be to add page numbers to the Table of Contents. Also, the emergency contact list should include the home phone numbers of personnel, in the event that a person can not be contacted at the department numbers listed. The inclusion of the construction monitoring assignments in Dade and Monroe Counties provides relevant information for the user and is an example of the more specific information recommended for use throughout the plan.

### 2.3.2 Florida Highway Patrol (FHP)

The *FHP's Troop E Hurricane Preparedness Plan*, revised May 21, 1993, begins with an overview indicating the plan is actually a guide to operational procedures that should be executed in the event of an emergency. FHP's rationale for taking this direction is to provide flexibility. Because of this direction, several content review elements were not present. These include elements such as pre-hurricane duties, post-hurricane duties, damage assessment and emergency contact list.

Although the FHP has apparently made a conscious decision their plan and document format plan works best for their agency, there are some specific additions which would increase its utility and ease of use in hurricane emergencies and which are recommended for inclusion during the next update of the plan. The FHP plan lacks a table of contents, as well as numbered pages, which would provide quick access to specific information on FHP preparedness, evacuation, and post-event response/recovery procedures.

A key contacts list should be prepared and included, not only for contacts with FHP Troop E itself, but for other contacts within the FHP in statewide, including the central office as well as other key local, non-FHP contacts, such as the Office of Emergency Management and the Dade County Public Safety Department.

The inclusion of an emergency preparedness checklist would reinforce the agency's efforts to prepare and plan for hurricane emergency events. One checklist might also be prepared for the use of the individual trooper and his/her vehicle as well as one more generally oriented towards Troop E operations.

Additional components benefitting both the user and the agency would be activity logs, and the inclusion of a copy of the media advisory explained within the text of the plan. These could possibly be more easily added as appendices to the main document. Similar components are recommended for inclusion in any agency's emergency plans.

Because their plan was deliberately written to be flexible, specific details of how to accomplish agency responsibilities are not outlined; however, the Plan does thoroughly address transportation system issues, such as traffic movements, tolls, disabled vehicles, and the basic concepts of how to deal with such issues. Recovery issues regarding search and rescue, escorts, traffic control, escorts and access security are briefly discussed.

### 3.0 SUMMARY OF FINDINGS

#### General

Overall the city, county and state agency plans reviewed were broad in their coverage of hurricane plans. It was unclear as to whether some agencies may have separate, as opposed to generalized, recovery preparedness plans as opposed to those directed at pre-storm preparedness, because all of the plans reviewed at least touched on major functions necessary for post-storm operations. As is noted in the recommendation section, the areas with the most room for enhancement are those that lack the specifics of how a task should be accomplished.

#### Critical Content Elements

Again, in most cases all of the specific content elements were addressed, although they may have lacked specificity. The specific content elements are addressed in Section 1 of this report. In the process of updating plan information agencies should keep in mind that the critical plan elements need to answer the questions of:

- What is to be done?
- When does it need to be done (how is the particular task implemented and when does it need to be completed)?
- Where does it need to be done?
- What are the necessary steps for getting it done?
- What tools are needed to do it?
- Who will do each task?

### Plan Formats

Based on the specific content elements established for plan reviews, a good deal of the issues discussed in the review section had to do with plan formats.

Even if critical elements just discussed are indeed present, enhanced ability to locate them easily and quickly may be very nearly equally as important. If they are unable to be found by personnel who may have been temporarily assigned to emergency duties in a hurricane emergency, they are almost as good as absent.

Missing or incomplete Tables of Contents caused reviewers difficulty in identifying if and where certain material was covered. This is significant when considering the plan's use during emergency situations, possibly by a person who is unfamiliar with plan content or structure.

There may be people assigned to emergency work that they may not be familiar with because it's not their job during the normal course of a work day. A contact list is another element which should be present in any agency's hurricane preparedness manual. If already present, such a list should be reviewed for ease of accessibility within the document, easy location of contacts within the list by presenting the contacts in both alphabetical order and by functional or organizational organization, and for comprehensiveness.

Other items noted for their usefulness were tabs to divide the document, mentioned frequently, as excellent approaches to locating data and information, and might considered first, followed by graphic presentation devices such as bold, capitalized, and/or underlined section headings and subheadings. These will assist and enhance the reader's ability to quickly and efficiently locate the information. Once the information is located, then perhaps charts, forms and maps should be used. The utility of the organizational aspects of the manuals (tabbing, heading, etc.) would be improved if both the Table of Contents and the section headings and subheadings conform to each other. All too often, the table of contents is too sketchy, or is somewhat poorly organized,



and even if the reader is given the correct page to reference, it may be for too broad a topic, so the added time and effort are required to actually find the information specifically sought in the first place.

#### Additional Information Not Included In Review Content Elements

Several of the plans contained information that is recommended for use in all plans. A reference list of the Legal Authorities on which the plan is based is useful because it explains the statutory authority of government officials and agencies during hurricane emergencies. Damage Assessment forms and instructions for completing them, along with accompanying procedures for requesting assistance for and tracking expenditures and for potentially obtaining reimbursements, are invaluable additions to agency emergency preparedness manuals. The process for seeking assistance during and after the emergency is important for obvious reasons, but doing it through the proper channels and tracking expenditures is critical if applying for any available disaster reimbursement from State and Federal agencies; the process will tend to be expedited if forms are completely correctly send through the proper channels to the appropriate offices and officials, and done so in a timely manner.

#### Recommendations

Although each municipality, agency and department may have unique responsibilities that require special response and recovery actions, the specific content elements (see Section 1) of any hurricane emergency preparedness plan are still applicable. Therefore, the emergency preparedness plan becomes the means for providing the concepts, responsibilities and basic tools necessary to implement actions before, during and after a hurricane. Consequently the assessments and recommendations and planning suggestions contained in this report should enable agencies to improve their plans, while at the same time establishing a more standardized format for all emergency plans. It is the intention that such a format makes accessing

information faster and less complicated, especially for users potentially unfamiliar with emergency preparedness procedures, who is searching through an unfamiliar plan.

To assist in the familiarization process for Dade County Municipalities and Departments, and State agency plans, the assessments in Figures 3-1 and 3-2 are intended to:

- Provide a means to evaluate areas within each agency plan that could be enhanced; and
- List sections within the agency plans that best exemplify the review criteria in the hope of aiding communication, planning and coordination within and among agencies.

Recommendations include:

- Communication and coordination with the Dade County Office of Emergency Management (OEM) is critical, especially since the County plan has been revised.

The County is tasked with the overall coordination of evacuation and recovery activities for all of Dade County; consequently the methods they intend to use to accomplish such coordination will have a major impact on all agencies operating within the county.

Coordination with the County OEM provides agencies with direction as to specific county or regional responsibilities being assigned, and in addition to agency self-preservation actions, provides an understanding of the County's Concept of Operations for Response and Recovery, specific knowledge of how the County intends to implement emergency plans, communication systems throughout the County, and specific channels for requests and coordination.

- Although the issue of lifting tolls on the turnpike was addressed in agency plans, procedures for communicating this information to the general public were unclear. A

Figure 3-1

Examples of Preparedness Plans Best Practic Elements

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
City of Coral Gables															
City of Hialeah			✓	✓	✓	✓		✓				✓		✓	
City of Homestead							✓		✓	✓	✓				
City of Miami			✓												
City of Miami Beach	✓														
City of North Miami															
Florida Department of Transportation	✓														
Florida Highway Patrol															
Metro-Dade Transit Agency		✓					✓						✓		✓
Metro-Dade Fire Rescue															
Metro-Dade Police Department															
Dade County Public Works Department									✓	✓	✓				
Dade County Aviation Department													✓		✓
Dade County Seaport Dept. (Port of Miami)													✓		

**Legend: Review Criteria**

- A=Purpose of Plan
- B=Definitions
- C=Emergency Operation Levels
- D=Emergency Operations Centers (EOC)
- E=EOC Mngmt. Responsibilities
- F=Emergency Operation Plan
- G=Evacuation Areas
- H=Shelters
- I=Pre-Hurricane Duties
- J=During Hurricane Duties
- K=Post Hurricane Operations
- L= Communications
- M=Specific Agency Responsibilities
- N=Damage Assessment
- O=Emergency Contact List

Figure 3-2

Inclusion of Established Criteria

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
City of Coral Gables	✓	✓				✓		✓	✓	✓	✓	✓	✓	✓	✓
City of Hialeah	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
City of Homestead	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
City of Miami	✓	✓	✓	✓		✓							✓		
City of Miami Beach	✓			✓		✓		✓	✓	✓			✓		
City of North Miami	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Florida Department of Transportation	✓	✓		✓	✓	✓			✓	✓	✓		✓	✓	✓
Florida Highway Patrol	✓	✓		✓		✓				✓		✓			
Metro-Dade Transit Agency	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Metro-Dade Fire Rescue		✓		✓		✓	✓					✓	✓	✓	✓
Metro-Dade Police Department	✓	✓	✓	✓	✓		✓					✓	✓	✓	
Dade County Public Works Department	✓					✓			✓	✓	✓		✓	✓	✓
Dade County Aviation Department		✓	✓			✓			✓	✓	✓	✓	✓		✓
Dade County Seaport Dept. (Port of Miami)					✓	✓			✓			✓	✓		✓

**Legend: Review Criteria**

- A=Purpose of Plan
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- K=Post Hurricane Operations
- L= Communications
- M=Specific Agency Responsibilities
- N=Damage Assessment
- O=Emergency Contact List

coordinated method for up-to-the-minute public notification is essential since, in many instances, this type of information may reinforce the seriousness of the evacuation, as well as encourage residents who may have been waiting for better traffic conditions to start their own evacuation.

- For the same reasons mentioned above, any changes in the use of High Occupancy Vehicle lanes (HOV) should be conveyed to the general public.
- Any agencies with "real time" monitoring capabilities of evacuation routes should clearly state in their plan how they will disseminate, and who they will contact with, important information regarding the routes and their evacuation activities/situations.
- Agencies with "real time" public messaging capabilities on evacuation routes should be identified and a system for requesting message displays should be developed with those agencies.
- Communications capabilities and coordination between the Florida Department of Transportation, Dade County Public Works, and Law Enforcement Agencies were not clearly defined in agency plans.
- Integrate the Coast Guard's emergency preparedness plan into communications and coordination activities of the appropriate agencies.
- The role of drawbridges should be addressed in the emergency plan of the agencies which controls their operation. Plans should include criteria for "lock down", and guidelines to inform boat owners and other affected populations as to what they can expect and when.

- Arrange regular meetings with representatives from each transportation agency to discuss existing plans and exchange information on how to enhance those plans. Such a meeting would also make it possible to identify any resources that may be available for mutual aid use.

Develop a chart or table (as done in several of the individual agency plans) that lists municipalities/agencies and their designated responsibilities, along with phone numbers. For easy reference a second chart listing responsibilities first and designated municipalities/agencies second should also be developed. These two charts would be invaluable additions to all city and agency plans.

- Of concern in some of the plans reviewed was the lack of specifics in certain sections. Many of the plans reference other departments/agencies having secondary support roles for that particular plan, but often there is a lack of detail or explanation as to how the department/agency is to implement and support these other functions.
- Priorities for clean-up during the recovery phase should be reviewed for the Florida Turnpike where it enters Dade County and intersects with Interstate 95, as well as South Dixie Highway between downtown and the Homestead Extension of the Florida Turnpike (H.E.F.T.). These sections of major arteries may need a higher clean-up priority than is currently planned for by FDOT. Refer to Appendix A, for a map representing various roadway response/recovery priorities.
- Several plans discuss issues that may be key concerns before, during and after a hurricane. Municipalities and agencies should take a closer look at these issues of concern, and lessons learned from Hurricane Andrew, to try and pre-determine the extent possible of damage/destruction caused by various types of storms in order to develop some approximations as to the type of volume of resources may be needed to respond. Resources could be stocked before a storm strikes, or at the very least, vendors could be

contacted with minimum orders that could be modified after the storm passes. These rough estimate response plans, based on several different storm scenarios, would provide an accelerated response once the extent of actual damage is determined. Issues for consideration are back-up communications and power generation systems, traffic control devices (lights, signs), necessary items to sustain rescue/clean-up personnel, and repair/replacement of damaged transportation vehicles and equipment.

Information regarding the need for certain resources to be stockpiled before a storm was found in several plans; however, no specifics were provided or estimated regarding quantities of each resource which should be available pre-storm.

- Emergency Preparedness Kits for rapid deployment of transportation agency personnel were addressed in several agency plans. This plan element is suggested for any agency which will be required or directed to put, or anticipate putting, personnel in the field immediately preceding or following a hurricane. Kit contents should not be limited to items necessary for the field work, but should also contain items for personnel comfort/needs such as drinking water, bug repellent, sunscreen, non-perishable food items, extra batteries, flashlights, etc. In situations where personnel may be sent out on extended duty it is important to determine if they need to be self-sufficient, if this type of work assignment is anticipated; if so they may need tents, cots, portable restroom facilities, limited cooking ability, etc.
- Personnel issues are one area for which all agencies should concentrate on developing detailed plans. Many of the plans reviewed only briefly touched on personnel issues such as training and cross-training, utilization of staff, emergency schedules, disaster assistance to employees, etc.

Any agency intending to use volunteers should not overlook the importance of training them to the greatest extent possible. If volunteers cannot be trained before a storm it is

suggested that a very concise and easy to use training packet, video, booklet, etc. be developed for their use. All situations will most probably not be covered, and that there should be more than a modicum of flexibility incorporated not only in any of the training tools, but also in the way in which we approach that training for volunteers as well as for staff members. Changing or changed conditions, and the ability to adapt to them, are probably the best characteristics of an emergency preparedness training approach.

- Law Enforcement agencies need to be sure plans contain information regarding local notifications via radio/TV media. Officers will need maps and/or other information pertaining to who needs to evacuate, routes to take and current road conditions, what to do if vehicles break down, location of assembly points for those without vehicles, and locations of mass care shelters.
- Evacuation Route signage is not part of any of the reviewed plans, nor is there any notation regarding why such signage is not used.
- Although agencies tasked with adjusting traffic signals mentioned this responsibility in their plans, the specifics of which signals are to be adjusted and how they are to be adjusted were not included in the plan.
- No specific details could be found regarding the replacement of street signs after a storm passes, although street lights and stop signs were covered. Because street identification was a particular problem after Hurricane Andrew this issue needs to be addressed. If stockpiling blank metal street signs in large enough quantities is not possible, agencies may want to consider the use of waterproofed paper reflectorized signs as a means of labeling at least major streets, and for replacing stop signs.



- Tire repair is briefly covered in several of the plans but not in specific detail. All transportation agencies should develop detailed plans for acquiring tires before a hurricane strikes, as well as after the storm passes, to prevent stranding vehicles because of flat tires, and exacerbating post-storm problems. Methods of tire repair should be identified, possibly by mobile units with radio communications and/or at designated locations, taking into consideration accessibility, electrical requirements for repair equipment, etc.
- Local governments are tasked with traffic control for their jurisdictions while state and county agencies are tasked with traffic control issues across the county. Specific details regarding emergency coordination between these primary agencies were not clear in the plans reviewed.
- Cities within Dade County are tasked with operating emergency shelters if there is no American Red Cross chapter or private organization nearby to perform this function, or if these units are unable to do so. It is recommended that cities address this possible tasking in greater detail, as did the City of Hialeah.
- Agencies that are tasked with search and rescue, and damage assessment, included these responsibilities in their plans, although there seemed to be an oversight in how they would accomplish the tasks if roads are blocked by debris. If details outlining search and rescue in coordination with debris clearance do not already exist, it is suggested that they be added to the respective responsible agency's plans.
- Transportation agencies who are tasked with evacuation of the general public should be sure to thoroughly address the shut down procedures for their services before the storm arrives. Included in those plans should be a means of notifying the public as to when evacuation services will no longer be available.

- Any agency relying on mutual aid agreements for pre- and post-storm activities should consider including a copy of those mutual aid agreements in their plans; including them as an appendix would be appropriate.
- Update plans on a regular basis, especially as personnel changes occur. It is further recommended that a Plan Distribution page listing all agencies the plan is distributed to, and a Plan Revision page listing updated sections and their revision dates, be included in each plan.
- Make each plan as visual and as straightforward as possible by incorporating bold titles, headlines, color tabs, bullets, charts, tables, etc. Checklists for all phases of operations are strongly encouraged. Such checklists could be included in each portion of the plan requiring specific tasks be accomplished.
- Some plans contained information not essential to activities of the particular entity. All entities should review their plans for non-essential information and consider segregating those sections within their plan, or developing a separate reference book. The more concise a plan the more likely it is to be used effectively. Consequently, it's important that miscellaneous information not interfere with the critical elements of the actual plan.
- The Dade County Office of Emergency Management should consider developing a "template" plan, using the best examples of all reviewed plans, to distribute to all agencies. This measure would assist each agency in developing a comprehensive plan within a more standardized format.
- Provide guidelines and information relating to the services available, and procedures for obtaining Federal assistance, under the Federal Agencies Statutory Authorities and under Public Law. Every plan should include the latest version of the Federal Disaster Assistance Program. Agency management and personnel tasked with post-hurricane

recovery should become familiar with this report, which provides the guidelines for maintaining proper records in order to get Federal Emergency Management funds if a Presidential Disaster Declaration is made.

#### 4.0 SYNOPSIS OF METROPOLITAN DADE COUNTY PLAN

The Metro-Dade County Peacetime Emergency Plan (revised July 1994) is a multi-emergency encompassing plan, in which hurricanes are but one of many types of emergency situations addressed.

The first chapter of the plan contains information regarding authorities, preparedness activities such as public education and training/exercising, disaster operation phases, mutual aid agreements, and disaster specific appendices. The explanation of the disaster operation phases is important in understanding the stages of plan implementation, and is an easy method to employ when developing agency plans. The County Plan begins with the general Concept of Operations for the entire plan.

Chapter Two defines the overall Emergency Management System including Concept of Operations, Organizational Structure (command, operations, administration/finance, logistics and planning), and the Statewide Emergency Management System. This chapter describes the design, operating requirements, and components of the emergency management system that will be employed by Dade County in responding to all emergencies, but especially hurricanes.

This chapter also contains 20 functional annexes that detail what is to be done for each of the different elements of disaster operations (Direction and Control, Care and Sheltering, Special Needs Population, etc.), and at what phase it should be done (pre-emergency, emergency, post-emergency). Each annex is supported by appendices that provide emergency action checklists for hazard-specific responses. Departments and agencies are assigned responsibilities throughout the annexes, based on the different stages of disaster operations.

The third and final chapter contains operational data, resource listings, key personnel, essential facilities (lodging, feeding, etc.), contacts, and other data needed for conducting emergency operations.

Municipalities, departments, and agencies who are assigned responsibilities within the County plan are tasked to develop their own plan to support emergency operations. These supporting plans should address not only the responsibilities assigned within the County plan, but all other elements necessary to support the city, department, or agency internally (facilities, communication capabilities, resources/equipment, personnel, etc.).

It is suggested that municipalities/departments/agencies consider using the County plan format as it would simplify communications and coordination between all involved entities. The format itself was developed to be flexible so that it can be implemented by function, as the need for the function exists. The County plan contains organizational charts and checklists that may be useful in developing other plans.

Based on assigned responsibilities and internal needs, each entity is directed to identify the specific tasks and develop the detailed steps necessary to accomplish what they have been assigned. Also critical to the overall emergency operation is a detailed description of how and when to implement the various operational phases.

## 5.0 PLANNING CONSIDERATIONS AND RECOMMENDATIONS

This section is intended to assist agencies in addressing critical planning issues for various phases and functions necessary for hurricane response activities. Some of the material was taken directly from the revised Metro-Dade Peacetime Emergency Plan, some is general planning information, and some is specifically geared towards traffic system issues.

### 5.1 PRE-EMERGENCY CONSIDERATIONS

#### Implementation Stages

The County plan considers disaster operations to have three stages, with several phases in each stage. They are as follows:

- Pre-Emergency Period - Normal Preparedness: Regular planning and preparedness activities  
Increased Readiness: Begins when there is a threat to the County
- Emergency Period - Pre-Impact: Actions to be accomplished during this phase would be precautionary, centered around protecting population and assets by evacuating, sheltering, etc.
- Immediate Impact: Actions taken will concentrate on the well-being of people affected by the emergency.
- Sustained Emergency: As lifesaving and property-protecting actions continue, attention can be given to other priority activities. Emphasis should be on

actions to help injured and displaced persons, and the securing of dangerous areas.

- Post-Emergency Period - The post-emergency period has major objectives which may be overlapping with the Sustained Emergency Phase. They are:
- Reinstatement of family autonomy
  - Restoration of essential public services
  - Permanent restoration of private and public property
  - Reinstatement of other public services
  - Research to uncover residual hazards, and the improvement of future emergency operations.

#### 5.1.1 Mutual Aid (per Metro-Dade Peacetime Emergency Plan)

Municipalities are assigned responsibilities for mutual aid activities/preparedness in the County plan. State agencies are responsible for providing mutual aid assistance to local jurisdictions commensurate with capabilities and available resources through the State Emergency Operations Center. The city can request assistance from the county, per existing procedures already in place; if the county cannot handle it, they will request assistance from the state. The chain of assistance is referenced in the Federal Government Regulatory "Robert T. Stafford, Disaster Relief and Emergency Assistance Act" which is a public law that FEMA has established to respond to disasters. Also, the Florida Statute No. 252 states that any local agency that requires assistance will address its requests to the county. The county provides liaison between the city, and the state, to the Federal Government.

- During a proclaimed emergency, inter-jurisdictional mutual aid will be coordinated at the appropriate county and/or state level whenever the available resources are:
  - Subject to state or federal control
  - Subject to military control
  - Located outside the requesting jurisdiction
  - Allocated on a priority basis
  
- Due to the incompatibility of radio communication equipment between most agencies, local agencies should, where possible, provide incoming mutual aid forces with portable radios using pre-assigned frequencies. The issue of incompatible radio communications is being worked on, with 800 megacycle frequencies being designed for common emergency management use.
  
- Consideration should be given to where and how incoming mutual aid forces will be housed and fed.
  
- Requests for and coordination of mutual aid support will be accomplished through established channels (municipalities to county to state). Requests should include, as applicable:
  - Number of personnel needed
  - Type and amount of equipment
  - Reporting time and location
  - Authority to whom they are to report
  - Access routes
  - Estimated duration of operations



### 5.1.2 Intergovernmental Coordination

Damage to or destruction of elements of the transportation system will affect all kinds of other efforts. The transportation system can be likened to an arterial lifeline for evacuation before the storm, and for response and recovery efforts afterwards. Cooperation and coordination between the affected agencies, both in preparing for and reacting to actual emergencies, must exist if the emergency situation is to be resolved in an efficient and timely manner. These agreements should include such items as:

- Identification of lines of authority or chain of command during an emergency
- Name and address of key personnel from each agency
- Each agency's response and equipment capabilities
- Authority to request aid from other agencies
- Mutual-aid agreements
- Method and sequence of alerting each agency of an emergency
- Procedures for incorporating and coordinating from additional agencies if the emergency warrants.

### 5.1.3 Personnel and Equipment

Planning for personnel and equipment is essential to successful emergency operations before and after the storm. When considering personnel planning several issues should be addressed:

- All personnel should be advised of what will be expected of them during an emergency, if they will be required to work, and if so - when will they have time to go home to secure their property and families, how soon after the storm passes will they be expected to return to work, how will they communicate with supervisors after the storm if the phones do not work and they are not able to get to work, will radio stations be used to notify employees of what the employer wants them to do, are there pre-designated

locations for them to report to? Also, some personnel may be required to perform other tasks, and training for not only pre-storm, in-storm, and post-storm activities may be recommended as well as training for actual emergency work.

- Will some personnel be expected to work during the storm? If so, where will they be sheltered and what will they need to be self-sufficient for several days (food, water, electricity, sleeping facilities, restroom facilities, fuel for generator, etc.) Will families of employees be sheltered also? After the storm passes what are the plans to relieve those personnel who have been on duty?
- Do all employees have personal emergency plans developed? Does anyone at the agency know what they are or where that employee plans to evacuate if required to do so? It is suggested that agencies do a pre-storm assessment of employees personal vulnerability (do they live in storm surge areas?) which will give the agency some idea of what number of the work force may not be available immediately after a storm.
- Serious consideration needs to be given to scheduling of employees for emergency operations. A number of questions should be able to be answered concerning employees who remain on duty during the initial phases of the hurricane emergency, including: How soon will they be able to be relieved?, How long will it take to get the full staff back in?, How long will post-storm shifts be?, What about employees who have been severely affected personally?

Thought should be given as to how the agency can assist employees after the storm. Can an agency shelter be established for those employees and their families who have lost their homes? It is unrealistic to believe that work will be a priority for employees whose families are homeless.

Some of the essential issues that should be part of an agency plan regarding equipment are:

- A number of questions should be able to be answered concerning the equipment, including: Will the equipment be used during the evacuation phase, and if so, where is it located?, Who will service it to be sure it's ready to go (if it is part of the transit system when will normal services be discontinued so equipment can be readied for evacuation activities)?, How many operators will be needed?, What will operators need to complete assigned evacuation tasks?, At what point will operations be stopped and equipment be safeguarded?, etc.
- An assessment should be made of those resources on hand, and those needed for emergency operations. A series of questions should be able to be answered including: How will additional resources be obtained?, Are they available locally?, Will they need to be ordered?, How long will it take to receive them if they have to be ordered? (therefore, how far in advance do they need to be ordered?), Where will supplies be stored?, What mutual aid resources may be needed?, etc.
- It may be necessary to develop contracts or agreements with companies well outside of the regional area, or even outside the state, for supplies and equipment that are critical to post-storm operations. This may be especially true for tires, generators, heavy equipment, construction supplies, chainsaws, road signs, portable lighting, or other agency equipment that may be damaged. Plans should include notification of companies/vendors that a storm is threatening in order to give the vendor time to obtain items that may not be in stock.
- Some of the questions that should be answered regarding equipment storage includes: Where will large pieces of equipment (trucks, buses, heavy equipment...) be sheltered?, Will they be parked together in one place or deployed throughout the area?, Who will put them there?, Who will be assigned to retrieve them?, What will they be needed for during recovery operations?, How will they be fueled and serviced (most fuel pumps do not run without electricity)?

#### 5.1.4 Facilities

An agency's physical plant and facilities are important to operations for obvious reasons. Hurricane Preparedness Plans should be developed based on the vulnerability of facilities to wind and storm surge.

- If there is a good chance a facility will be damaged by wind/water then plans need to focus on how to remove essential supplies, equipment, and records to a safe location. Another issue is the assignment of staff to return as soon as possible after the storm and assess damages. Agencies need to consider what steps will need to be taken if the facility is damaged, such as insurance notification, temporary repairs to prevent further damage by rain, re-location of operations until the facility can be repaired, etc.
- An important consideration is whether a facility is outside of a storm surge area it should be "hardened" as much as possible in order to protect its structural soundness as well as its contents from potential wind effects. This is especially true if personnel are to remain in the facility to operate from the location during a storm. Equipment and records should still be protected by moving them into elevated, protected areas and bagging them or covering them with plastic (plan to tie the plastic down) if they are too large for a garbage bag. Agencies who currently do not have generators should strongly consider purchasing a generator that is big enough to run the essential facility systems.
- Regardless of the facility location there are measures that can be taken to mitigate extensive damage, such as boarding windows, turning off the water and electric supply if the building will be empty during the storm which requires developing shut-down procedures, sandbagging around generators, removing loose items from outside the building, etc.

- Develop floor plans with exit/evacuation routes clearly marked. These should be posted near stairwells and distributed to all employees in advance.
- Disaster supplies that should be considered for all facilities are battery-powered radio with a weather-band, emergency starter supply of batteries, portable radio, flashlights, first-aid kit, etc.
- Evacuation drills should periodically be held.

#### 5.1.5 Volunteers

In most any natural or man-made disaster, the resources of public entities are often stretched to the limit, and the assistance of volunteers can be vital. However, their use places a special burden upon the public agency.

- A number of questions should be able to be answered concerning volunteers including: How are volunteers to be selected? Does the agency go looking for them, or do they come to the agency? It is suggested that agencies have a plan for selecting volunteers as well as for how to use them. Such a plan appears important both from the standpoint of administration and supervision as well as reducing the liability exposure borne by an agency. A number of an agency's own workers may constitute a viable "volunteer pool". County and/or agency should look first to their employees as the first pool of volunteers to assist in post-storm situations.
- The questions concerning jobs for volunteer should include: Are there job standards for the volunteers to meet? Are these different than those of the normal agency employees? When volunteers are permitted to perform tasks that are normally performed by a regular agency employee, the volunteer should meet the same qualifications that the employee had to meet to perform that job.

- Volunteers are less familiar with operations in nature and may be unable to make quality decisions should unusual circumstances arise. For this reason, it may be necessary to assign a full-time employee to monitor and instruct them while they are out in the field.
- Consideration should be given in how volunteers are supervised and evaluated. Agencies are strongly encouraged to develop a plan for supervising and evaluating volunteers. Decisions regarding who, how, and what needs to be supervised should be made ahead of time.
- Serious considerations need to be given to an agency's liability for injuries to, or caused by, volunteers. It is suggested that volunteers be covered under worker's compensation programs or employee major medical coverage as seen fit by the agency in order to minimize problems caused by volunteer injuries. Inquiries to third parties caused by volunteers are another type of liability problem that an agency must address. The strongest defense suggested is for the agency to have as much knowledge about existing immunity laws as possible. It may be that volunteers are included in such laws. It is also recommended that the agency decide ahead of time on its policy regarding these issues and to state them before the volunteers begin their efforts.
- Volunteers may be used for traffic control in instances where major transportation emergencies are of a magnitude which cannot be sufficiently handled solely by in-house personnel.

#### 5.1.6 Training

- It is suggested that the training of employees to perform in emergency response and recovery operations be conducted periodically to avoid possible litigation in the event of injuries or property damage caused by emergency personnel.

- One method for training new employees is to make it part of their orientation. All employees should receive refresher training at least once a year, preferably just before, or at the start, of hurricane season.
- Proper training will provide a smooth management scene.

Another source of training is conducting emergency exercises. These allow local personnel to become familiar with the procedures, facilities and systems that will be used in emergency situations, during simulations of emergency events. Exercises also allow the use and testing of back-up systems such as communications equipment and systems, generators, etc. A critique should be conducted after any exercise in order to identify what worked, what didn't, and what can be done to improve emergency plans.

- Table Top Exercise - provides a convenient and low cost method of introducing local personnel to scenario-related problem situations for discussion and problem-solving. Such exercises are a good way to see if policies and procedures exist to handle certain issues.
- Functional Exercise - simulates an actual emergency. They typically involve complete Emergency Management staffs and are designed not only to exercise procedures, but also to test the readiness of personnel, communications and facilities. Such exercises can be conducted at the EOC/Command Post level or as full scale exercises.

#### 5.1.7 Communications

Communications within and between agencies is one of the most critical elements of emergency operations. For this reason each agency should focus a good deal of effort on planning for primary and back-up communications within the agency, as well as with other agencies where coordination is essential. Some of the issues agencies should address are:

- Determination of manpower and equipment necessary to perform emergency operations. Be sure to consider the involvement of mutual aid forces during the recovery phase.
- Maintenance of resource listings
- Identification of additional communication nets throughout the area (other governmental agencies and their frequencies)
- Identification of suppliers and support groups. One suggestion regarding suppliers is to check with the local cellular phone companies. Some companies have established "emergency packs" of cellular phones made up of a base unit that carries sometimes up to 12 phones. These companies developed the units expressly for the purpose of providing communications support to emergency agencies. Voluntary agencies such as RACES and ARES are amateur radio groups who offer their services for reliable primary or secondary communication links. Many communication modes are possible through their service, increasing the flexibility and abilities to continue communications regardless of the emergency situation presented.
- Communications equipment such as towers, antennas, and satellite dishes are going to stand a good chance of being damaged or destroyed. Agencies should plan to have replacement equipment in-house, if possible, and reliable contracts/agreements for equipment that can not be purchased and stored ahead of time. Don't forget batteries for any and all communications equipment requiring battery power.
- The Dade County plan specifically tasks Fire/Rescue, Police, the Transit Authority, Public Works and Cities with various communications responsibilities. Some of them are:
  - Search and rescue
  - In-County mutual aid units



- Shelters
  - Damage assessment
  - Out-of-county mutual aid units
  - Evacuation tasks
  - Access control to evacuated areas
  - Curfew
  - Re-entry activities
  - Sustained emergency shuttle transportation systems
  - Emergency debris removal
- 
- Agencies should not overlook planning for how they fit into the overall communications network of the county. Who will they need to communicate and coordinate with, where will those other agency personnel be located? What type of information will they need to pass on or receive?
  
  - Portable radio communication devices should also be used for each major facility in order for that facility to maintain contact with its own headquarter, and that headquarter should have equipment to keep in contact with the Office of Emergency Management Headquarters
  
  - Equipment should be tested periodically to make sure that it is in good working order. Supplemental backup power supplies such as battery packs, as well as power generators and fuel supplies should also be periodically checked.

#### 5.1.8 Public Notification

It is important to differentiate between public notification and communications. Public notification is information that alerts, warns, and informs the public regarding emergencies that require them to take action. The term communications refers to coordinated radio and telephone

link between response agencies. Public notification needs encompass information disseminated to the public regarding pre-storm preparedness and readiness, and evacuation notices and shelters opened, before the storm, storm progress and track, intensity, and anticipated effects, and home and individual sheltering and protection, during the hurricane and official recognition of final storm passage, response/recovery, reporting of general conditions and locally specific dangerous areas, and volunteer information after the storm.

- Public information messages are one issue that each agency needs to plan for. Will the agency pass the information directly to the media or will it go to the County Emergency Operations Center for dissemination? If an agency has public messaging capability what will be the flow for incoming/outgoing communications? Does the agency need to assign staff to a public information function?
- Dade County has a coordinated facsimile system operated by law enforcement agencies that transmits new releases directly to radio, television and the print media. The Metro-Dade Emergency Operations Center is also on this system for release of emergency information to the media.
- FDOT will be able to provide real-time traffic information from its surveillance and control center and can give this information to the local media stations or the County Emergency Operations Center for dissemination to the public. The system for this information flow needs to be coordinated because this tool will aid motorists in avoiding incident locations, and reduces the impacts of the incidents themselves. The information should also be conveyed to local law enforcement officials as it may affect traffic in their jurisdictions.

### 5.1.9 Logistics

- Each agency may want to consider the assignment of staff to a logistics function. This is an important function for the pre-storm phase, and it will be a critical function in the post-storm phase. Through this function adequate amounts of emergency supplies are maintained, procurement and distribution of essential materials and supplies is accomplished, and support and coordination of volunteer/mutual aid workers is assured.
- Some agencies may be assisting employees with food, shelter and supplies.
- Metro-Dade has assigned responsibilities to municipalities, the transit authority, aviation agencies and the sea port for logistical support to the county plan.

### 5.1.10 Traffic Control

Agencies assigned traffic control responsibilities need to thoroughly plan for those requirements since the mobility of residents will be crucial to the orderly evacuation of vulnerable areas. The Metro-Dade County plan primarily tasks municipalities, law enforcement, and public works agencies with traffic control operations. Some planning considerations are:

#### Pre-Storm

- Adjustment of signal timings deemed necessary to favor traffic flow in one particular direction. Agencies assigned this responsibility should maintain a list of the specific adjustments pre-determined for hurricane evacuations. The plan should detail what the adjustments are, when they are to be made and who will accomplish this task.
- Manipulation of the signals to favor traffic flow in one direction comes at the cost of traffic flow in the other direction. For pre-timed signals, serious thought should be put

into how much time to allow for conflicting movements so that those motorists can be served without severely penalizing traffic moving in the favored direction.

- The design criteria for guide signs should be set to withstand a Category 3 storm. This represents 130 mph winds. At the present time, guidelines are in place for 110 mph winds.
- Traffic flow should be maintained through incident locations by removing vehicles which hinder that flow. Tow trucks should be assigned to critical evacuation routes and probable bottleneck areas to remove stalled vehicles and/or vehicles involved in an accident.
- Consideration should be given to the conversion of shoulders to travel lanes to increase the directional capacity of a facility, allowing for larger volumes of traffic to be served and travel times of these vehicles to be reduced. Careful planning is required before doing this in order to ensure that all geometric problems are addressed in order to limit agency liability.
- Extended emergencies may require several different signal timings to accommodate daily variations in traffic volumes and peak direction of flow. This could be applicable for an evacuation that is started days in advance of a storm striking, and it will certainly be true for recovery operations.
- Update of the list of ongoing roadway construction and maintenance activities is a must so that mistakes are not made on the planning stage.
- The use of HOV lanes should be considered in evacuation plans. This will provide more lanes for travel in the favored direction. This will in turn increase total vehicle flow

while simultaneously increasing travel speed and decreasing travel times due to the increased capacity of the roadway in the favored direction.

- If HOV lanes are to be used motorists should be informed that all vehicles, including single occupant vehicles, will be able to use the lanes. This can be done through the media and/or by using changeable message signs.

#### Post-Storm

- Hurricane Andrew demonstrated that there will likely be major impacts upon the transportation network in three ways: (1) Temporary and permanent displacement of traffic patterns in the affected areas (2) Introduction of new temporary traffic on a regional basis on truck routes for debris removal, visitations by displaced residential and business user, visits by claims adjusters, and repair contractor travel, (3) Permanent reconfiguration of travel patterns due to relocation of affected land uses to adjacent unaffected areas.
- Traffic signals will probably be non-functional, either because they've been knocked down, their controllers flooded out, or there is no power available, and signs will likely be damaged as well. Control of vehicles roaming must be considered in order for emergency vehicles, utility repair teams, etc. to be allowed as unimpeded access into devastated areas as possible.
- General traffic control at major intersections should also be controlled to aid the flow of traffic, rather than turning every affected intersection into a major arterial four-way stop, and to help avoid accidents by motorists unsure of whose turn it may be to proceed and who may inadvertently attempt to clear intersections "out of turn."

Scenario planning would help to identify and estimate such effects. The recent study for the MPO, "Short Range Hurricane Transportation Impacts," provides some guidance for future assessments.

- Arrangements for preparation and installation of temporary traffic signs and traffic controls.
- New traffic sign installations should be designed to withstand a Category 3 hurricane. Replacing a wire strand system with a mast-arm rigid type system does insure adequacy for at least a Category 3 hurricane. The length of the mast-arm may cause problems in a severe storm. Therefore, careful designing is recommended. At the present time the DOT is replacing the traffic signals to be mast-arm rigid and the goal is to go with mast-arm rigid as a standard installation type.
- Further study or review should be done for the priority routes assigned by the DOT for clean-up. The section of U.S. 1/South Dixie Highway from the Florida Turnpike to I-95 should be changed from a Priority #3 to at least a Priority #2. Also, the section of the Florida Turnpike at Golden Glades should be a Priority #1.
- Traffic congestion and delays in the relatively rural areas of South Dade County after Hurricane Andrew emphasize the importance of traffic signalization in the more congested areas of North Dade County and in the central and downtown areas of Dade County, after a hurricane.

#### 5.1.11 Freshwater Flooding

In local communities the Emergency Management or fire or police personnel can usually identify those areas prone to freshwater flooding. This information should be included in agency plans and considered when developing evacuation routes.

- The current SLOSH model used by meteorologists to forecast surge, does not include rainfall effects of hurricanes; it only considers saltwater flooding.
- Local agencies can usually identify areas prone to freshwater flooding. Local residents will usually have a fairly good idea of areas within their local neighborhoods or communities of areas which typically flood after moderate to heavy rains. While surges are generally commensurate with storm size, track and intensity, rainfall effects can be widely variable, and thus less able to be forecast as well. Freshwater flooding may make some areas or roadways impassable, which may harbor downed but possibly still live power lines, becoming potentially life-threatening to both residents and emergency workers and relief crews.
- Additional model development to add pre-storm rainfall data forecasts to assist in designating evacuation areas.
- Freshwater flooding is a concern that poses a threat to the timely evacuation of storm surge vulnerable areas.
- Some unforeseen flooding may occur as storm drains may become clogged with hurricane-generated debris and not fully function or even be blocked altogether. This may affect the transportation system as roads, sometimes major arteries such as U.S. 1, become flooded and impassible.

#### 5.1.12 Clearance Time Analysis

Clearance time is the time required to clear the roadway of all vehicles evacuating in response to a hurricane situation. Clearance time does not relate to the time any one vehicle spends traveling on the road network and does not include time needed for local officials to assemble and make a decision to evacuate. The following recommendations are offered:

- The evacuation clearance time analysis should be updated at regular intervals. Experience in this regard indicates that every three to five years is an appropriate interval for an urban area like Dade County. For more rural counties, 7 to 10 years is appropriate.
- Some specialized behavioral analysis should be accomplished for special population groups such as the elderly on Miami Beach, migrant farm workers and other culturally diverse groups where language barriers need to be overcome. This analysis is recommended because past storm-related evacuation behavior has been noticed for some population subgroups, and while this broadly generalized, and unusual anecdotal, would benefit from being more scientifically addressed and specific, thereby allowing its integration into evacuation forecasting and clearance time analysis, and development of more realistic and reasonable results. A telephone survey would probably not be a good analysis instrument as personal trust in the interviewer would be critical.
- Some research into the time-dependent decay of intent to evacuate would be beneficial, to gauge how the time since the last hurricane will affect evacuation roles in these new forecasts. That is, if the same baseline population data were input, but for a period with a different elapsed time since the previous hurricane, what would the differences be in the two evacuations?
- An intense public information campaign should be focused on areas outside potential life threatening storm surge evacuation areas to discourage unnecessary evacuation movements and to teach residents how to retrofit an interior room of the house for hurricane survival.
- Traffic control personnel should look at the feasibility of placing cones on the existing pavement on the northbound on-ramp of the Julia Tuttle Causeway to I-95 to form two travel lanes for evacuation off Miami Beach. The expected number of evacuees who will make this movement warrants this important action. A similar traffic control strategy should be accomplished for the northbound on-ramp from I-395 to I-95.



- Available traffic control personnel should be stationed at key intersections and interchanges along red and orange colored roadway segments indicated in Figures 22-24. Specifically, those routes which serve exiting traffic from the beaches areas and on-ramps to I-95 and the Florida Turnpike should take priority.
- Arrangements should be made with tow truck operators and they should be pre-positioned along key travel corridors/critical segments.
- Where intersections will continue to have signalized control, signal patterns providing the most "green time" for the westbound approaches should be actuated. This control should be facilitated by the centralized signal control center.
- All tolls should be suspended (or not collected) on the evacuation network after the county issues an evacuation order or advisory. This was a problem on the Florida Turnpike during the early part of the Andrew evacuation.
- All draw/swing bridges needed for evacuation should be locked in the "down" position during a hurricane warning if possible. Boat owners must be made aware of flotilla plans and time requirements for securing vessels. This judgment will need to be made on a case by case basis through discussions between the U.S. Coast Guard, local emergency officials and FDOT.
- The movement of mobile homes, campers, and boat trailers along evacuation routes should be minimized and then possibly prohibited late in an evacuation as wind becomes a problem.
- The county should consider designating several shelters for the dependents of county workers who are critical to evacuation response and post-storm recovery.

- A statewide roadway and inland shelter monitoring system should be set up to advise Dade County emergency management staff as to conditions north of Dade County. County staff could then advise local residents as to evacuation conditions that may be encountered upstream.

#### 5.1.13 Building Standards

In performing the analysis of system susceptibility and exposure to hurricanes, the following recommendations are offered.

- The revised version of the South Florida Building Code adequately handles the disaster potential in the skin of the buildings by setting up new impact load requirements that did not exist under the old code. This is an improvement in the right direction. However, this will not help to safeguard existing buildings that were built under the older code and the disaster potential in the older buildings is present as it was before Hurricane Andrew.
- Code-writing authorities must allow for the possibility of catastrophic winds in excess of the 50-year recurrence period given in the ASCE 7-88 Standard. Many buildings, such as schools, airport hangars, governmental buildings and important private structures, should be designed for a 100-year or greater recurrence period.
- During the plans review process -- before building permits are issued -- structural plans examiners in governmental building department must ensure that:
  - a. A competent professional has taken full responsibility for the entire set of plans and not just for portions of the design; and

- b. All loadings, including wind loadings, are resisted by the structure and its components, and properly carried into the foundation and ground.
- Evaluations of structural damage caused by wind storms, hurricanes or tornadoes must follow a comprehensive detailed set of procedures, including a review of the plans and a structural analysis of the damages by a competent structural engineer. It is insufficient to base evaluations of structural damage and the reasons for the damage on photographic representations.
  - Most concrete buildings will perform fairly well, even in storms that exceed a Category 1 hurricane. Most of the potential problems in these buildings exist in cladding, windows, glass, etc... forming the skin of the building.
  - The average one-story steel industrial-type building will be more sensitive to the dynamic effects of the winds because of the low dead load to wind load ratio, and must be designed and built with more attention to design and design details than the average concrete building.
  - The Dade County Planning Department should take into consideration the new storm surge limits to avoid in appropriate development in areas that are subject to flooding.
  - Main administration buildings should be reviewed with a view towards possible retrofitting and increasing the capabilities of the building to withstand a Category 4 or Category 5 hurricane. Work that covers strengthening of the stone facade connections to the building frame proper, with no additional work to project exposed windows and glass surfaces, has recently been completed at the Stephen P. Clark Center.

- Dade County Aviation Department should conduct a study and investigation of exterior windows on the east side of the Miami International Airport Hotel, and of the glass in the International Terminal and New Terminal A, including their supporting structural systems, to determine their capabilities for taking wind loads given in the new South Florida Building Code.
  
- Some system of evaluations and retrofitting should be established for existing airport buildings. Satisfactory guidelines should be adopted for new construction, even exceeding the minimum requirements of the new South Florida Building Code. Reasons for this are:
  - (a) The importance of the airport structures,
  - (b) The exposure of the airport structures, and
  - (c) The low dead load to wind load ratio for steel buildings.

## 5.2 EMERGENCY CONSIDERATIONS

The number, type, and magnitude of the traffic management efforts will vary dramatically, depending on the duration of the particular emergency being addressed as well as on-site specific features. Agency planning efforts for this phase should focus on a way of improving real-time decision making and response efforts.

### 5.2.1 Evacuation Deployment

Some agencies may plan to deploy personnel and resources in anticipation of an evacuation order, while others may be ready to deploy but will wait until the order is actually issued.

- All assigned agencies should know who will notify them of an evacuation order, and once received, they need to ask what the estimate is for time to complete the evacuation.

When the notice is received agencies should have been in an alerted mode of operation, although the specifics regarding time remaining to complete evacuation activities may influence how plans are implemented from that point on.

- Resources such as tow trucks and variable message signs can now be stationed appropriately.

### 5.2.2 Traffic Controls

Those activities that have been pre-determined and planned for will now need to be implemented.

Activities may be:

- All pre-determined signal changes will be made
- Any last minute signage positioning
- Law enforcement officers who will control traffic will be positioned
- Any pre-determined traffic flow constrictions or road closures will be established
- Drawbridge operations suspended
- Tolls lifted

### 5.2.3 Public Notifications

- The public will need to be notified as to the emergency traffic controls that have been enacted as well as the location and regulation of emergency routes.
- Real-time motorist information can be considered for public notification.

#### 5.2.4 Monitoring

- The use of DOT's monitoring capabilities will be essential to determine how well the evacuation is progressing. This information will need to be conveyed to the County Emergency Operations Center, and to law enforcement agencies.
- Any other emergency response personnel (law enforcement, fire department, transit authority, public works, etc.) who observe major problems in the traffic evacuation activities should report that information to their operations center. In the case of law enforcement, an officer may be able to provide some immediate relief to the problem.

#### 5.2.5 Communications

- Establish interagency coordination and mutual-aid contacts. Establish intra-agency and interagency communication networks.

#### 5.2.6 Facility System Protection

- Based on the completion status of evacuation responsibilities, and on the current weather conditions, agencies will need to begin close-down of operations for the duration of the storm.
- Airports and Seaports not already closed down will need to be.
- Vulnerable resources used for the evacuation will need to be picked up and moved to shelter.

- Personnel with vehicles will need to report to service areas for vehicle refueling, and then continue on to pre-determined sheltering areas. Some employees may try to return to their homes.

#### 5.2.7 Pre-Storm Impact Estimates

If agencies have planned for several impact scenarios they may now be able to see which may apply.

- Based on the specifics of the storm, as reported by the National Hurricane Center, agencies should be able to estimate the effects it may have on the area and their facilities/resources/employees, as well as the transportation facilities. Based on this preliminary estimate management can begin to determine what activities will be necessary to get agency resources started on recovery activities, and what their first priorities may need to be once staff and equipment are operational.

#### 5.2.8 Post-Storm Response Readiness

Depending on the severity of the storm, agencies may need to try and contact, or plan to contact, mutual aid agencies, suppliers, equipment vendors, etc.

- Contracts, agreements or orders that may be needed for recovery operations should be finalized.
- Based on the pre-storm impact assessment, personnel and equipment resource lists should be reviewed and updated as they will apply directly after the storm, and then within the first few days of the storm passing.
- Forms for damage assessments can be readied.

- Standard formats for public information messages can be readied.
- Financial expenditures should be tracked and readied for updates as recovery operations begin.

### 5.3 POST-STORM RESPONSE

The final phase of activities are those taken in the recovery phase of an emergency. The extent of emergency recovery depends heavily on the severity of the emergency, and regional emergencies, such as hurricanes, will typically require an extensive period after the emergency itself for conditions to return to normal.

#### 5.3.1 Post-Storm Re-Deployment

Critical to recovery operations will be the timely and coordinated re-deployment of emergency personnel and equipment who must focus on debris removal necessary to begin search and rescue operations.

#### 5.3.2 Debris Removal

- Teams will first have to reach pre-positioned equipment and resources. Secondly, they will be faced with the removal of debris and downed power lines in order to open the roadway for emergency vehicles and personnel. These activities will take the coordinated efforts of public works crews, power companies, fire rescue, and law enforcement personnel.
- It is suggested that the focus initially be on opening one lane of major highways to allow the movement of emergency personnel, as well as opening access routes to critical facilities. Once one lane is open crews can return to open a second lane to allow the



movement of the general public. As second lanes are opened work should begin on arterial highways used by mutual aid/relief forces.

- Long term debris removal efforts will require clearing canal systems, identifying neighborhood collection sites, coordinating contractor assignments and schedules, and removing debris from those collections sites.

### 5.3.3 Preliminary Damage Assessment

As debris is initially removed to allow for emergency vehicles and personnel, the process of damage assessment should begin in earnest.

- Actions will first have to concentrate on determining the status of fire, law enforcement and emergency operations centers. All agencies involved in recovery activities will need to assess their facilities, equipment and personnel status. The major activities that these agencies have to perform require that they be able to go back into operation as quickly as possible.
- The Public Works Department will be heavily tasked in removing debris from transportation facilities in incorporated Dade County, determining aerial recon routes/grids to be flown with all aerial resources in order to ensure an efficient effort, and conducting ground damage assessments.
- Fire rescue personnel will be tasked with assessing non-evacuated hospitals and emergency rooms, and their access routes, as well as public shelters and their access routes.
- Law enforcement agencies will be tasked with assessing transportation corridors, landing zones, access routes to those zones, status of Distribution Information and Resource

Center sites, staging areas, and access routes to both. They are likely to also be tasked with looter control as well.

- All agencies will need to be prepared to receive information from their support agencies and/or personnel (most likely over radio systems) in order to determine the scope of the emergency, decide how much assistance is required for response activities, and request assistance from the county when local resources are insufficient (again, most likely over radio systems).
- All agencies tasked with recovery operations should be assisting in preliminary assessments to prioritize search and rescue, emergency debris removal of blocked areas on major transportation corridors, and utility restoration.

#### 5.3.4 Search and Rescue

As with initial debris removal and damage assessment activities, search and rescue equipment and personnel will need to have been staged. Since these critical resources are also tasked in the damage assessment activities they should be staged near other agencies equipment and personnel who will make up the team. There should be some type of deployment plan for teams.

- Agencies tasked with this activity, such as Fire Rescue, Law Enforcement, Public Works, and utilities, should have developed plans for multi-agency/department efforts, to include communications on channels/frequencies that will be used for multi-agency operations.
- All agencies will be responsible for conducting house to-house search and rescue operations, starting with those areas identified as priorities during the damage assessment activities.

### 5.3.5 Traffic Control and Management

Traffic control and management can pose special problems during emergency recovery operations. Existing traffic controls and transportation assets may be missing, damaged, or inoperable; road and rail segments may be blocked with debris or structurally damaged, and traffic demands can be significantly different than normal due to residents returning to their homes, as well as ongoing search and rescue, damage assessment, and emergency recovery activities. In addition, special signing may be needed to warn vehicular and pedestrian traffic of structures near collapse, or of rescue and repair work going on in the area.

- Make the roads safe again for the free movement of emergency and utility service vehicles, and to provide vehicular and pedestrian traffic.
- Traffic control at critical intersections can be provided by police officers, public work personnel and even volunteers.
- Traffic signals and street lighting at major intersections should be repaired and powered. Portable generators may be used to operate traffic signals on arterial bottlenecks in the network.
- Resource lists are particularly important and can greatly facilitate the procurement and implementation of needed traffic control.
- Develop plan for initial movements of citizens from residential areas to assistance centers.
- Free up police and other personnel from the hazardous duty and allow them to focus their attention elsewhere.

### 5.3.6 Post-Storm Response Monitoring

- Agencies involved in traffic control and management and facility repairs will need to monitor the status of the transportation systems for possible problems.
- Coordination between agencies repairing the transportation systems will be essential in order to address and resolve problems.
- Public notification of problem areas and emergency traffic control devices and procedures should not be overlooked.

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