

**ANNEX E**

**EVACUATION**

**CITY OF HOUSTON**





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**ANNEX E**  
**EVACUATION**

**I. AUTHORITY**

See City of Houston Emergency Management Plan.

**II. PURPOSE**

The purpose of this annex is to provide for the orderly and coordinated evacuation of all or any part of the population of City of Houston if it is determined that such action is the most effective means available for protecting the population from the effects of an emergency situation.

**III. EXPLANATION OF TERMS**

A. Acronyms

ARC	American Red Cross
CMOC	Catastrophic Medical Operations Center
DPS	Department of Public Safety
EMC	Emergency Management Coordinator
EOC	Emergency Operations Center
OEM	Office of Emergency Management
HDHHS	Houston Department of Health and Human Services
HPD	Houston Police Department
IC	Incident Commander
ICS	Incident Command System
JIC	Joint Information Center
MACG	Multi Agency Coordination Group
METRO	Metropolitan Transit Authority of Harris County
NIMS	National Incident Management System
PIO	Public Information Officer
PW&E	Public Works & Engineering
SOP	Standard Operating Procedure
TLETS	Texas Law Enforcement Telecommunications System

B. Definitions

1. Special Facilities. Facilities that require unique attention because they house or serve populations that cannot take care of themselves during emergency situations and/or require unique support services. Such facilities include:
  - a. Schools and day care centers, where students require supervision to ensure their safety.
  - b. Hospitals and nursing homes, where patients need specialized health care personnel and equipment to maintain their health.

- c. Correctional facilities, where offenders require security to keep them in custody.
- 2. Special Needs Population: For the purposes of this annex “special needs” will be defined as individuals who need transportation assistance to evacuate. Listed below are the six categories of “special needs;”
  - a. Level 0 – Persons without transportation.
  - b. Level 1 – Persons dependent on others or in need of others for routine care.
  - c. Level 2 – Persons with disabilities such as blind, hearing impaired, amputee, deaf/blind
  - d. Level 3 – Persons needing assistance with medical care administration, monitoring by a nurse, dependent on equipment, assistance with medications, or medical health disorders.
  - e. Level 4 – Persons outside an institutional facility care setting who require extensive medical oversight (i.e., IV chemotherapy, ventilator, peritoneal dialysis, hemodialysis, life support equipment, hospital bed).
  - f. Level 5 – Persons in institutional settings such as hospitals, long-term care facilities, assisted living facilities.
- 3. Evacuation. The National Incident Management System (NIMS) defines evacuation as an organized, phased, and supervised withdrawal, dispersal, or removal of civilians from dangerous or potentially dangerous areas, and their reception and care in safe areas.

#### **IV. SITUATION & ASSUMPTIONS**

##### **A. Situation**

- 1. There are a wide variety of emergency situations that might require an evacuation of portions of the local area.
  - a. Limited evacuation of specific geographic areas might be needed as a result of a hazardous materials transportation accident, major fire, natural gas leak, or localized flash flooding.
  - b. Large-scale evacuation could be required in the event of a major hazardous materials spill, terrorist attack with chemical agent, extensive flooding, or a hurricane.
- 2. Authority for Evacuations. State law provides a county judge or mayor with the authority to order the evacuation of all or part of the population from a stricken or threatened area within their respective jurisdictions. Hence, the Mayor may order a mandatory evacuation of Houston upon issuing a local disaster declaration. The Mayor may also take subsequent action to control re-entry, curtail movement, and deny building occupancy within a disaster area.

## B. Assumptions

1. Most people at risk will evacuate when local officials recommend that they do so. A general estimate is that 80 percent of those at risk will comply when local officials recommend evacuation. The proportion of the population that will evacuate typically increases as a threat becomes more obvious to the public or more serious.
2. Some individuals will refuse to evacuate, regardless of the threat.
3. When there is sufficient warning of a significant threat, some individuals who are not at risk will evacuate.
4. Some evacuation planning for known hazard areas can and should be done in advance.
5. While some emergency situations are slow to develop, others occur without warning. Hence, there may be time for deliberate evacuation planning or an evacuation may have to be conducted with minimal preparation time. In the case of short notice evacuations, there may be little time to obtain personnel and equipment from external sources to support evacuation operations.
6. The need to evacuate may become evident during the day or at night and there could be little control over the evacuation start time.
7. In most emergency situations, the majority of evacuees will seek shelter with relatives or friends or in commercial accommodations rather than in public shelter facilities.
8. Most evacuees will use their personal vehicles to evacuate; however, transportation may need to be provided for evacuees without personal vehicles.
9. The Houston Police Department (HPD), while primarily responsible for evacuation procedures, is also responsible for law enforcement and order maintenance within the emergency zone(s) and the entire city. As such, the department must strive to maintain a balance of responsibilities during the duration of the event.

## V. CONCEPT OF OPERATIONS

### A. General

1. Evacuation is one means of protecting the public from the effects of a hazard; protection is achieved by moving people away from the hazard. In planning for evacuation, the characteristics of the hazard and its magnitude, intensity, speed of onset, and anticipated duration are all significant factors. These will determine the number of people to be evacuated, the distance people must be moved to ensure their safety, the need for reception facilities, and the extent of traffic control and security required.

2. We must be prepared to conduct both small-scale and large-scale evacuations at all times of the day both from known hazard areas and from unexpected incident locations. A General Evacuation Checklist, provided in Appendix 1, has been developed to guide the execution of evacuation operations.
3. The Governors Division of Emergency Management shall oversee the implementation of regional response and evacuation plans throughout the state. The Texas Department of Public Safety shall assume command, control, and communication as well as the operational tasks as directed by the governor during evacuation and other disaster response operations that involve multiple regional coordination.

#### B. Evacuation Decisions

1. The Incident Commander (IC) or, for large-scale evacuations, the EOC (Emergency Operations Center) shall assess the need for evacuation, plan evacuations, and coordinate support for the evacuation effort. Evacuation planning should resolve the following questions:
  - a. What areas or facilities are at risk and should be evacuated?
  - b. How will the public be advised of what to do?
  - c. What do evacuees need to take with them?
  - d. What travel routes should be used by evacuees?
  - e. What transportation support is needed?
  - f. What traffic control is needed?
  - g. Does the anticipated duration of the evacuation make it necessary to activate shelter and mass care facilities?
  - h. How will evacuated areas be secured?
2. Evacuations that must be conducted because of incidents that occur without warning may have to be planned quickly and carried out with only those resources that can be mobilized rapidly.
3. The decision to recommend evacuation of the populace in and around the area of an incident site rests with the IC managing that incident. In general, the Mayor may issue an order for large-scale evacuations.

#### C. Hazard Specific Evacuation Planning

1. The City of Houston contracted with a private consulting firm to perform a Risk Analysis & Vulnerability Assessment for the City. The study identifies hazardous sites as well as potentially affected areas adjacent to the sites. This study was funded in part by the Federal Emergency Management Agency's (FEMA) Project Impact program. A copy of the study findings is kept in the City of Houston, Office of Emergency Management (OEM).

2. Guidance for hurricane evacuation is provided in Appendix 3 to this annex, which also describes hurricane risk areas and evacuation routes.

D. Transportation

1. Individuals. It is anticipated that the primary means of evacuation for most individuals will be personal. However, some individuals do not own vehicles and others will need assistance in evacuating and provision must be made to provide public transportation for these individuals.
2. Special Needs Facilities. Public schools normally have their own transportation resources; some private schools and day care centers may also have some transportation assets. Most other special facilities rely on commercial or contract transportation companies for their specialized transportation needs. Unfortunately, many of these providers cannot provide sufficient equipment to evacuate a sizeable facility on short notice. Hence, local government may be requested to assist in providing transport.
3. School buses, METRO (Metropolitan Transit Authority of Harris County), ambulances, and other vehicles may provide emergency transportation. See Annex S, Transportation, for transportation guidance; see Annex M, Resource Management, for transportation resources. In the case of large-scale evacuations with advance warning, pickup points may be designated or a telephone bank established to receive and process requests for transportation.
4. Public information messages that emphasize the need for citizens to help their neighbors who lack transportation or need assistance can significantly reduce requirements for public transportation during an evacuation.

E. Traffic Control

1. Actual evacuation movement will be controlled by the law enforcement agencies involved.
2. If at all possible, two-way traffic will be maintained on all evacuation routes to allow continued access for emergency vehicles only.
3. Texas Department of Transportation (TxDOT) coordinates with DPS to develop contra-flow plans for major evacuation routes.
4. HOV lanes will be designated for emergency vehicle traffic.
5. For large-scale evacuations where time permits, TxDOT, METRO Police, and Public Works may be called upon to provide traffic control devices, such as signs and barricades.
6. Law enforcement will request wrecker services needed to clear disabled vehicles from evacuation routes.

F. Warning & Public Information

1. The IC will normally arrange for warning people to be evacuated in and around an incident site. The EOC or the MACG will normally disseminate warning for large-scale evacuations beyond the incident site or where evacuation is being conducted because of an imminent threat.
2. Advance Notice of Possible Evacuation
  - a. For slowly developing emergency situations, advance warning should be given to affected residents as soon as it is clear that evacuation may be required. Such advance notice is normally disseminated through the media. Advance warning should address suitable preparedness actions, such as securing property, assembling disaster supplies, fueling vehicles, and identify evacuation routes.
  - b. Special facilities should normally receive advance warning through the media. These facilities should review and be prepared to implement their evacuation plans.
  - c. The special needs population should also be given advance notice. Notifying and preparing this segment of the population for evacuation will likely require additional time and resources. Any special circumstances or requests for assistance should be reported to on-scene authorities or EOC.
3. Evacuation Warning
  - a. Evacuation warning should be disseminated through all available warning systems. See Annex A, Warning, for further information.
  - b. In the case of immediate evacuation in and around an incident site, route alerting using siren and speaker-equipped vehicles moving through the affected area is usually effective. When possible, two vehicles should be employed -- the first to get the attention of the people and a second will deliver the evacuation message. Door-to-door notification should be considered for large buildings and in rural areas where residences may be some distance from the road.
  - c. Special needs facilities may be notified directly by on-scene authorities or by the EOC staff. However, if both the incident command staff and the EOC will be making notifications, a specific division of responsibilities for notification should be made so that no facilities are inadvertently overlooked.
  - d. Law enforcement personnel should sweep the evacuation area to ensure all those at risk have been advised of the need to evacuate and have responded. Persons who refuse to evacuate will be identified by location and left until all others have been warned and then, time permitting, further efforts may be made to persuade these individuals to leave.

- e. Although Law Enforcement has minimal authority in ordering individuals to evacuate residence or places of business in a stricken or threatened area, Law Enforcement can restrict movement in and out of such an area.

4. Emergency Public Information

- a. Warning messages disseminated through warning systems alert the public to a threat and provide basic instructions. They are necessarily short and to the point. The public will often require amplifying information on what to do during an evacuation. A Joint Information Center (JIC) will be established to ensure that consistent and clear information is being disseminated to the public. The JIC PIO will insure that such information is provided to the media on a timely basis for further dissemination to the public. Provisions must be made to disseminate information to individuals with special needs, including the blind and hearing impaired. Specific public information procedures are contained in Annex I (Emergency Public Information).
- b. Amplifying instructions for an evacuation may include information on the location of shelter and mass care facilities, specific evacuation routes, guidance on securing their homes, and the need for evacuees to take certain items with them during an evacuation. When school children are evacuated, parents need timely information on where to pick them up.
- c. When the incident that generated the need for evacuation is resolved, evacuees must be advised when it is safe to return to their homes and businesses.

G. Fuel Availability and Distribution.

- 1. Department Directors must ensure that vendors provide sufficient fuel for city emergency vehicles.
- 2. TxDOT has been tasked to coordinate with the Texas Oil and Gas Association to address fuel availability along major evacuation routes.

H. Special Needs Population.

- 1. Special needs facilities, such as schools, hospitals, nursing homes, day care facilities, and correctional facilities are responsible for the welfare and safety of their clients, patients, and inmates. Virtually all such facilities are required to have an emergency plan that includes provision for emergency evacuation, but in order to effectively implement their plans they must be warned of emergency situations.
- 2. Schools & Day Care Centers
  - a. If evacuation of public schools is required, students will normally be transported on school buses to other schools outside of the risk area, where their parents can pick them up. It is essential that the

public be provided timely information on these arrangements. In the case of a large-scale emergency situation with advance warning, schools will generally be closed and students returned to their homes so they can evacuate with the families.

- b. Private schools and day care centers, including adult day care facilities, typically do not have significant transportation resources and may require government assistance in evacuating.
3. Hospitals, Nursing Homes, & Correctional Facilities.
    - a. If evacuation of these facilities is required, patients and inmates should be transported, with appropriate medical or security support, to a comparable facility. The facility operator is responsible for making arrangements for suitable transportation and coordinating use of appropriate host facilities. In the case of short-notice or no-notice emergency situations, facilities may be unable to make the required arrangements for transportation and may need assistance from local government with transportation and in identifying suitable reception facilities.
    - b. Medical patients and prisoners should not be housed in shelter and mass care facilities with the general public.
  4. Special needs citizens will require special evacuation assistance, transportation, shelter facilities, and medical care during major evacuations. See appropriate functional annexes as well as Annex H, Health and Medical, for more information. Our emergency management plans identify by type and estimated number, the special needs population and addresses their needs before, during, and immediately after a major disaster or catastrophic incident.

#### I. Handling Pets during Evacuations

1. Evacuees who go to the homes of relatives or friends or commercial accommodations with their pets do not normally pose difficulties during evacuation. However, evacuees with pets seeking public shelter can create potential problems. For health reasons, pets are not allowed in emergency shelters operated by the American Red Cross (ARC) and most other organized volunteer groups. However, a number of studies have indicated that some people, particularly the elderly, will not leave their homes if they cannot take their pets with them. When people have left pets behind during evacuations, emergency responders have sometimes had to return to the evacuated area to round up and remove those pets and other animals. Hence, it is desirable to make reasonable arrangements for evacuees who come to public shelters with pets.

2. Depending on the situation and availability of facilities, one of the following approaches should be used to handle evacuees arriving with pets:
  - a. Providing pet owners with information on nearby kennels, animal shelters, and veterinary clinics that have agreed to temporarily shelter pets.
  - b. Directing pet owners to a public shelter that has covered exterior corridors or adjacent support buildings where pets on leashes and in carriers may be temporary housed.
  - c. Set up temporary pet shelters at fairgrounds, rodeo or stock show barns, livestock auctions, and other similar facilities.

J. Access Control & Security

1. In an evacuation, the security of evacuated areas is extremely important. Those who have evacuated may not do so in the future if their property has been damaged or stolen during their absence. Law enforcement should establish access control points to limit entry into evacuated areas and, where possible, conduct periodic patrols within such areas to deter theft by those on foot. To the extent possible, the fire department will take measures to insure continued fire protection.
2. If an evacuated area has sustained damage and cannot be reoccupied for an extended period of time, it may be desirable to implement a permit system to limit access to emergency workers, homeowners, business owners, utility workers, and contractors restoring damaged structures and removing debris. Refer to Annex G, Law Enforcement, for further information.

K. Return of Evacuees

1. Return of evacuees to their homes or businesses in evacuated areas requires the same consideration, coordination, and control as the original evacuation. For limited incidents, the IC will normally make the decision to return evacuees and disseminate it as appropriate. For large-scale evacuations, that decision will normally be made by the Mayor and disseminated through the media.
2. The following conditions should prevail in the evacuated area before evacuees are authorized to return:
  - a. The threat that caused the evacuation has been resolved.
  - b. Sufficient debris has been removed to permit travel and roads and bridges are safe to use.
  - c. Downed power lines have been removed; ruptured gas, water, and sewer lines have been repaired; and other significant safety hazards have been eliminated. However, utility services may not have yet been fully restored.

- d. Structures have been inspected and determined to be safe to reoccupy.
    - e. There is adequate water available for firefighting.
  - 3. For return and re-entry, it may be necessary to provide transportation for those who lack vehicles and traffic control on return routes.
  - 4. Public information intended for returnees should address such issues as:
    - a. Documenting damage for insurance purposes.
    - b. Caution in reactivating utilities and damaged appliances.
    - c. Cleanup instructions.
    - d. Removal and disposal of debris.
- L. Actions by Phases of Emergency Management
  - 1. Mitigation
    - a. Where possible, undertake mitigation for known hazards that have in the past led to evacuation.
    - b. Discourage development, particularly residential construction, in potential risk areas, including floodplains, areas downstream from suspect dams and dikes, and areas adjacent to facilities that make, use, or store hazardous materials.
    - c. Seek improvement to preplanned evacuation routes if needed.
    - d. Enhance warning systems to increase warning times and reduce the need for hasty evacuations.
  - 2. Preparedness
    - a. Identify areas where previous major evacuations have occurred and additional areas that may require large-scale evacuation in the future due to known hazards. See Appendix 2 for Potential Major Evacuation Areas other than hazardous materials risk areas; hazardous materials risk areas are described in Annex Q, Hazardous Materials & Oil Spill Response. Determine the population of risk areas and identify facilities that may require special assistance during evacuation (hospitals, nursing homes, schools, etc.) to determine potential transportation requirements.
    - b. To the extent possible, identify individuals with special medical needs who would require assistance in evacuating and maintain contact information for those individuals.
    - c. Identify primary and alternate evacuation routes, taking into account road capacities.
    - d. Include evacuations in the scenario of periodic emergency drills and exercises.

- e. Conduct public information programs to increase citizen awareness of possible reasons for evacuation, preplanned evacuation routes, availability of transportation, the need to take appropriate food, clothing, and other disaster supplies during an evacuation, and the desirability of helping neighbors who may need assistance during an evacuation.
- f. Promulgate procedures for protecting government resources from known hazards by relocating them.

3. Response

See the General Evacuation Checklist in Appendix 1.

4. Recovery

- a. Initiate return of evacuees, when it is safe to do so.
- b. Coordinate temporary housing for those who cannot return to their homes.
- c. Provide traffic control for return.
- d. Initiative recovery activities for evacuees who have suffered loss of or damage to their homes or businesses.
- e. Carry out appropriate public information activities.

M. National Incident Management System (NIMS)

The National Incident Management System (NIMS) will be used to manage and efficiently mitigate any such incident by integrating a combination of facilities, equipment, personnel, procedures, and communications into a common organizational structure. NIMS is used to organize both near-term and long-term field level operations for a broad spectrum of emergencies, from small to complex incidents, both natural and manmade. Description of the implementation is located within the Basic Emergency Management, Annex I - Public Information, Annex M – Resource Management and Annex N – Directions. Departmental policies and procedures are developed based on these principles.

**VI. ORGANIZATION & ASSIGNMENT OF RESPONSIBILITIES**

A. Organization

- 1. Our normal emergency organization, described in the City of Houston Emergency Management Plan, will plan and carry out evacuations and the return of people to their homes or businesses. A large scale evacuation, however, may require the formation of the Multi Agency Coordination Group (MACG) to support the Incident Command Posts (ICP) and EOCs.
- 2. ICS and EOC/MACG Interface
  - a. As noted previously, the IC will normally determine the need for, organize, and conduct limited evacuations in the immediate vicinity of the incident site. If large-scale evacuation is required, the Mayor will issue the order for such an evacuation to the public.

- b. A division of responsibility for evacuation tasks should be agreed upon between the IC and the EOC. The IC will normally manage evacuation operations at the scene, while the EOC coordinates operations beyond the incident site, such as coordinating traffic control along evacuation routes, arranging for the activation of shelter and mass care facilities, and advising other jurisdictions of the evacuation.
- c. During a large-scale evacuation, a division of responsibility for evacuation tasks should be agreed upon between the EOCs and the MACG. The EOCs will normally manage evacuation operations within their respective jurisdiction area while the MACG coordinates evacuation operations affecting multiple jurisdictional areas. The MACG will normally coordinate traffic control along evacuation routes, arrange for the activation of shelter and mass care facilities, and advise other jurisdictions.

B. Assignment of Responsibilities

- 1. The Mayor will:
  - a. For emergencies and disasters, order citizens to evacuate, when appropriate.
  - b. Approve release of warnings, instructions, and other emergency public information relating to evacuation.
- 2. The IC will:
  - a. Identify risk areas in the vicinity in the incident site and determine protective actions for people in those risk areas.
  - b. If evacuation of risk areas and special facilities is required, plan, organize, and conduct the evacuation with the resources assigned.
  - c. Request support from the EOC to assist in coordinating evacuation activities beyond the incident site, such as activation of shelter and mass care facilities, if required.
- 3. The Emergency Management Coordinator (EMC) will:
  - a. Develop and maintain evacuation planning information for known risk areas, including population of the area, and primary evacuation routes.
  - b. Coordinate evacuation planning to include:
    - 1) Selection of suitable evacuation routes, based on recommendations from law enforcement.
    - 2) Movement control based on recommendations from law enforcement.
    - 3) Transportation arrangements.
    - 4) Shelter and mass care arrangements.

- c. Coordinate evacuation efforts with other local governments that may be affected by the evacuation, where appropriate.
  - d. Monitor the relocation of essential resources (personnel, equipment, and supplies) that are at risk to safer areas.
  - e. Ensure that enrolled participants are provided evacuation and transportation services, as required.
  - f. Request the opening of local shelter and mass care facilities, if needed.
4. Common Tasks of All Organizations
- a. If time permits, secure and protect facilities in evacuation areas.
  - b. If time permits, relocate essential equipment, supplies, and records to non-risk areas.
5. Law Enforcement will:
- a. Recommend evacuation routes to the IC or EOC staff.
  - b. Assist in evacuation by providing traffic control.
  - c. Protect property in evacuated areas and limited access to those areas.
  - d. Provide security at designated evacuation shelters.
  - e. Assist in removing citizens from stricken areas.
  - f. Secure and protect or relocate prisoners.
  - g. Coordinate law enforcement activities with other emergency services.
  - h. Assist in warning the public.
  - i. Provide information to the PIO for news releases to the public on the evacuation routes.
6. The Fire Service will:
- a. Be responsible for fire protection in the evacuated areas.
  - b. Assist in warning the public.
  - c. Assist in evacuating the aged, the handicapped, and other special medical needs groups.
7. The PIO will:
- a. Disseminate emergency information from the Mayor advising the public of evacuation actions to be taken.
  - b. Coordinate with area news media for news releases.
8. The PW&E Department will:
- a. Provide traffic control devices upon request.

- b. Assist in keeping evacuation routes open.
  - c. Provide barricade and barrier to restrict entry to evacuated areas and other areas where entry must be controlled.
9. METRO will
- a. Coordinate transportation for their fleet of buses and contracts they have with private carriers.
  - b. Refer to Annex S (Transportation) for additional information.
10. The Houston Department of Health and Human Services (HDHHS) will
- a. Bureau of Animal Regulation and Care (BARC) will provide stray animal pickup before and after the event to affected areas.
  - b. Maintain essential staff to operate HDHHS facilities that may be used as Red Cross shelters.
  - c. Maintain essential staff to conduct necessary environmental investigations.
  - d. Maintain essential staff to operate the laboratory.
11. Social Service Organizations For other than short-term evacuations coordinate with the ARC, The Salvation Army, and other service organizations to open shelters and activate mass care operations. See Annex C, Shelter & Mass Care, for further information.
12. Special Facilities (schools, hospitals, nursing homes, correctional facilities) will:
- a. Close and supervise evacuation of their facilities.
  - b. Coordinate appropriate transportation for evacuees and medical or security support.
  - c. Arrange for use of suitable host facilities.
  - d. Request emergency assistance from local government if assistance cannot be obtained from other sources.
  - e. Ensure assigned personnel are trained and knowledge of evacuation procedures.
  - f. Disseminate public information to advise relatives and the general public of the status of their facilities and the patients, students, or inmates served by those facilities.

## **VII. DIRECTION AND CONTROL**

### **A. General**

- 1. The Mayor has the general responsibility for ordering an evacuation, when that is the most suitable means of protecting the public from a hazard.

2. In situations where rapid evacuation is critical to the continued health and safety of the population, the on-scene IC may recommend evacuation of people at risk in and around an incident scene and direct and control the required evacuation.
3. Large-scale evacuations and evacuations conducted on the basis of imminent threat where there is no current incident scene will normally be coordinated and directed by the EOC.

**B. Evacuation Area Definition**

1. Areas to be evacuated will be determined by those officials with the authority to recommend evacuation. This is determined based on the counsel of those individuals and agencies with the necessary expertise, the use of specialized planning materials or decision aids, the recommendations of state and federal agencies, and, where appropriate, advice from other subject matter experts. Evacuation recommendations to the public should clearly describe the area to be evacuated with reference to known geographic features, such as roads and rivers, and/or zip codes.
2. The hazard situation which gave rise to the need for evacuation should be continually monitored in case changing circumstances, such as an increase in rainfall or wind shift, change in the potential impact area and, thus, the area that must be evacuated.

**C. Lines of Succession**

1. The lines of succession for the Mayor and the EMC are outlined in City of Houston Emergency Management Plan.
2. Lines of succession for each department and agency head shall be according to the standard operating procedures established by each department.

**VIII. INCREASED READINESS ACTIONS**

- A.** Refer to Basic Plan, Section 3.2.2 for Readiness Levels **Green** and **Blue** (Level IV). Part B-D below are specific to this annex and in addition to actions/activities for the identified readiness levels defined in the Basic Plan.
- B. Yellow** (Level III) - Increased Readiness. Increased Readiness may be appropriate if there is a greater than normal threat of a hazard which could necessitate evacuation. Yellow readiness actions may include:
  1. Reviewing information on potential evacuation areas, facilities at risk, and evacuation routes.
  2. Monitoring the situation.
  3. Informing first responders and local officials of the situation.
  4. Checking the status of potential evacuation routes and shelter/mass care facilities.

- B. **Orange** (Level II) - High Readiness. High Readiness may be appropriate if there is an increased risk of a hazard that necessitates evacuation. Orange readiness actions may include:
  - 1. Alerting response personnel for possible evacuation operations duty.
  - 2. Coordinating with special facilities to determine their readiness to evacuate.
  - 3. Checking the status of resources and enhancing short-term readiness if possible. Monitoring the availability of transportation assets and drivers.
  - 4. Advising the public and special facilities to monitor the situation.
- C. **Red** (Level I) - Maximum Readiness. Maximum readiness is appropriate when there is a significant possibility that evacuation operation may have to be conducted. Red readiness actions may include:
  - 1. Activating the EOC to monitor the situation and track resource status.
  - 2. Placing first responders and transportation providers in an alert status; placing off-duty personnel on standby.
  - 3. Updating the status of resources.
  - 4. Checking the status of evacuation routes and pre-positioning traffic control devices.
  - 5. Updating plans to move government equipment to safe havens.
  - 6. Selecting shelter/mass care facilities for use.
  - 7. Providing information to the public on planned evacuation routes, securing their homes, and what items they need to take with them. Preparing to issue public warning if it becomes necessary.

## **IX. ADMINISTRATION AND SUPPORT**

### **A. Reporting**

Large-scale evacuations should be reported to state agencies and other jurisdictions that may be affected in the periodic Situation Report prepared and disseminated during major emergency operations. The Situation Report format is provided in Annex N, Direction & Control.

### **B. Records**

- 1. **Activity Logs.** The IC and, if activated, the EOC shall maintain accurate logs recording evacuation decisions, significant evacuation activities, and the commitment of resources to support evacuation operations.
- 2. **Documentation of Costs.** Expenses incurred in carrying out evacuations for certain hazards, such as radiological accidents or hazardous materials incidents, may be recoverable from the responsible party. Hence, all departments and agencies will maintain records of personnel and equipment used and supplies consumed during large-scale evacuations.

C. Resources

General emergency response resources that may be required to conduct an evacuation are listed in Annex M, Resource Management.

D. Post Incident Review

For large-scale evacuations, the EMC shall organize and conduct a review of emergency operations by those tasked in this annex. The purpose of this review is to identify needed improvements in this plan, procedures, facilities, and equipment.

E. Exercises

Local drills, tabletop exercises, functional exercises, and full-scale exercises shall periodically include an evacuation scenario based on the hazards faced by this jurisdiction.

**X. ANNEX DEVELOPMENT AND MAINTENANCE**

A. The Chief of Police is responsible for developing and maintaining this annex. Recommended changes to this annex should be forwarded as needs become apparent.

B. This annex will be reviewed annually and updated in accordance with the provisions contained in City of Houston Emergency Management Plan.

C. Departments and agencies assigned responsibilities in this annex are responsible for developing and maintaining SOPs covering those responsibilities.

**XI. REFERENCES**

FEMA, *Guide for All-Hazard Emergency Operations Planning* (SLG-101).

*Texas Hurricane and Evacuation Sheltering Plan.*

DPS, *Traffic Management Plan District 2A and Sub 2A*

**APPENDICES:**

1.....General Evacuation Checklist

2.....Potential Evacuation Areas

3.....Hurricane Evacuation

**Appendix 1 to Annex E**  
**GENERAL EVACUATION CHECKLIST**

✓	Action Item	Assigned
	<b>PLANNING:</b>	
	1. Determine area(s) at risk: <ul style="list-style-type: none"> <li>▪ Determine population of risk area(s)</li> <li>▪ Identify any special facilities in risk area(s)</li> </ul>	
	2. Determine evacuation routes for risk area(s) & check the status of these routes.	
	3. Determine traffic control requirements for evacuation routes.	
	4. Estimate public transportation requirements & determine pickup points.	
	5. Determine temporary shelter requirements & select preferred shelter locations.	
	<b>ADVANCE WARNING:</b>	
	6. Provide advance warning to special facilities & advise them to activate their evacuation transportation & reception arrangements. Determine if requirements exist for additional support from local government.	
	7. Provide advance warning of possible need for evacuation to the public, clearly identifying areas at risk. See Annex I, Emergency Public Information.	
	8. Develop traffic control plans & stage traffic control devices at required locations	
	9. Coordinate with special facilities regarding precautionary evacuation.	
	10. Ready temporary shelters selected for use.	
	11. Coordinate with transportation providers to ensure vehicles & drivers will be available when and where needed.	
	12. Coordinate with school districts regarding closure of schools.	
	13. Advise neighboring jurisdictions that may be affected of evacuation plans.	
	<b>EVACUATION:</b>	
	14. Advise neighboring jurisdictions & the local Disaster District that evacuation recommendation will be issued.	
	15. Disseminate evacuation recommendation to special facilities. Provide assistance in evacuating, if needed.	
	16. Disseminate evacuation recommendation to the public through available warning systems, clearly identifying areas to be evacuated.	
	17. Provide amplifying information the public through the media. Emergency public information should address: <ul style="list-style-type: none"> <li>▪ What should be done to secure buildings being evacuated</li> <li>▪ What evacuees should take with them</li> <li>▪ Where evacuees should go &amp; how should they get there</li> <li>▪ Provisions for those without transportation</li> </ul>	
	18. Staff and open temporary shelters	
	19. Provide traffic control along evacuation routes & establish procedures for dealing with vehicle breakdowns on such routes.	
	20. Provide transportation assistance to those who require it.	
	21. Provide security in or control access to evacuated areas.	
	22. Provide Situation Report on evacuation to local Disaster District.	
	<b>RETURN OF EVACUEES</b>	
	23. If evacuated areas have been damaged, reopen roads, eliminate significant health and safety hazards, & conduct damage assessments.	

	24. Determine requirements for traffic control for return of evacuees.	
	25. Determine requirements for & coordinate provision of transportation for return of evacuees.	
	26. Advise neighboring jurisdictions and local Disaster District that return of evacuees will begin.	
	27. Advise evacuees through the media that they can return to their homes and businesses; indicate preferred travel routes.	
	28. Provide traffic control for return of evacuees.	
	29. Coordinate temporary housing for evacuees that are unable to return to their residences.	
	30. Coordinate with special facilities regarding return of evacuees to those facilities.	
	31. If evacuated areas have sustained damage, provide the public information that addresses: <ul style="list-style-type: none"> <li>▪ Documenting damage &amp; making expedient repairs</li> <li>▪ Caution in reactivating utilities &amp; damaged appliances</li> <li>▪ Cleanup &amp; removal/disposal of debris</li> <li>▪ Recovery programs See Annex J, Recovery.</li> </ul>	
	32. Terminate temporary shelter & mass care operations.	
	33. Maintain access controls for areas that cannot be safely reoccupied.	

**Appendix 2 to Annex E**  
**POTENTIAL EVACUATION AREAS LIST & MAPS**

Refer to Appendix 3 of Annex E for potential evacuation of the population and evacuation maps.

**Appendix 3 to Annex E**  
**HURRICANE EVACUATION**

**I. AUTHORITY**

See Basic Plan

**II. PURPOSE**

This appendix is to provide for an orderly and coordinated evacuation of people, vital equipment, and essential supplies from those portions of the City of Houston threatened by hurricanes if it is determined that such action is the most effective means of protecting the populace and vital equipment and supplies from the effects of such storms.

**III. SITUATION AND ASSUMPTIONS**

**A. Situation**

1. General

Coastal areas of Texas are at risk from the threat of hurricanes. There is a significant possibility that a hurricane will strike the Texas coast and impact political jurisdictions within Harris County with extremely strong winds, storm surge, and torrential rains; tornadoes may also be spawned by the hurricane. The potential for damage will depend on the storm's strength and storm path.

2. Vulnerable Areas

Areas that may be directly impacted by storm surge caused by a hurricane are grouped into Evacuation Zones A, B, and C. These zones encompass the increased level of risk inherent to the five hurricane categories and are subsequently grouped as follows (Portions of the City of Houston fall within all three Evacuation Zones);

- a. Zone A – Hurricane Category 1-2;
- b. Zone B – Hurricane Category 3
- c. Zone C – Hurricane Category 4-5

3. Potential Evacuation Routes and Estimated Evacuation Times. See DPS Traffic Management Plan.

4. Transportation. Attachment 3 of this appendix outlines expected transportation modes and requirements for transportation support.

**B. Assumptions**

- 1. Evacuation of local residents at risk from the effects of hurricanes is an effective means of saving lives and reducing personal injuries.
- 2. Hurricane planning and response requires cooperation and coordination. OEM will work with other regional jurisdictions, host jurisdictions, and the state to ensure preparedness prior to Hurricane Season.

3. Tropical weather advisories and marine advisories from the National Weather Service are disseminated through the Texas Law Enforcement Telecommunications System (TLETS). Department of Public Safety (DPS) also broadcasts summaries of ESTED-TX (Estimated amount of Safe Time remaining for Evacuation Decisions-Texas Coast) evacuation decision aid analyses via TLETS. TLETS reports are received locally by the Houston Police Department. For users of the personal computer version of ESTED-TX, weather information is a required input to the software.
4. School districts will dismiss classes prior to the implementation of planned evacuation; hence, school children will evacuate with their families.
5. Civic, religious, and volunteer organizations will cooperate in preparing for and conducting hurricane evacuation.
6. Public shelters will not be operated in areas vulnerable to hurricane surge or riverine flooding; hence, shelters will not be set up in an Evacuation Zone; Reference G pertains. It is considered inadvisable to operate shelters in area's that may directly experience major hurricane force winds; in general, the Red Cross will not operate shelters in areas where Category 3 or worse storm effects (winds of 111 mph or more) are expected.
7. Based on a survey of local residents, it is estimated that **89** percent of the population in Evacuation Zone's will evacuate when advised to do so.
8. The primary means of hurricane evacuation will be personal vehicles. Individuals without personal vehicles may require assistance in evacuating.
9. If local resources are exhausted or insufficient, support from the state and federal governments can be requested through the Disaster District Committee 2A Chairman in Houston.

#### IV. CONCEPT OF OPERATION

- A. Areas and Populations To Be Evacuated. Evacuation Zone's A-C are expected to be affected by storm surge and should be evacuated. Evacuation of additional area's should be considered if sustained hurricane winds over **130** mph can be expected.
  1. Mobile Home Residents. As unanchored mobile homes may be vulnerable to wind damage even in Category 1 hurricanes (wind speeds 74 to 96 mph), it may be appropriate to recommend early evacuation for mobile home residents.
  2. Special Needs Populations and Special Facilities. Evacuating special needs populations and special facilities may require specialized transportation equipment, support and detailed coordination with reception areas to arrange suitable facilities for prisoners, medical patients, and clients of other special facilities. It may be appropriate to recommend

early precautionary evacuation for these individuals and institutions. A list of special facilities is included in Attachment 4 of this appendix.

- B. Pre-Evacuation Warning. It is desirable to provide pre-evacuation warnings to residents of Evacuation Zone's A-C. Warnings and pertinent instructions will be provided to the public via use of the media based on the nature of the potential threat. See Annex A for warning procedures and Annex I for public information procedures.
- C. Evacuation Recommendations
  - 1. An order to evacuate should be issued by the Mayor of Houston in time to permit the evacuation to be completed safely.
  - 2. Prior to issuing an order recommendation to evacuate, local governments are expected to alert other jurisdictions that may be affected by the evacuation so that they can marshal and deploy the resources needed to facilitate it.
- D. Local Shelters.
  - 1. Public shelters will not be set up in an Evacuation Zone.
  - 2. Given the difficulty of accurately predicting a hurricane's precise impact area and wind velocity at landfall, it is undesirable to operate public shelters in high wind risk areas even if forecast winds in those zones are below **130** mph. If public shelters are established in these risk area's based on a forecast of limited impact and conditions worsen as the storm nears land, shelters in these area's may no longer be safe and there may be insufficient time to move evacuees in those shelters further inland.
  - 3. If shelters for emergency service personnel, utility workers, or others must be established in any risk area, they should be established only in buildings that will not be affected by flooding. A structural engineer and an assessment of their capability to withstand expected wind loads obtained should inspect them.
- E. Local governments should identify equipment, supplies, and facilities essential for responding to and recovering from a hurricane that are at risk. Plans should be implemented to protect them in place or, if appropriate, relocate them temporarily to safer areas.
- F. Evacuation operations will be coordinated through the EOC, which will serve as the focus of direction and control.
- G. Due to the difficulties of providing traffic direction and control at night, it is desirable that an evacuation be conducted during daylight hours to the extent possible.
- H. Law Enforcement will control ingress to and egress from a disaster area, as well as the movement of persons within such an area, and the occupancy of structures in the area affected after a disaster occurs. Access control points will be established to control access to evacuated or storm-damaged areas.

## V. PROCEDURES

### A. The Evacuation Decision

1. Estimated evacuation times for Evacuation Zone's A-C have been developed. The time required to evacuate a zone is determined by the number of people at risk, the expected number of vehicles to be used in an evacuation, and the capacity of evacuation routes.
2. ESTED-TX, Hurrevac or other hurricane decision making software programs will be used by local officials as an aid to making an evacuation decision. These decision making programs provide an estimate of time remaining before an evacuation decision must be made in order to permit the evacuation to be completed safely -- before evacuation routes subject to inundation are flooded or winds capable of tipping vehicles are forecast to occur. The Mayor will issue the recommendation to evacuate based on input from appropriate emergency management personnel.
3. When an evacuation decision is made, all available methods of warning should be utilized to advise the affected population to evacuate.
4. Prior Notification of Evacuation Decision. Prior to announcing an evacuation decision to the local populace, the Mayor should notify or cause to be notified:
  - a. Other jurisdictions within the county which are located on outbound hurricane evacuation routes. Notification should be accomplished by a TLETS message group broadcast to all other jurisdictions within the county.
  - b. The Disaster District Committee 2A (DDC) Chairman (Highway Patrol Commander) in Houston by phone or TLETS message. The DDC Chairman will, in turn, notify inland counties expected to receive evacuation traffic in transit and those counties expected to receive and host evacuees from Houston by TLETS message or other means. Attachment 2 of this appendix outlines the anticipated reception areas for residents of this locality.
5. The purpose of this procedure is to ensure that those jurisdictions that will be supporting the evacuation effort are warned, so that emergency facilities can be staffed, equipment and personnel deployed, and evacuee reception plans implemented.

### B. Protection/Relocation of Essential Facilities and Material

1. The Mayor may direct deployment of personnel, equipment, and supplies to support relocated local residents in reception areas if those reception areas have insufficient resources to cope with the evacuee population they have received.
2. Key personnel and essential equipment and supplies which will be needed for response and recovery which are at risk from hurricane effects should be protected in place or temporarily removed to safer areas to protect

them. Each emergency service and department should make plans to protect its key personnel and material, coordinating temporary relocation sites with host jurisdictions as needed.

3. Each emergency service and/or department which deploys or temporarily relocates equipment, supplies, or personnel outside its jurisdiction will provide information on the material or personnel deployed and their temporary locations to the EOC/MACG via the IC.
- C. 311 (Non-emergency requests). To avoid saturating primary telephone circuits used by the emergency services, the public will be instructed to call 311, which has multiple phone lines, to handle evacuation requests. Should any requests for transportation be received, they should be referred appropriately.
- D. Transportation
1. Individuals
    - a. General. Most residents are expected to relocate in their personal vehicles. Survey results indicate that many households would take more than one vehicle during a hurricane evacuation; hence, extra space may be available in some vehicles. A strong emphasis on the need for ride sharing in public information materials could help reduce the fairly substantial requirements for public transportation for those without vehicles.
    - b. People without Vehicles. There will be a sizable number of people who do not own a vehicle. These individuals should be encouraged to seek rides with friends and neighbors, if possible. Persons within the Evacuation Zone who cannot arrange their own transportation will be provided public transportation to reception areas from neighborhood pickup points; these pickup points are located along regular routes of the METRO system. The estimated number of people who lack personal transportation is also outlined in Attachment 3 of this appendix.
    - c. Special Medical Needs Population: Any requests received by the 311 from the disabled, elderly, those who cannot get to a transportation pickup point and those with special medical needs who require assistance in relocating will be referred to METRO/CMOC for coordination.
  2. Special Needs Population
    - a. The Special Needs Population includes anyone who needs transportation to evacuate.
    - b. Residents in need of Transportation assistance should pre-register by calling 211 or by going to the City's OEM web page and filling out the online registration form.
    - c. 211 will cease pre-registration operations at H72. When this occurs, 311 will process all evacuation transportation requests.

- d. Evacuation Transportation assistance will prioritize requests based on location of individual requesting assistance, time remaining until TS force winds impact the area, and resource availability.

3. Special Facilities

- a. Special facilities, which are expected to require careful planning to evacuate, include hospitals, nursing homes, jails, and institutions for the handicapped or disabled. These facilities are required to have their own evacuation plans which outline the transportation resources required to conduct an evacuation, as well as requirements for other resources such as food, medicine, and attendants. They are expected to make arrangements with suitable reception area facilities to lodge their clients. A list of special facilities is included in Attachment 4 of this appendix.
- b. Evacuation of multiple facilities will require detailed planning and coordination because more than one facility may have planned to use the same transportation resources (such as ambulances or buses equipped with wheelchair lifts). If requested, the OEM will assist special facilities, to the best of its ability, with their transportation needs. Facility operators are responsible for advising the EOC when their facility has been evacuated and identifying the specific reception area facility or facilities to which their clients have been relocated.
- c. Whenever possible, residents of special facilities should be relocated as institutional groups, together with their attending staff. They may be housed in vacant space in existing host area facilities or in expedient facilities; prisoners and medical patients cannot be lodged in Red Cross shelters for the general public.

- 4. Essential Employees: Essential emergency service and utility employees may use personal vehicles for commuting and business. In some cases, a worker's family may use the personal vehicle to evacuate, leaving key workers without transportation to or within the risk area. Departments should work with these individuals and, if necessary, assist with transportation.

- 5. Public Information: Information on transportation pickup points, transportation request procedures for the elderly, disabled, and others who may require assistance, should be provided to the Public Information Officer for dissemination to the public.

E. Evacuation Movement

- 1. Rest and fueling facilities: Evacuees should use service stations within Houston for fueling and minor vehicle maintenance in preparation for evacuation. Service stations should be encouraged to extend their operating hours during the initial stages of the evacuation. Other jurisdictions are expected to identify rest and refueling facilities along the

designated evacuation routes.

2. Fuel Plan: The Private Sector has taken a leadership role in developing a statewide fuel plan. This plan will be implemented in two phases;
  - a. Phase I – Service Stations in coastal counties (to include City of Houston), will be topped off. Implementation of Phase I will begin at H120 with first deliveries occurring at approximately H100.
  - b. Phase II – Service Stations along Evacuation Corridors will be topped off. Implementation of Phase II begins at H72 with first deliveries occurring at Approximately H60.
3. Disabled Vehicles: Disabled vehicles should not be permitted to block evacuation routes; they should be removed from roadways as soon as possible. Houston area law enforcement units should be prepared to assist stranded motorists as towing and repair services may be degraded as the evacuation proceeds.

F. Traffic Direction and Control

1. Hurricane evacuation traffic control points to be operated by law enforcement personnel have been pre-assigned and are identified in the State Traffic Management Plan. These traffic control points are depicted and described in Attachment 2 of this appendix.
2. Law enforcement personnel staffing traffic control points should provide regular reports to Transtar on the size of the evacuation traffic flow through each traffic control point.
3. Contra-flow: The Texas Department of Transportation (TxDOT) has created a Contra-flow plan for the Evacuation Corridors leading out of the Houston-Galveston Region. TxDOT, in conjunction with DPS will implement and manage Contra-flow Operations when activated.

G. Coordination of Reception Facilities

1. Although special facilities are responsible for arranging reception facilities for their clients, the OEM, if requested, would coordinate with emergency management officials in host areas to identify suitable reception facilities. As noted above, prisoners and medical patients cannot be housed in shelters for the general population.
2. The ARC representatives should maintain contact with shelter management officials in host areas to coordinate shelter openings and closing and identify shelters where public transportation vehicles should discharge evacuees. To reduce the cycle time for public transportation, it is desirable that some of the closest public shelters be earmarked for those using public transportation. Information on the reception area shelters should be made available to the public.

H. Public Information

1. The Public Information Officer should disseminate information on

hurricane evacuation procedures through all available media.

2. Special Needs Populations. Provisions should be made to disseminate hurricane evacuation information to special needs populations, including the blind, the hearing-impaired, and non-English speaking individuals.

I. Coordination with Reception Areas

Regular coordination should be maintained with emergency management officials in those counties that are hosting evacuees from the local area in order to provide information to evacuees. Anticipated reception areas are outlined in Attachment 1 of this appendix. The purpose of this coordination is to provide evacuees information on current conditions in the evacuated area, notify people when they can return to evacuated areas, and coordinate return routes and, if necessary, public transportation for those evacuees who require it.

J. Hazardous Materials

Houston has a number of facilities which handle, transport, or store hazardous materials. Damage to these facilities by hurricanes may release toxic materials, complicating response and recovery efforts. A list of facilities handling hazardous materials is maintained by the Houston Local Emergency Planning Committee (LEPC) and the Houston Fire Department. See Annex Q for information on hazardous materials planning.

K. Security of Evacuated Areas

1. Access control points will be established to limit access to evacuated areas and patrols will be established to maintain security in evacuated areas. Access control points cannot be selected in advance, but law enforcement personnel should be prepared to establish and operate them as soon as it is clear which areas have suffered significant damage.
2. In general, access to storm-damaged areas should be limited in order to reduce public exposure to dangerous conditions and curtail theft of property from vacant homes and businesses. Access should initially be limited to:
  - a. Emergency service and public works personnel;
  - b. Utility company employees engaged in restoring utility services;
  - c. Contractors restoring damaged buildings, clearing roads, and removing debris;
  - d. Commercial vehicles delivering food, essential supplies, life support equipment, construction supplies, and related material;
  - e. Residents of the affected area, when it is determined that it is safe to reenter the area to salvage belongings and make repairs; and
  - f. Media representatives.
3. Before announcing the decision to authorize a general return of residents to an evacuated area, local officials should notify emergency management

officials in those counties which may be affected by the return traffic flow in order that traffic control resources can be deployed.

## **VI. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES**

### **A. Organization.**

See Basic Plan.

### **B. Task Assignment**

#### **1. EMC**

- a. Refer to Annex E.
- b. Notify jurisdictions within the county and the Disaster District Committee Chairman (Highway Patrol Commander) in Houston prior to advising the public to evacuate.
- c. Advise emergency management officials in reception areas and those counties on return evacuation routes prior to advising evacuees that they can return to areas that have been evacuated.

#### **2. OEM**

- a. See Annex E.
- b. Maintain information on essential emergency resources temporarily deployed out of the area to preserve them.
- c. If requested, the COH OEM would assist special needs facilities with evacuation of these facilities, to the best of their ability.
- d. Coordinate with reception area emergency management personnel to provide information and instructions to evacuees.

#### **3. Law Enforcement**

See Annex E.

#### **4. Fire Service**

See Annex E.

#### **5. Public Information Officer**

- a. See Annex E.
- b. Coordinate distribution of hurricane evacuation and emergency status information to the public through all media outlets.

#### **6. METRO - Transportation Officer**

See Annexes E& S.

#### **7. Public Works - Division of Traffic and Transportation**

See Annex E.

#### **8. Human Services Officer (Director, HDHHS)**

See Annex E.

9. ARC (per agreement)
  - a. See Annex E.
  - b. Coordinate with reception area Red Cross representatives to obtain information on shelter opening and closing plans and suitable off-load points for public transportation; provide information to the EOC.
  - c. Provide periodic reports of status of shelters for the general public to the EOC.

## **VII. REFERENCES**

- A. Hurricane Contingency Planning Guide for Brazoria, Harris, and Galveston Counties which includes:
  1. Official's Hurricane Evacuation Update and Decision Making Aids
  2. User's Manual for ESTED-TX and DERC Software
  3. RISK, data tables and computational procedures for estimating the risk of inhabitants staying in homes during a hurricane being killed
- B. Storm Atlas for Brazoria, Harris and Galveston Counties.
- C. Public Information Brochure "Texas Coastal Hurricanes"
- D. Videotape - Hurricane Preparedness Training for Houston-Galveston Study Area (includes slide show, also available separately in 35 mm format)
- E. ESTED-TX, a computerized decision aid for making evacuation decisions
- F. DERC, computer software for estimating damage to structures and casualties
- G. ARC, July 1992, Guidelines for Hurricane Evacuation Shelter Selection
- H. DPS District 2A Policy on priority flow movement of vehicular traffic evacuating inland to places of safety..

- 4 Attachments:
- 1 - Evacuee Populations
  - 2 - Evacuation Routes & Traffic Control
  - 3 - Transportation
  - 4 - Special Facilities

**Attachment 1 to Appendix 3 of Annex E**

**EVACUEE POPULATIONS**

1. Estimated population of zip codes impacted by Storm Surge within City of Houston:

<b>Category 3</b>		<b>Category 4-5</b>			
<b>Houston Zip Codes Which Intersect Evacuation Zone B</b>		<b>Houston Zip Codes Which Intersect Evacuation Zone C</b>			
<b>POP2003</b>		<b>POP2003</b>		<b>POP2003</b>	
77058	15128	77011	22964	77504	20033
77059	17897	77012	27546	77505	17861
77062	28996	77013	19738	77506	42772
77520	51037	77015	54420	77530	27967
77546	40873	77017	34224	77536	28326
77571	34122	77023	33602	77547	9627
77598	20478	77029	18429	77581	33638
		77034	27881	77587	16455
		77049	17360		
		77061	25971		
		77075	25303		
		77087	38130		
		77089	37773		
		77502	37297		
		77503	25947		
<b>Total Population</b>		<b>Total Population</b>			
<b>Zone B</b>	<b>208531</b>	<b>Zone C</b>	<b>643264</b>		
<b>Total Combined Population</b>				<b>851795</b>	

**NOTE:** Zip code boundaries extend beyond City of Houston Corporate limits. The above numbers may include residents who live in adjacent communities or the unincorporated area.

**Attachment 2 to Appendix 3 of Annex E**

**EVACUATION ROUTES & TRAFFIC CONTROL**

1. Local Evacuation Routes. Evacuation routes affecting Houston are listed below; routes are depicted on the map in Enclosure A.

<u>Primary Routes</u>	<u>Primary Routes</u>
I-45N	TX 6
Beltway 8	TX 146
610 Loop	TX 225
I-10 W	TX 288
US 59N	
US 290	

2. Potential Evacuation Routes Beyond the Study Area. Evacuation routes to more distant reception areas are described below, and depicted on the map in Enclosure B.

- a. To Conroe/Huntsville/North Texas: North on I-45.
- b. To Sealy/La Grange/Austin/San Antonio: West on I-10 to TX 71 (for La Grange and Austin) or west on I-10 to San Antonio.
- c. To Bryan/College Station/Waco: Loop 610, or US 290 to northbound TX 6.
- d. To Brenham/Waco/Central Texas: Westbound US 290 (to Brenham), north on TX 6 (to Waco/Central Texas).
- e. To Livingston/Lufkin: North on US 59.

3. Traffic Control Strategies

- a. **DPS TCP's.** DPS District 2-A Policy can be found in the Traffic Management Plan (TMP) produced and maintained by DPS.
- b. **City of Houston Local Routes.** The following are a list of possible TCP's on local routes in the evacuating areas of Houston that may need point control. These intersections will be closely monitored and police officers will be assigned appropriately based on conditions and manpower constraints.

<u>TCP#</u>	<u>Location</u>	<u>Activity</u>
HPD-1	Bay Area Blvd at Space Center	Point Control
HPD-2	Bay Area Blvd at Saturn	Point Control
HPD-3	Bay Area Blvd at El Camino Real	Point Control
HPD-4	Space Center Blvd at El Dorado	Point Control
HPD-5	El Camino Real at El Dorado	Point Control
HPD-6	El Dorado at TX 3	Point Control
HPD-7	Pineloch at Space Center Blvd	Point Control
HPD-8	Pineloch at El Camino Real	Point Control
HPD-9	Clr Lk City Blvd/Space Center Blvd	Point Control
HPD-10	Clr Lk City Blvd/El Camino Real	Point Control
HPD-11	Clear Lake City Blvd at I-45	Point Control
HPD-12	Allen-Genoa Rd at Fuqua Rd	Point Control

HPD-13	Fuqua Rd at TX 3	Point Control
HPD-14	S. Shaver at TX 3	Point Control
HPD-15	Edgebrook at TX 3	Point Control
HPD-16	Galveston Rd at Winkler	Point Control
HPD-17	Fuqua at I-45	Point Control
HPD-18	Almeda-Genoa at I-45	Point Control
HPD-19	Edgebrook at I-45	Point Control
HPD-20	College Av at I-45	Point Control
HPD-21	Monroe at I-45	Point Control
HPD-22	La Porte Freeway at Broadway	Point Control
HPD-23	Broadway at Navigation	Point Control
HPD-24	Navigation at US 90 Northbound	Point Control
HPD-25	Navigation at US 90 Southbound	Point Control
HPD-26	Clinton Dr at Loop 610	Point Control
HPD-27	Market Rd at Loop 610	Point Control
HPD-28	Federal Rd at Market St	Point Control
HPD-29	Federal Rd at I-10	Point Control

c. Freeway Evacuation - Route Management. The primary objective concerning freeway traffic during an evacuation is **to keep the traffic moving**. This will be accomplished with a combination of police patrols, police point control activities, freeway changeable message signs (both fixed and portable), and through coordination with the Greater Houston Traffic and Emergency Management Center (Houston TranStar). Both METRO Police and Houston Police will confer with the traffic professionals at TranStar to ensure the appropriate response to any traffic situation arising during an evacuation.

1) **Dynamic Message Signs (DMS)**

The principal evacuation route and the most congested will be Interstate 45 from Galveston Island through the City of Houston. Routing of evacuation traffic off of I-45 to less congested evacuation routes may be implemented to relieve congestion on the primary evacuation routes within the freeway system. This will initially be coordinated through TranStar to utilize the freeway changeable message signs to suggest alternate evacuation routes to avoid traffic congestion. Listed below are the sign locations and the likely messages that would be displayed. Traffic control objectives at the following TCP=s will support coordinated use of secondary routes and relieve congestion on I-45, I-10, and Loop 610.

<b><u>Sign (DMS) Location</u></b>	<b><u>Message</u></b>	<b><u>Message</u></b>
I-45 North Bound at Dixie Farm Road	Hurricane Evacuation Route	Avoid Delay Use BW-8 North
I-45 North Bound at Broadway	Hurricane Evacuation Route	Avoid Delay Use I-610 West
<b><u>Sign (DMS) Location</u></b>	<b><u>Message</u></b>	<b><u>Message</u></b>
I-45 North Bound at Cavalcade	Hurricane Evacuation Route	Avoid Delay Use I-610 West

I-610 West Bound at Ella	Hurricane Evacuation Route	Exit US-290
I-610 East Bound at Fulton	Hurricane Evacuation Route	Avoid Delay Use Hardy Toll Rd.
I-610 East Bound at Jensen	Hurricane Evacuation Route	Avoid Delay Use Hardy Toll Rd.
SH 288 North Bound at Alameda	Hurricane Evacuation Route	Use I-610 West
I-610 West Bound at MLK	Hurricane Evacuation Route	Avoid Delay Use I-610 West
I-10 West Bound at Sheldon	Hurricane Evacuation Route	Avoid Delay Use BW-8 North

Additionally, METRO, TxDOT, and the City of Houston Traffic Management Division have trailer mounted changeable message signs that may be deployed to specific areas to provide further information to motorists along the evacuation route.

## 2) **Increased Freeway Patrols**

At the onset of any evacuation effort, additional police patrols will be assigned by METRO along the Gulf Freeway corridor to ensure that disabled vehicles and accidents are cleared from the roadway quickly. This is perhaps the most important part of any of these plans. Lengthy lane blockage would create traffic backups that the freeway may never be able to recover from. Police will take quick and decisive action to keep the roadway clear. The Motorist Assistance Program (MAP) vans will be alerted of any evacuation efforts and asked to assign additional MAP vans along the evacuation routes. The MAP vans will provide additional support in keeping the roadway open. The Safe Clear program will assist with clearing disabled vehicles from evacuation routes within the City of Houston.

## 3) **Controlling Freeway Access**

- i. As traffic volume builds, and the level of service of the freeway decreases, one other option available to law enforcement is limiting freeway access. This effort could be considered along I-45 through the City of Houston. The concept would be that evacuation traffic traveling through the city to shelters north of Houston would have priority use of the freeway. Police officers controlling access at the major freeway interchanges will greatly improve evacuation traffic flow. A list of the major freeway interchanges to be blocked can be found within the DPS Emergency Evacuation Traffic Management Plan (TMP), Disaster District 2A – SUB 2A, pages 151-152.
- ii. Another option that may be considered is controlling access from local roadways and freeway entrance ramps. An example would

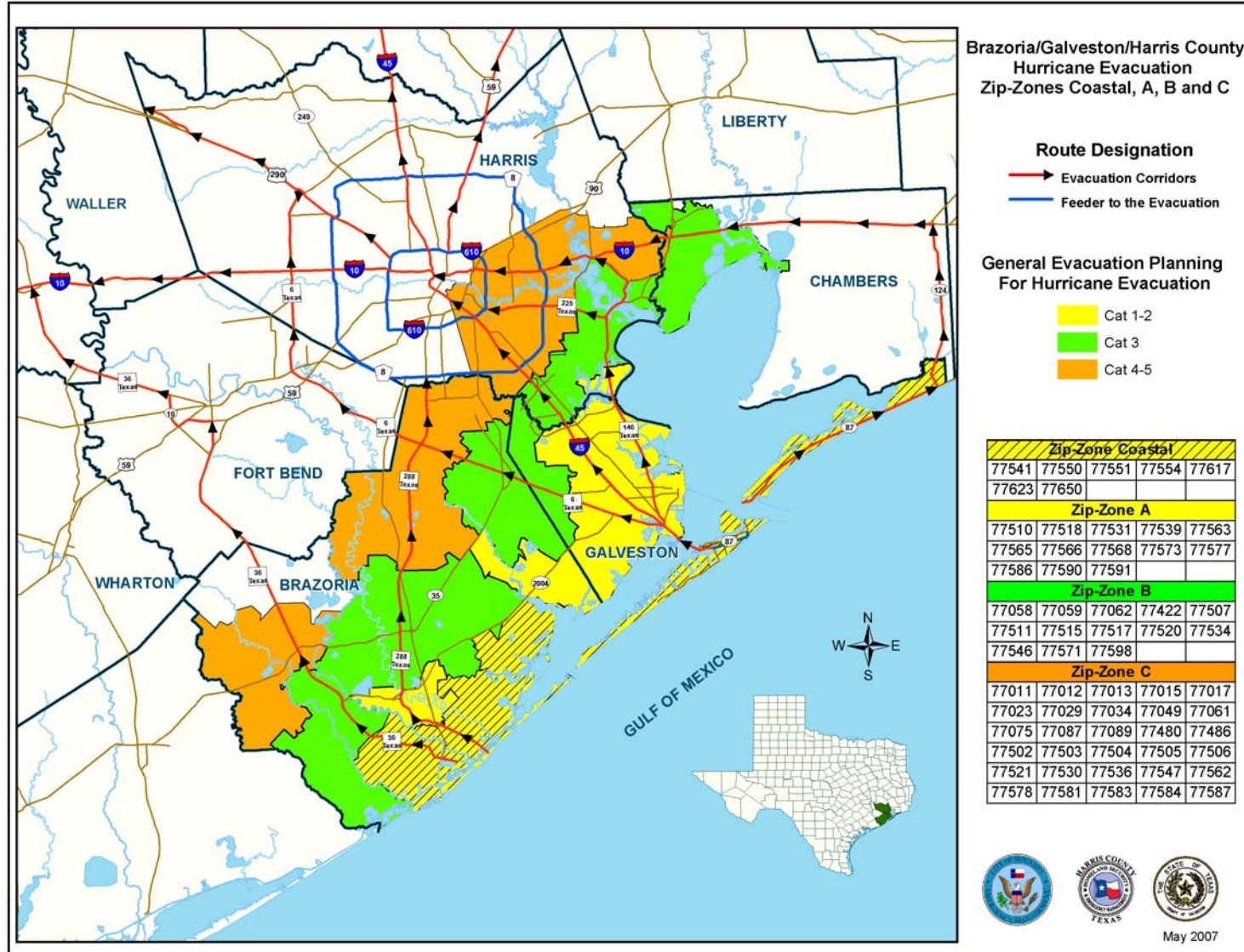
be for police officers to close entrance ramps to the northbound freeway from Bay Area Boulevard to Broadway. This would force local traffic to take major arterials such as Highway 3, providing priority to the traffic already on I-45. Traffic flows will be monitored at TranStar, and METRO officers will be assigned to restrict these entrance ramps as appropriate.

4) **Law Enforcement Coordination**

The approach of a hurricane also brings about other requirements for law enforcement other than managing the evacuation route. As such, it will be necessary to maintain close liaison with all law enforcement agencies in the region. This will ensure that all resources are used in the most efficient manner. Coordination among HPD, METRO PD, DPS, and the Harris County Sheriff's Department is essential to setting up and managing evacuation routes. MAP (Motorist Assistance Program) vans are necessary to monitor the evacuation routes. Coordination with the Constable patrols along the toll roads is important once evacuation traffic is detoured to these facilities. Through coordination and cooperation, law enforcement will be better able to meet the formidable task of managing the evacuation.

1 Enclosure: A – Regional Evacuation Zip Zone Map

**Enclosure A to Attachment 2 to Appendix 3 of Annex E**  
**Evacuation Zip Zone Map**



**Attachment 3 to Appendix 3 to Annex E**  
**TRANSPORTATION**

1. Individuals

- a. General. Most residents are expected to relocate in their personal vehicles. Survey results indicate that many households would take more than one vehicle during a hurricane evacuation; hence, extra space may be available in some vehicles. A strong emphasis on the need for ride sharing in public information materials could help reduce the fairly substantial requirements for public transportation for those without vehicles.
- b. 311: To avoid saturating primary telephone circuits used by emergency services, 311 has been established with linkage to the appropriate entities to handle requests from the elderly, disabled, and others who cannot get to public transportation collection points. 311 will compile requests by geographic area and give the information to the Transportation Officer.
- c. People without Vehicles.
  - 1) There will be a sizable number of people who do not own a vehicle. These individuals should be encouraged to seek rides with friends and neighbors, if possible. Ride sharing can significantly reduce requirements for local government to provide transportation assistance. Persons who cannot arrange their own transportation will be provided public transportation out of the evacuation area.
  - 2) The general approach for evacuating persons people who lack transportation is to designate multiple pickup points within the local area. Individuals will be collected at pickup points and transported to an Embarkation Point. Buses will depart from the staging area to inland areas. Pickup points will be identified at the time of the evacuation and passed to the general public through the media.
  - 3) The number of people who will require transportation depends primarily on the strength of the hurricane.
- d. Special Medical Needs Population Transport. The disabled, elderly, those who cannot get to a transportation pickup point, and those with special needs who require assistance in relocating will be picked up at their residences and in response to telephone requests to 311 for public transportation, and delivered to the Embarkation Point.

2. Special Needs Facilities

- a. Special Needs Facilities, which are expected to require careful planning to evacuate, include hospitals, nursing homes, jails, and institutions for the handicapped or disabled. These facilities are required to have their own evacuation plans which outline the transportation resources required to conduct an evacuation, as well as requirements for other resources such as food, medicine, and attendants. They are expected to contract with transportation

providers and make arrangements with suitable reception area facilities to lodge their clients.

- b. Evacuation of multiple facilities in a relatively short period will require detailed planning and coordination by local officials, because more than one facility may have planned to use the same transportation resources (such as ambulances or buses equipped with wheelchair lifts). The EMC is responsible for monitoring evacuation plans for special needs facilities and coordinating with them to ensure that resources which may be needed by more than one facility are made available to each at the proper time. Facility operators are responsible for advising the EOC when their facility has been evacuated and identifying the specific reception area facility or facilities to which their clients have been relocated.
  - c. Whenever possible, residents of special needs facilities should be relocated as institutional groups, together with their attending staff.
3. Essential Personnel.

Essential emergency service and utility employees may use personal vehicles for commuting and business. In some cases, an employee's family may use the personal vehicle to evacuate, leaving the essential employee without transportation to or within the risk area. Department Directors should work with these individuals and, if necessary, the Transportation Officer to arrange alternate transportation.

**Attachment 4 to Appendix 3 to Annex E**

**SPECIAL FACILITIES**

The special facilities listed below are institutions where mass evacuations may need to be conducted and which may require specialized transportation resources, specialized support equipment, and trained attendants to accompany the evacuees.

Special Facility -----	Jurisdiction Responsible for Evacuation Monitoring -----
<b>Hospitals:</b>	
East Houston Regional Medical Center 13111 East Freeway	City of Houston
Memorial Hermann Southeast Hospital 11800 Astoria Blvd.	City of Houston
<b>ICF-MR</b>	
Bosworth Living Center 5126 Bosworth St.	City of Houston
Bellfort House 1103 Festival Drive	City of Houston
Pebbleshire House 7865 Pecan Villa	City of Houston
Ravenhead Living Center 314 Ravenhead St.	City of Houston
<b>Assisted Living Facilities:</b>	
Oak Shadows Allendale 1 LTD 4801 Allendale	City of Houston
The Rosemont Assisted Living 14101 Bay Pointe	City of Houston
J & P Home Care Assisted Living 6431 Gammage	City of Houston

Glorious Days Personal Care 1706 Gellhorn	City of Houston
Exceptional Care Inc. 8414 Glencross St.	City of Houston
Active Seniors Unlimited Inc. 6314 Schevers St.	City of Houston

**Nursing Facility:**

Mission Care Centers-All Sea 6150 South Loop East	City of Houston
Briarwood Health Care Center 7633 Bellfort	City of Houston
Afton Oaks Nursing Center 7514 Kingsley	City of Houston
Park Manor of South Belt 11902 Resource Parkway	City of Houston
Courtyard Convalescent Center 7499 Stanwick Drive	City of Houston
Silver Springs Healthcare Center 12350 Wood Bayou Drive	City of Houston

**Adult Day Care:**

Adult Town Day Care 4450 South Wayside	City of Houston
Vitality Health Care Service 9715 Telephone Rd.	City of Houston
South Texas Adult Day Activities 6011 Telephone Rd.	City of Houston