

ALABAMA HURRICANE EVACUATION PROJECT  
CRITICAL TRANSPORTATION NEEDS (CTN)  
NATIONAL HURRICANE PROGRAM

Mobile, AL  
September 2009



*Prepared for:* Federal Emergency Management Agency

*Prepared by:* U.S. Army Corps of Engineers: National Planning Center of Expertise for Coastal Storm Damage Reduction and U.S. Army Corps of Engineers: Mobile District



**FEMA**

**CRITICAL TRANSPORTATION NEEDS  
FOR THE ALABAMA HURRICANE EVACUATION PROJECT  
National Hurricane Program**

**FINAL REPORT**

*Prepared for:*

Federal Emergency Management Agency  
National Hurricane Program



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Coastal Storm Damage Reduction and  
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**September 2009**

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## TASK ONE

### A. KICK-OFF MEETING

#### OVERVIEW

The contractor and the USACE study leader will meet with the Alabama Emergency Management Agency (AEMA) to review the tasks outlined in the scope of work. The contractor will prepare a presentation that outlines and describes each task, project challenges, and data collection requirements. This meeting will also be used to discuss AEMA's Rapid Cast System and how it might be used to administer a survey. The Kick-Off meeting will occur at the AEMA EOC in Clanton, Alabama. **Deliverables will include a PowerPoint presentation that outlines the study process, describes project challenges, and identifies data collection requirements.**

## B. CONDUCT LITERATURE REVIEW

### OVERVIEW

The contractor will conduct a review of published materials and studies from authoritative sources related to the demographics of transportation-dependent citizens. Examples of ways in which several areas have handled or are planning to handle the needs of the carless population in evacuations will be collected. The contractor will review the recent national study “The Role of Transit in Emergency Evacuation” conducted by the National Academies of Science for Congress and the Transportation Research Board (TRB). **Deliverables will include a bibliography listing of resources for a topical resource library and a synopsis of the major findings will be prepared.**

### NARRATIVE

#### Meeting the Needs of Transportation-Dependent Citizens—A Literature Summary

Recent evacuation experiences in Hurricanes Katrina, Rita and Ike highlight the ongoing issues of those who need public assistance during evacuation. Associated with each hurricane are success stories, such as the community based organization, Operation Brother’s Keeper, that accounted for the evacuation of 60% of Jefferson Parish’s population without transportation (U. S. Department of Health and Human Services N.D.). Conversely, there are many examples of problems encountered, such as the tragedy of the Hurricane Katrina deaths in New Orleans, and the problems associated with traffic congestion in Hurricane Ike as hundreds of thousands fled the Houston area (Harden and Moreno 2005).

In the aftermath of Hurricane Katrina, numerous studies were undertaken, many with Congressional mandates, to examine what could be done to better serve the needs of transportation-dependent and other vulnerable groups during emergency evacuations. Examples include “The Role of Transit in Emergency Evacuation” (Transportation Research Board of the National Academies 2008), “Catastrophic Hurricane Evacuation Plan Evaluation” (U.S. Department of Transportation and U.S. Department of Homeland Security 2006), “Transportation Equity in Emergencies” (Federal Transit Administration 2007), and the “National Study on Carless and Special Needs Evacuation Planning” (Renne, Sanchez et al. 2008). While their foci differed somewhat, all identified weaknesses in current plans. In particular, plans in the Gulf Coast region were described as not being well developed, both for people living at home and for those in institutions (U.S. Department of Transportation and U.S. Department of Homeland Security 2006). Most focused on solutions – finding ways to better evacuate transportation-dependent citizens, including those with special physical and medical needs. A beginning point is better identification of these population groups, their locations and their specific needs.

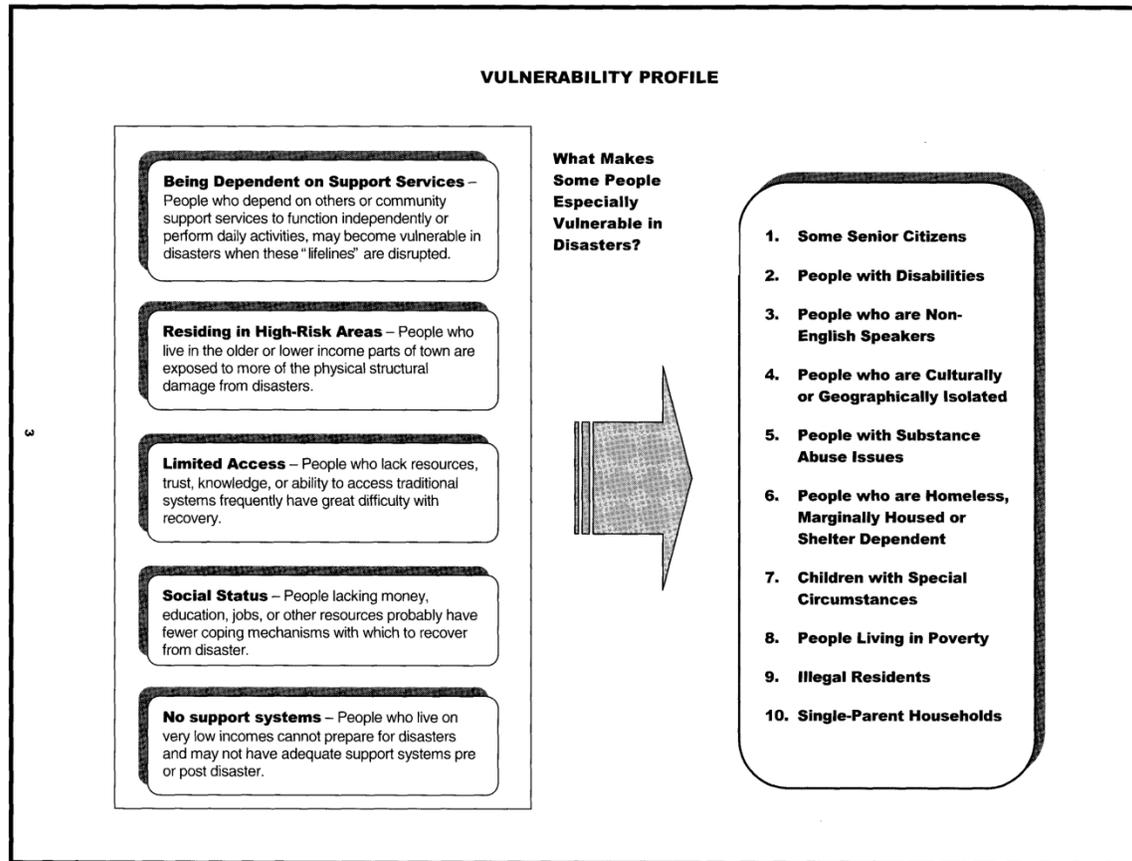
## IDENTIFYING TRANSPORTATION-DEPENDENT AND OTHER VULNERABLE POPULATIONS

Census data on households without vehicles is a logical place to begin. While the national average is about 10%, in many metropolitan areas it runs much higher (U.S. Census 2007). In New Orleans, for example, it was 27% at the time of Hurricane Katrina and in New York City it is 56%. However, at least one study revealed that rates can also be high in smaller cities and towns (Hess and Gotham 2007). For purposes of this project, the rates reported for Baldwin and Mobile counties are 4.4% and 7.0% respectively, indicating fewer transportation-dependent citizens than the national average. However, it cannot be assumed that every household with a vehicle has the means to use it for evacuation. “Carless” has been defined broadly “to include anyone, for any reason, that does not have access to an automobile or to use it for purposes of evacuation (no money for gas and lodging, fearful of operating it under stress, etc.)” (Renne, Sanchez et al. 2008). As an example, it is not unusual for an older person to own a car, but not feel comfortable using it for evacuation.

Another issue is that those who do not own vehicles are likely to have other social, economic and physical factors associated with increased hazard vulnerability. The national carless rate is higher among poor households (about 20%), renters (about 18%), single-person households (about 19%) and minorities (22%) (Research and Innovative Technology Administration 2001). All of these social and economic factors, as well as age, gender and housing tenancy, have been found to be associated with increased vulnerability (Cutter, Boruff et al. 2003); (Enarson, Childers et al. 2003) (Peacock, Morrow et al. 1997; Fothergill, Maestras et al. 1999; Pastor, Bullard et al. 2006). Further, 10% of the population is disabled and many, if not most disabled citizens, do not drive. Severely disabled persons have about half the income of the able-bodied (U. S. Census Bureau 2008). Older citizens drive less even when they have vehicles (Gotti 2004). It is important to note that these vulnerability factors are not mutually exclusive and, in fact, tend to cluster in ways that render certain groups highly vulnerable. At the highest end of the vulnerability spectrum, for example, would be an elderly minority disabled woman who rents her home – not difficult to find in most communities and highly evident in the tragedy of Hurricane Katrina and New Orleans. Not only does this represent a disproportionate number of the deaths that occurred, it also describes many who survived but had to subsequently be evacuated to shelters in other areas (Alman, Benson et al. 2006).

People with these vulnerability characteristics are, of course, not equally at risk. The extent to which a person has a family or support system is highly relevant (Morrow 1997). The importance of social capital, or resources that can be derived through one’s social network, in disaster resilience is well-documented (Cordasco 2006). However, it should be noted that shared norms, local cultures and traditions, and responsibilities to social networks can also result in unsafe decisions. Many who did not evacuate New Orleans for Hurricane Katrina reported being influenced by their social networks (Cordasco 2006; NOAA Coastal Services Center N.D.).

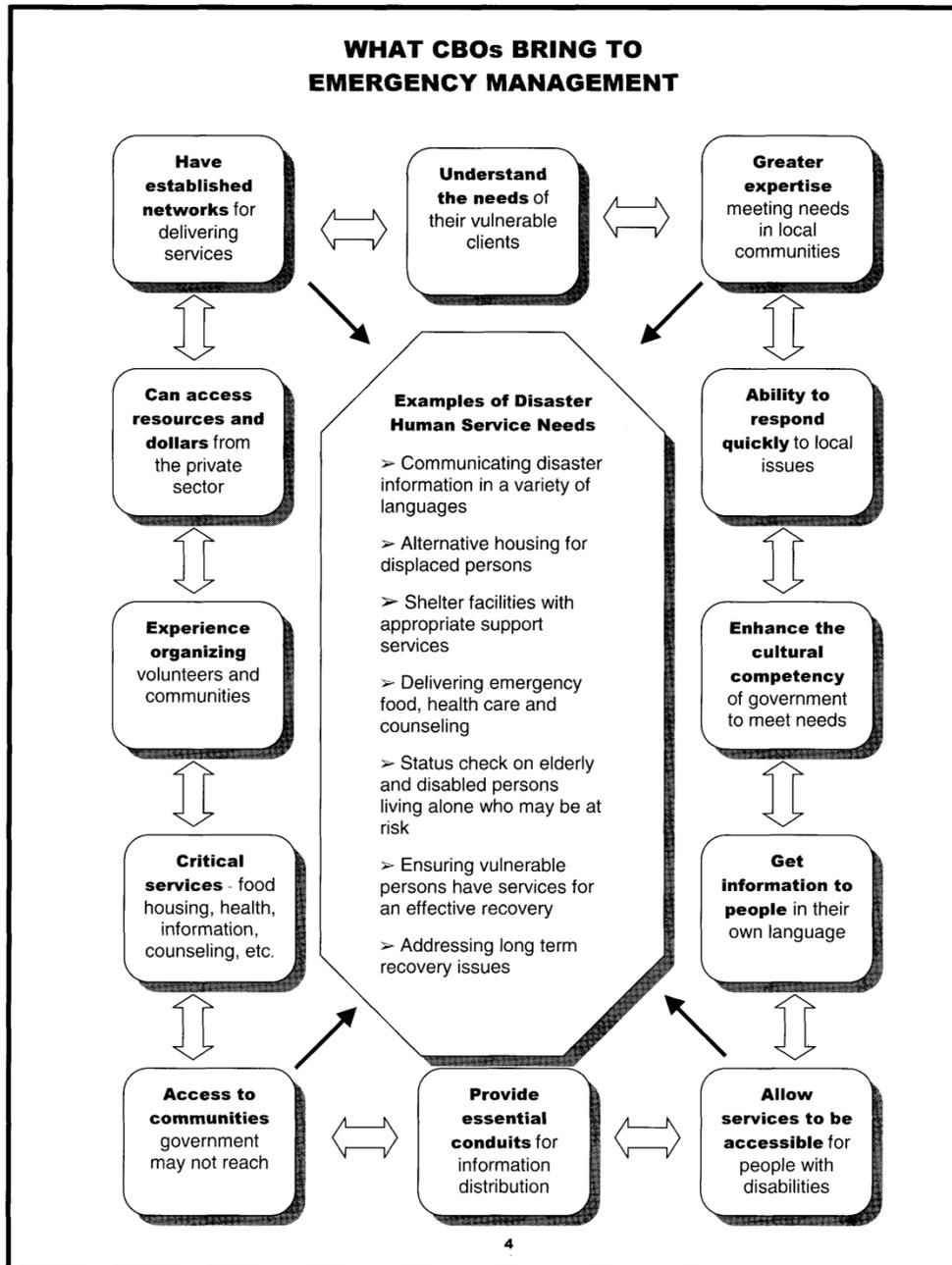
Various schemes have been developed to assist emergency managers in determining the number and characteristics of vulnerable populations in their communities, including Community Vulnerability Mapping (Morrow 1999; NOAA Coastal Services Center N.D.). Figure 1-1 presents a Vulnerability Profile that simplifies the process of identifying vulnerable segments of the community (California Governor's Office of Emergency Services 2000).



**Figure 1-1: Vulnerability Profile. California Governor's Office of Emergency Services 2000.**

Noting the lack of adequate provisions for the evacuation of the transportation-dependent in the local and regional evacuation plans examined in one national study, the authors state "Identifying carless populations and being able to gauge their level of transportation mobility may be the greatest obstacle to a successful evacuation (Renne, Sanchez et al. 2008).

A common recommendation is that community-based organizations (CBOs) can play a major role in increasing the resilience of these groups. Emergency managers are urged to be proactive in seeking their assistance with education, registration, transportation and other functions. The diagram in Figure 1-2 illustrates what CBOs bring to emergency management.



**Figure 1-2: What CBOs Bring to Emergency Management. California Governor's Office of Emergency Services 2000**

## DEFINING TRANSPORTATION NEEDS

Various methods can be used to categorize special needs related to evacuation. One way is to take a functional perspective (Kailes and Enders 2007). The National Response Plan definition includes people who may have additional needs before, during and after an incident in these functional areas:

- **Maintaining Independence.** Persons requiring support in order to be independent, such as consumable medical supplies, (diapers, ostomy supplies, formula, etc.), durable medical equipment (wheelchairs, walkers, etc.), service animals, and/or attendants or caregivers. With these they can maintain their pre-disaster level of independence.
- **Communication.** Those who have limitations that interfere with the receipt of and response with the receipt of information. They may have vision, hearing, speech, cognitive or intellectual limitations and/or limited English proficiency.
- **Transportation.** These are people who cannot drive or who do not have a vehicle. They need transportation and this may include accessible vehicles or just information about how and where to access mass transportation.
- **Supervision.** These are persons who require the support of caregivers.
- **Medical Care.** This includes persons who are not self-sufficient and who require the support of trained medical professionals.

The above examples illustrate function-based needs that may exist within the community (General Accounting Office 2006). They are useful in inventorying the types of services that need to be available during an evacuation. How these services are met requires a determination of the type and level of resources required. Some people only need regular transportation to general-population shelters, some have mobility issues that require special transportation with chair lifts, but can still function in regular shelters. Others have special transportation needs, as well as needs for extra supervision and/or equipment and supplies. Fewer will have serious medical needs that require the supervision of health professionals, and some will have acute medical needs that require a hospital facility.

Looking only at the transportation component, emergency planners have to make provisions for:

- Public transportation for citizens with no special needs
- Transportation for those who need special vehicles with lifts
- Transportation for those who require stretchers

Further, the level of assistance with access to the transportation varies:

- No assistance
- Assistance from front of home
- Assistance to get out of home

An essential step is the determination of the extent to which each of these needs exists within the community. As previously mentioned, Census data is the place to begin. However, in order to plan for the necessary resources, it is important to know more about the location and circumstances of those needing special transportation and shelter. This requires a registry. While most jurisdictions have established registries, for the most part they have been found to be inaccurate and incomplete (General Accounting Office 2006). For this project, the registration issue is discussed in Task 1F.

In summary the evacuation needs of any community require specially planned transportation and shelter resources that will vary depending on the characteristics of the population facing evacuation.

## **PROVIDING TRANSPORTATION NEEDS**

Given the relationship between social and economic conditions and lack of a household vehicle, it is important for emergency managers to know where these populations tend to dwell within the community. When an evacuation is required, the transit service can send extra buses into poorer areas where public and/or low-income housing exist, and to areas where there are concentrations of the elderly. Paratransit vehicles or buses with chair lifts have to be dispatched to the homes of those with more serious mobility and/or health issues. For this reason, it is important that registries have a geo-based database. Most homebound citizens require ambulance or fire rescue personnel to come to their home and assist with their evacuation. The evacuation of people in hospitals, independent living complexes and other institutions is typically the responsibility of the facility managers. However, their plans need to be approved by emergency management or public health officials. In many instances, such as in New Orleans with Katrina, these plans have proven to be woefully inadequate, often relying on the same transportation sources.

The destination of these vehicles will vary according to the functioning level of those being transported. Most transportation-dependent citizens only require transportation in order to evacuate. This can involve providing public transportation to shelters or to hubs for transferring to other modes of evacuation, when it is necessary to leave the local area. Final destinations will include general shelters, specialized shelters and hospitals.

General shelters, or mass care shelters, are typically established in schools or other public buildings approved for this purpose. They are often managed by the American Red Cross (ARC) and staffed by their workers, government employees and volunteers. The *ARC Guide for Shelter Managers* calls for each shelter to be staffed with a nurse (American Red Cross 1988.) In some cases Special Needs shelters are provided for anyone who needs extra care, supplies or equipment, regardless of level of need. More commonly, Special Medical Needs or Medically Managed Shelters are provided for those with the most acute need for medical personnel and care. Typically these are the responsibility of the local jurisdiction and often use personnel from public health, local hospitals, medical schools and other health facilities. In some communities, there are also special shelters that are dedicated to pet owners, the elderly, the homeless, and/or families with children.

In summary meeting the needs of the transportation-dependent and other vulnerable groups is a complex task, requiring significant human and material resources and management expertise.

## EXAMPLES OF PROGRAMS TO SERVE TRANSPORTATION-DEPENDENT CITIZENS

As mentioned earlier, the situation in New Orleans associated with Hurricane Katrina precipitated several national studies. The emergency plans of many jurisdictions were examined including the 38 urbanized areas studied by the TRB Committee on the Role of Transit in Emergency Evacuation, 20 areas by the General Accounting Office (GAO) study, and 50 by University of New Orleans National Study on Carless and Special Needs Evacuation Planning. In all cases, most areas were found to be inadequately prepared for the evacuation of disadvantaged and special needs populations (General Accounting Office 2006; Renne, Sanchez et al. 2008; Transportation Research Board of the National Academies 2008).

Some coastal jurisdictions have more experience with hurricane evacuations, and thus have been able to use that experience to develop more refined plans for meeting the needs of their transportation-dependent citizens. And, of course, some have more resources. In Florida, state funds are provided from a \$1.50 annual fee on each registered passenger vehicle in the state to fund a Community Transportation Coordinator in each participating county whose responsibilities include ensuring that transportation is provided for those citizens who are unable to provide it for themselves. In addition the state collects \$2.00 from homeowners' insurance policies and \$4.00 from business insurance policies that make up an Emergency Management and Preparedness Assistance Trust Fund. Some of these funds are distributed annually to local agencies through competitive grants. That being said, Florida counties are not equally prepared.

In Florida special-needs populations are defined as those with medical impairments that exceed the capability of a general population shelter but do not require the level of care provided at a skilled medical facility. State regulations mandate that each county have special needs shelters to accommodate these citizens.

As part of its work the TRB study completed five in-depth case studies, one of which was the Tampa Urbanized Area (UA) of Hillsborough and Pinellas counties (Tampa-St. Petersburg). The emergency plans of these two counties include extensive provisions for transit-dependent citizens, including those with special needs. According to the TRB study, "The State of Florida in general and the Tampa UA in particular are well organized to handle the evacuation of special-needs populations in an emergency" (Transportation Research Board of the National Academies 2008, p. 261). While each jurisdiction has unique challenges, some of the policies and practices used in the Tampa area may have relevance for Baldwin and Mobile counties.

## Tampa, Florida

Tampa (Hillsborough County) has about 1,175,000 residents, including many who will need transportation in an emergency evacuation. A national study examined how these needs are being met (Transportation Research Board of the National Academies 2008).

- The Hillsborough Department of Emergency Management (DEM) is responsible for emergency planning, including evacuation.
- Transit service is provided by the county through the Hillsborough County Regional Transit Authority (Hartline) and the Sunshine Lines. Hartline has both regular buses (all ADA accessible) and paratransit vehicles. Sunshine has a fleet of lift-equipped vans. Additional resources are available from the school system which has signed up 220 drivers to serve as volunteer school bus drivers if needed.
- Major evacuation routes and evacuation pickup points have been identified and signed.
- Based on surge models and expected inundation, five evacuation zones have been established. Mobile home residents must evacuate anytime an evacuation order is called, regardless of the level of threat.
- Residents can enter their address on a website and receive information about their evacuation zone and the location of nearby shelters ([http://gisweb.hillsboroughcounty.org/heat/Evac\\_lookups/menu\\_cf.cfm](http://gisweb.hillsboroughcounty.org/heat/Evac_lookups/menu_cf.cfm)).
- Once an evacuation order is given, regular bus service is gradually suspended and Hartline begins service on special, pre-designated evacuation routes.
- Both Hartline and Sunshine Services send out paratransit vehicles when dispatched.
- Transit providers are prepared to handle domestic pets in an emergency evacuation as long as they are properly caged and muzzled. Only service animals will be allowed on school buses.
- All transportation services are controlled by the DEM, with vehicle dispatch handled from the Emergency Operations Center.
- The county health department is responsible for staffing the special needs shelters.
- Since the 1980s state law has required the establishment of a local voluntary special-needs registry in each county. The regulations define the type of information to be collected, including any transportation needs.
- Hillsborough County has about 5,000 individuals signed up on its Special Needs Registry. Officials believe this does not adequately reflect those who might need the services in a major hurricane.
- Officials estimate that about 3,500 of these would require transportation during an evacuation.
- The county has four special-needs shelters, including one specifically for children.
- Every effort is made to evacuate special-needs populations ahead of the rest of the population.

- A worst-case scenario analysis estimates that there will be sufficient vans and buses to evacuate up to 11,000 special-needs passengers who were ambulatory or required a wheelchair.
- The county conducts eight to ten exercises and drills each year.
- Multiple efforts are underway to limit the number of people needing to evacuate, including the mitigation of group living facilities, working with local businesses to limit their closing time, and education to encourage those with safe homes to “shelter in place.”

## St. Petersburg, Florida

Examining how Pinellas County (St. Petersburg) handles its transportation and special needs demands allows comparison of two jurisdictions in the same region with similar hurricane threat. Its population of about 940,000 is highly concentrated on a peninsula with the Gulf Coast on the west and Tampa Bay on the east. If residents have to evacuate there are three major bridges heading east to Hillsborough County. Once there, they must merge with evacuees from other areas. For this reason, county policy is for residents to evacuate to higher ground within the county.

- Pinellas County Emergency Management (PCEM) is responsible for emergency planning, including evacuation.
- Transit service is provided by an independent authority, the Pinellas Suncoast Transit Authority (PSTA), with its fleet of buses and several trolleys. It contracts paratransit needs out to private providers, Sunstar Paramedics, Wheelchair Transport, and Neighborly Services. School buses are slated to be used when needed for evacuation.
- Signs have been posted on all evacuation routes.
- There are five evacuation zones. Mobile home residents must always evacuate.
- There are several ways for residents to find out if they are in an evacuation zone. They can (1) type in their address on the internet (<http://www.pinellascounty.org/emergency/knowyourzone.htm>); (2) dial a call-in number, provide their own phone number, and be told what zone they are in; or (3) pinpoint their location on evacuation zone maps, which are both readily distributed and included with residents’ utility bills. An elevation map for the county is also available on the internet.
- The PSTA and the school board are the lead agencies for transportation in an emergency. The Pinellas County Emergency Management coordinates the resources at its Emergency Operations Center. PSTA would continue its regular services, taking people to shelters along its routes. They will take pets if properly caged.
- Paratransit services will be supplied by PSTA, supplemented by their contractors as needed. Chair-lift school buses will also be used to pickup special needs citizens.
- The county health department staffs the special needs shelters. Florida’s Department of Health has statewide sheltering responsibilities.

- Registration is required for transportation assistance and highly recommended for special-needs sheltering. Registration can be done on-line, through the PCEM, or through local fire departments. PCEM maintains the registry, but copies are sent to local fire departments. The fire departments contact the registrants from the area at least one time a year to update the forms. Most of the registrations come from home health care workers and other health or medical personnel.
- Pinellas County currently has 3,400 people registered for special-needs shelters, 2,400 of which need some form of transportation.
- Officials estimate that 75-80% of those registered will need the services. On the other hand, they expect a rash of last-minute calls.
- Pinellas County is estimated to have a homeless population of 3,000-4,000. Special transportation has been arranged for them, using school buses. Two to three of the shelters are “homeless friendly.” Information about emergency transportation is posted at shelters, soup kitchens and hostels.
- The county has at least two major exercises annually, one as part of the statewide annual hurricane exercise.

In conclusion, considerable information, both in the literature and local evacuation plans, related to the transportation and sheltering needs of transportation-dependent and other vulnerable groups during hurricane evacuation, has been reviewed for this project. Undoubtedly, building on the experiences of others, particularly those with similar hazard vulnerability to coastal Alabama, and/or those with recent evacuation experience, is a wise emergency management strategy.

## C. DEFINE THE CRITICAL TRANSPORTATION NEEDS POPULATIONS

### OVERVIEW

The contractor will identify and contact representatives of the major public and/or private social service agencies in Mobile and Baldwin Counties to assess and define the Critical Needs Populations. **Deliverables will include a listing of categories of CTN populations that identifies subsets according to the nature of their needs, including but not limited to, power-dependent, disabilities, mobility, medication, power, language requirements, etc. The contractor will also provide documentation of all contacts including date, time, organization, contact person, phone number, address, discussion and findings.**

### NARRATIVE

With assistance from the county emergency management offices, Kick-Off Meetings were held in Baldwin and Mobile counties. The local Emergency Managers invited representatives from social and health agencies that they felt should be involved in defining the county's CTN population. In Mobile County 11 agency representatives attended, as well as Walt Dickerson and two of his staff. In Baldwin County 44 agency representatives attended, as well as Leigh Ann Ryals, a member of her staff and Patrick Tritz from the Alabama Emergency Management Agency. John Eringman from the Corps attended both sessions. Meeting notes can be found in Appendix C.

At each session Dr. Betty Morrow introduced the project with a Powerpoint presentation (previously submitted). She provided 2007 U.S. Census estimates in categories most likely to have CTN, such as households below the poverty line, households with elderly or disabled members, and households without vehicles. Several of these categories were illustrated in GIS maps for each county, prepared by Dr. Hugh Gladwin, showing their zip code locations. (See attached maps.) These were compared to current evacuation zone maps. (Note: Both counties are in the process of revising their evacuation maps.) The extent to which clusters of these possible CTN populations were located in evacuation zones was discussed.

An open discussion followed on the extent to which these agency representatives felt their clientele were likely to need evacuation transportation. In discussing the project, Morrow illustrated the need to have data about these populations tied to addresses so it could be mapped to provide the locations where there were likely to be the greatest CTN. There was some discussion of possible privacy issues, but it was felt that since this was for the government, all that would be needed was a letter from the state director of emergency management. It was decided that the letter should also be from the county directors. Patrick Tritz agreed to take care of this.

The agency representatives were generally agreeable to the idea of sharing their client data (minus names) either via fax or email. Morrow is currently following up to obtain these data that will be entered into a GIS-referenced database by Dewberry. In Task Two of this project the population within these clusters will be sampled and surveyed to provide data on the number of persons likely to need transportation.

A registry where people could sign up for transportation, providing information about the exact nature of their needs (medical, etc.), is needed in each county. In Mobile County it was decided that Volunteer Mobile would continue to be responsible for this registry. They currently have about 100 persons who have signed up – clearly not a realistic number. It has not been decided who will be responsible for the registry in Baldwin County. EM director Leigh Anne Ryals is exploring the possibilities. Local fire departments did not seem feasible for this responsibility since many are volunteer fire services. It was agreed that in order to keep registries current, the list would need to be called about every three months. Also that it would be essential to keep information on the type of transportation and special services required by each registrant.

## CONTACTS

Records of contacts with agency representatives are presented in Tables 1-1 and 1-2. Any client data that is shared over the next few weeks will be entered into a GIS-referenced database for each county as evidence of the likelihood of CTN citizens residing in these areas. Samples will then be drawn from these areas for the survey(s) that will be completed in Task Two.

### **Relevant Agencies and Services**

The following types of agencies were identified as more likely to have clients who need transportation, including special transportation requirements:

- Meals on Wheels or other feeding programs
- Senior citizen services
- Agencies serving the homeless
- Dialysis and other medical services
- Veterans' services
- Power companies that keep lists of people with electrical medical needs
- Public health services, including services for pregnant women and young mothers (such as WIC program)
- Hospitals (identification of recently released patients)
- Services for persons with visual and/or hearing impairments
- Mental health services

## Relevant Categories

The following categories were identified as persons more likely to need transportation:

- Households without vehicles
- Low income households with insufficient resources to evacuate, even if they have vehicles  
The homeless
- Those with medical needs that require special transportation such as electricity, oxygen and stretchers

Within the categories of persons who are likely to need public transportation during evacuations several sub-categories emerged that will require special attention regarding the type of transport and service:

- Able bodied who will likely only need to be picked up at hubs
- Frail adults or small children who may need regular transportation to a regular shelter
- Disabled or ill who need Special Transportation vehicles and may or may not need to go to a Special Needs shelter
- Those with more serious medical problems that will need ambulances or busses equipped with stretchers and Special Needs shelters
- Persons who do not speak English who will need access to someone who speaks Spanish (the most common second language)

## Other Outcomes

There was considerable discussion at the Kick Off meetings about how to publicize the transportation services, and how to get people who need it to register. The Baldwin County Emergency Management Agency decided to prepare a special brochure (maybe several different ones) to be given to various constituencies. Other suggestions included: putting a message on a TV screen crawl, sending leaflets with delivered meals, and having registration on the check-out list when case managers release patients from hospital .

While outside the purview of this project, there was some discussion about what nursing homes, hospitals and independent living facilities need to do related to evacuations. It was clear that there are unresolved issues, such as concerns about insufficient transportation services to move patients. In Baldwin County the need for more conversion kits for regular busses was mentioned. There was also concern about having sufficient personnel available to accompany those with acute needs, including the mentally unstable.

While the basic requirements of this Task have been completed, the contractor will continue supplementing the database as additional addresses are submitted by various agencies. These data will continue to be placed into a GIS-referenced database by Dewberry to determine where sampling should occur for the survey.

BALDWIN COUNTY

Table 1-1 Baldwin County Contacts through April 7, 2009

Agency	Address	Phone	Contact Person	Email	Date/ Type of Contact
AL Dept of Public Health	23280 Gilbert Dr.,Robertsdale 36567	(251) 947-6206	Jenni Guerry	<a href="mailto:Jenni.guerry@adph.state.al.us">Jenni.guerry@adph.state.al.us</a>	4/01 Meeting
Baldwin Co Call Center	22251 Palmer St., Robertsdale 36567	(251) 970-4014	Shannon Spivey	<a href="mailto:sspivey@co.baldwin.al.us">sspivey@co.baldwin.al.us</a>	4/01 Meeting
Baldwin Co Health Dept	23280 Gilbert Dr.,Robertsdale 36567	(251) 947-1910	Jan Perry	<a href="mailto:Jan.Perry@adph.state.al.us">Jan.Perry@adph.state.al.us</a>	4/01 Meeting 4/4 email
Baldwin Co. Health Dept	23280 Gilbert Dr. Robertsdale 36567	(251) 947-1910	Peggy Thompson	<a href="mailto:Peggy.thompson@adph.state.al.us">Peggy.thompson@adph.state.al.us</a>	4/01Meeting 4/4 Email
Green State Veterans' Home	300 Faul Kner Drive Bay Minette 36507	(251) 937-9881	Jerry Harville		4/01 Meeting
Thomas Hospital	750 Murphy Ave Fairhope 36533	(251) 279-1503	Julie Rowell	<a href="mailto:jrowell@infirmarhealth.org">jrowell@infirmarhealth.org</a>	4/01 Meeting
Thomas Hospital	750 Murphy Ave Fairhope 36533	(251) 279-1268	Georgie Cain	<a href="mailto:Georgie.cain@infirmarhealth.org">Georgie.cain@infirmarhealth.org</a>	4/01 Meeting
American Red Cross	300 N. Hoyle Ave Bay Minette 36507 412 E. Laurel Ave. Foley 36535	(251) 937-3801 (251) 943-3844	Diane Clewell	<a href="mailto:clewelld@redcrossalcoast.org">clewelld@redcrossalcoast.org</a>	4/01 Meeting
Mercy Medical	101 Villa Drive Daphne 36526	(251) 621-4841	Sarah Haulman	<a href="mailto:sarahh@SA_Mercymedical.org">sarahh@SA_Mercymedical.org</a>	4/01 Meeting
Medstar EMS	111 W. Camphor AveFoley 36535	(251) 943-8388	Mike Sandell	<a href="mailto:msandell@medstar-ems.com">msandell@medstar-ems.com</a>	4/01 Meeting
North Baldwin EMS	840 D'Olive St Bay Minette 36507	(251) 580-9499	John Sutton	<a href="mailto:jsutton@nb-ems.com">jsutton@nb-ems.com</a>	4/01 Meeting
Community Hospice	2770 S. McKenzie Foley 36535	(251) 943-5015	Charles Jones II	<a href="mailto:cjones@comhospice.com">cjones@comhospice.com</a>	4/01 Meeting
N. Baldwin Infirmary	1815 Hand Ave Bay Minette 36507	(251) 937-5521	Lisa Bush	<a href="mailto:Lisa.bush@infirmarhealth.org">Lisa.bush@infirmarhealth.org</a>	4/01 Meeting
Council on Aging	PO Box 1070 Robertsdale	(251) 972-8506	Pat Harris	<a href="mailto:pharris@co.baldwin.al.us">pharris@co.baldwin.al.us</a>	4/01 Meeting 4/4 Email
Mid So. Home Health	9037 Independence Ave #B Daphne	(251) 621-0882	Jennifer Strachan	<a href="mailto:Jennifer.strachan@gentiva.com">Jennifer.strachan@gentiva.com</a>	4/01 Meeting
Mid So. Home Health	1390 N. McKenzie Foley	(251) 943-3002	Laura Sykora	<a href="mailto:Laura.sykora@gentiva.com">Laura.sykora@gentiva.com</a>	4/01 Meeting
ONO Island Prop. Owners Assoc	33301 River Rd Orange Beach	(251) 980-1536	Richard Carson	<a href="mailto:padipis@gulfel.com">padipis@gulfel.com</a>	4/01 Meeting 4/7 Phone
Thomas Hospital	750 Murphy Ave Fairhope 36532	(251) 279-1602	Walter McPhaul	<a href="mailto:Walter.mcphaul@infirmarhealth.org">Walter.mcphaul@infirmarhealth.org</a>	4/01 Meeting
Southern Care Hospice	19 Plantation Blvd Fairhope 36532	(251) 990-5579	Ashley Taylor	<a href="mailto:ataylor@southerncaireinc.com">ataylor@southerncaireinc.com</a>	4/01 Meeting
Amedisys Hospice	1628 N. McKenzie St. Foley 36535	(251) 971-3325	Holly Bailey	<a href="mailto:Hbailey1072@amedisys.com">Hbailey1072@amedisys.com</a>	4/01 Meeting
GoodWill Easter Seals	90 Ecor Rouge Pl., Fairhope 36532	(251) 990-7781	Judy Bradshaw	<a href="mailto:judy@gesgc.org">judy@gesgc.org</a>	4/01 Meeting 4/4 Email
AL Dept of Public Health – Area 9	23280 Gilbert Dr., Robertsdale 36560	(251) 947-6206	Mechelle Nowlin	<a href="mailto:Mechelle.nowlin@adph.state.al.us">Mechelle.nowlin@adph.state.al.us</a>	4/01 Meeting 4/4 Email

Golden Living Center	1701 N. Alston St	(251) 943-2781	Tommy Hemdon	<a href="mailto:Tommy.herndon@goldenliving.com">Tommy.herndon@goldenliving.com</a>	4/01 Meeting
Mercy Medical	101 Villa Drive Daphne 36526	(251) 621-4493	Steve Dahl	<a href="mailto:stevenD@mercymedical.com">stevenD@mercymedical.com</a>	4/01 Meeting
Baldwin Co. Health Department	22251 Palmer St., Robertsdale 36567	(251) 947-3618	Teddy King	<a href="mailto:Teddy.king@adph.state.al.us">Teddy.king@adph.state.al.us</a>	4/01 Meeting
Gulf Coast Newspapers	325 Fairhope Ave	(251) 928-2321	Curt Chapman	<a href="mailto:cchapman@gulfcoastnewspapers.com">cchapman@gulfcoastnewspapers.com</a>	4/01 Meeting
BCBOC (Transportation)	2600A N. Hard Ave Bay Minette 36507	(251) 580-1894	Jimmy Nazary	<a href="mailto:jnazary@bcbc.org">jnazary@bcbc.org</a>	4/01 Meeting
Community Action Agency	26440 N. Pollard Rd Bay Minette 36507	(251) 626-2649	Carjetta McWilliams	<a href="mailto:Carjetta.mcwilliams@coaofbecmc.org">Carjetta.mcwilliams@coaofbecmc.org</a>	4/01 Meeting 4/7 Left mess.
So. AL Regional Planning Coun.		(251) 433-6541	Ricky Rhodes	<a href="mailto:rrhodes@sarpc.org">rrhodes@sarpc.org</a>	4/01 Meeting
Mary's Shelter	14001 Boros Rd Elberta 36530	(251) 986-6200	Donna McCarley	<a href="mailto:donna-marsshelter@gulftel.com">donna-marsshelter@gulftel.com</a>	4/01 Meeting
Bay Minette Police Dept	PO Box 1208 Bay Minette 36507	(251) 580-1682	Chief Michael Rowland	<a href="mailto:mrowland@ci.bay-minette.al.us">mrowland@ci.bay-minette.al.us</a>	4/01 Meeting
Covenant Hospice	1040 Slanton Road Daphne 36526	(251) 626-5255	Melane Lomax	<a href="mailto:Mellanie.lomax@covenenthospice.org">Mellanie.lomax@covenenthospice.org</a>	4/01 Meeting
Robertsdale Healthcare	18700 Hwy 90 Robertsdale 36567	(251) 947-1911	Barbara Dedeaux	<a href="mailto:bdedeaux@ballhealthcare.com">bdedeaux@ballhealthcare.com</a>	4/01 Meeting
Press-Register	9102 Independence Ave Daphne 36526	(251) 219-5490	Gay Busby	<a href="mailto:gbusby@press-register.com">gbusby@press-register.com</a>	4/01 Meeting
SARPC	110 Beauregard St. Mobile 36633	(251) 433-6541	Della Sanchez	<a href="mailto:dellasanchez@sarpc.org">dellasanchez@sarpc.org</a>	4/01 Meeting
Baldwin Co VOAD	PO Box 2329 Robertsdale 36567	(251) 947-5505	Angie Anderson	<a href="mailto:voad@gulftel.com">voad@gulftel.com</a>	4/01 Meeting 4/4 email 4/6 sent to memb.
Baldwin Co. Council on Aging	PO Box 1070 Robertsdale 36567	(251) 972-8506	Kelly Childress	<a href="mailto:rchildress@co.baldwin.al.us">rchildress@co.baldwin.al.us</a>	4/01 Meeting 4/4 Email 4/7 Phone
HME (local owned business)	18729 Hwy 181 Fairhope	(251) 689-5272	Sandra Lee	<a href="mailto:sandrarlee@bellsouth.net">sandrarlee@bellsouth.net</a>	4/01 Meeting
Westminster Village Retirement Comm.	500 Spanish Fort Blvd. Spanish Fort 36527	(251) 626-7007	Gordon Korb	<a href="mailto:gkorb@wvsf.us">gkorb@wvsf.us</a>	4/01 Meeting
City of Foley	407 E. Laurel Ave Foley 36535	(251) 943-1545	Joseph Bouzan	<a href="mailto:jbouzan@cityoffoley.org">jbouzan@cityoffoley.org</a>	4/01 Meeting
Lighthouse	23306 Chicah St Robertsdale 36567	(251) 947-3796	Jerry Sommer	<a href="mailto:jsommer@gulftel.com">jsommer@gulftel.com</a>	4/01 Meeting
GSUMC	1900 Gulshores Pkwy Gulf Shores	(251) 968-2547	Amelia Fletcher	<a href="mailto:amelia@gulfshoresumc.org">amelia@gulfshoresumc.org</a>	4/01 Meeting
BRATS-Baldwin Co Comm.	18100 C. Rd 54 Robertsdale 36567	(251) 972-8576	Taylor Rider	<a href="mailto:btrider@co.baldwin.al.us">btrider@co.baldwin.al.us</a>	4/01 Meeting

Housing First			Don Williams		4/6 Sent report
Catholic Social Services		(251) 987-2293	Michelle Prockup		4/6 Phone 4/7 Phone
Salvation Army		(251) 438-1625	Trinitius Pucket		4/7 Phone

## MOBILE COUNTY

**Table 1-2 Mobile County Contacts through April 7, 2009**

Agency	Address	Phone	Contact Person	Email	Date/ Type of Contact
Volunteer Mobile	1050 Government St. Ste 201, Mobile	(251) 433-4456	Diana Brinson	<a href="mailto:dbrinson@volunteermobile.org">dbrinson@volunteermobile.org</a>	3/31 Meeting 4/3 Emails w/form Sent list
Mobile Dept of Human Resources	PO Box 1906 Mobile 36633	(251) 415-3909	Sharon Lavender	<a href="mailto:Sharon.lavender@dhr.alabama.gov">Sharon.lavender@dhr.alabama.gov</a>	3/31 Meeting
Mobile Co. Health Dept.	PO Box 2867 Mobile 36652	(251) 690-8135	Monica Knight	<a href="mailto:Mknight@mobilecountyhealth.org">Mknight@mobilecountyhealth.org</a>	3/31 Meeting 4/3 Email
United Cerebral Palsy	3058 Dauphin Sq. (?)	(251) 479-4900	Susan Watson	<a href="mailto:swatson@ucpmobile.org">swatson@ucpmobile.org</a>	3/31 Meeting 4/3 meeting VOAD contact
United Cerebral Palsy	3058 Dauphin Sq.	(251) 479-4900	Todd Perkins	<a href="mailto:tperkins@ucpmobile.org">tperkins@ucpmobile.org</a>	3/31 Meeting 4/3 Email
Town of Dauphin Island	1011 Bienville Dauphin Island 36528	(251) 861-5525	Wanda Samdagger	<a href="mailto:wsandagger@townofdauphinisland.org">wsandagger@townofdauphinisland.org</a>	3/31/09 Meeting
City of Mobile		(251) 208-7158	John Bell		3/31/09 Meeting
American Red Cross AL Gulf Coast	853 Dauphin St. Mobile 36602	(251) 436-7913	Ron Baughman	<a href="mailto:baughmanr@redcrossalcoast.org">baughmanr@redcrossalcoast.org</a>	3/31/09 Meeting
Mobile County Schools	3274 International Drive Mobile 36606	(251) 221-5260	Bob Brunson	<a href="mailto:rbbrunson@mcpss.com">rbbrunson@mcpss.com</a>	3/31/09 Meeting
?	PO Box 990 Mobile 36601	(251) 300-7843	Michale Dillaber	<a href="mailto:mdillaber@gmail.com">mdillaber@gmail.com</a>	3/31/09 Meeting
Chickasaw Police Dept.	8 Lang Drive, Chickasaw 36611	(251) 452-6470	Mike Reynolds	<a href="mailto:mreynolds@cityofchickasaw.org">mreynolds@cityofchickasaw.org</a>	3/31/09 Meeting
15 Place Homeless Services	15 N. Joachin St Mobile 36602	(351) 432-7227	Lyn ManzWalters	<a href="mailto:lwalters@15place.org">lwalters@15place.org</a>	4/4 Email
VOAD			Mark Johnson	<a href="mailto:markj@lfcs.org">markj@lfcs.org</a>	4/1 phone & Email 4/4 Email
Mobile Assoc. for Retarded Citizens					4/7 Left mess
Mobile Assoc for Blind					4/7 Left mess

## D. DETERMINE HISTORICAL TRANSPORTATION ASSISTED EVACUATION OF POPULATIONS

### OVERVIEW

The contractor will review and assess up to 10 hurricane evacuations in the past five years in the Gulf and Southeastern States related to how public transportation was provided. **Deliverable will be a report and a historical data set summarizing transportation assistance provided to individuals during past hurricane evacuations.**

### NARRATIVE

A total of 13 Atlantic hurricanes caused U.S. evacuations since 2003. They were Claudette (2003), Isabel (2003), Charley (2004), Frances (2004), Gaston (2004), Ivan (2004), Jeanne (2004), Dennis (2005), Katrina (2005), Rita (2005), Wilma (2005), Gustav (2008) and Ike (2008). For this task, the first step was to contact the state emergency management agencies in the coastal Gulf and Southeastern States to identify those counties that had evacuated for any of these hurricanes. We limited the request to mandatory evacuations as there were insufficient data on voluntary evacuations. The counties and the storms involved were entered into a spreadsheet (Appendix D). We then contacted emergency management agencies in these counties to collect data related to how they handled transportation issues during their evacuations.

This proved to be a difficult task. Emergency managers tend to be busy people, especially at the beginning of hurricane season. In many cases, it took numerous attempts to get someone at the county level to respond to emails and telephone calls. However, in the end, we collected data on 141 evacuations from 67 counties/parishes (eight were non-responsive). Often the information from the state agencies was not substantiated at the county level. In some cases, the counties had not evacuated for the storm mentioned by the state agency. More often, they reported more evacuations than were on the state list. In numerous cases, the emergency managers (EMs) were relatively new and had not been there when the evacuations occurred. The most serious problem, however, was the reported absence of available records. Most of the information we collected came from informal recollections and estimations.

Caution is urged when examining the findings. Given the lack of formal records and the extensive reliance on memory, the reported information should be interpreted as broad estimations. It was not always clear whether the reported numbers referred to all special needs persons sheltered, or only those transported. Often the EMs made no distinction, saying nearly all needed transportation. There is no way of knowing to what extent these “guesstimates” were accurate regarding the number of people transported. However, the most important information collected relates to the resources used to transport people. Here we can assume the information provided was likely to be accurate. The data provide some valuable insights, particularly concerning the resourceful ways in which many counties meet the Critical Transportation Needs of their residents.

## **TRANSPORTATION ASSISTANCE IN HURRICANE EVACUATIONS**

### **The Data**

County or parish emergency management officials in areas impacted by hurricanes from 2003 – 2008 were asked several questions related to how their jurisdictions met the needs of transportation-dependent populations during evacuations. Table D-1 in the Appendix D summarizes their responses in a spreadsheet. Table D-2 reports additional comments made by some emergency managers and planners.

### **Discussion of the Findings**

In all instances where mandatory evacuations occurred, some transportation was provided, either to take the general public to shelters or to take those with special needs to special shelters, or both. Often the emergency manager could not provide (or was not willing to search the records for) the numbers transported. Where reported, they ranged from less than 20 to over 8,000.

Many methods have been used to transport evacuees. For the general public needing to go to regular shelters, the most common modality was for municipal and/or school buses. The buses would pick people up at specific points to take them either to local shelters or to hubs where they then boarded private charter buses (often supplied by the state) to leave the county or parish. In many jurisdictions, permanent signs mark these pickup points. In some cases, such as mobile home parks or public housing developments, the buses made special trips to pick up residents. There were several reports of problems encountered when people had to be transported outside the region. Sometimes their destinations had not been predetermined and they had difficulty finding shelters. Other problems arose when people were not tracked adequately. In at least one instance, they were not welcomed and were reported to have caused security problems. Lessons have been learned from these events and several emergency managers reported that agreements are now in place with host destinations. Several systems have been developed for tracking evacuees. In some areas of Texas, a very sophisticated electronic tracking system is now used. In one county, a police officer is placed on every bus leaving the area so they can provide their own security at the destination. Several reported having problems getting people back after the event. They stressed the importance of careful planning for re-entry; many mentioned experiencing staffing problems as fewer volunteers are usually available at that time.

The vast majority of these counties have some type of pre-registration system for those requiring special needs sheltering, as well as transportation. In Texas, the statewide 211 system serves this purpose, although some counties augment it with their own system. All Florida counties are required to have a registration program for special needs. Reasons given by some emergency managers for not having a registration system include privacy issues, liability concerns, and lack of human resources to maintain the list. There are several models for maintaining registries. In larger jurisdictions, they may be kept by the emergency management agency. More often, however, they are maintained, at least in

part, by another county agency, such as human resources, the health department, or the Area Council on Aging. In at least two instances, special needs registries are managed by non-profit organizations. A number of ways are used for identifying citizens with special needs. In nearly all cases, a registration form is available on the web for self-registration. Most often, though, registrations come from medical or health personnel, such as home health care workers. Some counties/parishes are very proactive, providing forms at doctors' offices, pharmacies and senior centers, and conducting outreach programs for citizens and for professionals working with those likely to need assistance.

Keeping registries current is a major issue. As one emergency manager reported, "My registry is a moving target." In all cases, the lists are reviewed at least annually at the beginning of the hurricane season, and often twice yearly. In some areas, clients have to re-enroll each year. More commonly, those on the list are called to see if they still need the services. Given the frailty of many of these registrants, the list can become out-dated as people move to independent living facilities or nursing homes or die. In some areas, there is a lot of movement in and out of the region, often seasonally. Personnel used for updating the registry vary from the emergency management staff, local fire departments, public health employees, employees of other county agencies, CERT and other volunteers. In Miami-Dade County, volunteers from county agencies, local colleges, senior groups and other non-profits come into the Emergency Operations Center two Saturdays a year to call down the list. Local restaurants donate food for these individuals during the process. According to an emergency manager, this has become a popular event. In another area, nursing students conduct the calls annually.

The number of registrants varies widely, not just according to population, but also according to the amount of effort that goes into promoting and servicing the registry. The extent to which registration systems provide a reasonably accurate record of those likely to need assistance varies greatly. In some areas, anyone who sends in the form is automatically registered, and the lists are thought to be larger than the actual need. More often, there is some sort of triage in which potential registrants are called or visited to determine their level of need. Where appropriate, they are urged to find other means of transportation and sheltering through family and friends. In one Florida County, the list was pared down from 8,000 to 2,000 by using a new, more rigorous procedure. Numerous ways are used to classify registrants according to their health and physical status, including special medical needs. While the terminology differs among the agencies, the categories are based on some variation of the following system.

**Table 1-3 Levels of Critical Transportation Needs (CTNs)**

<b>Levels of Critical Transportation Needs (CTNs)</b>		
<b>Level</b>	<b>Description</b>	<b>Examples</b>
<b>CTN 1</b>	Able to leave home on their own to get to pickup points and have no special medical needs	<ul style="list-style-type: none"> <li>• Those without private transportation</li> <li>• Picked up at predetermined points by school or municipal buses</li> <li>• Taken to evacuation hub or general population shelters</li> </ul>
<b>CTN 2</b>	Unable to access regular public transportation, but no special medical needs	<ul style="list-style-type: none"> <li>• Healthy persons with disabilities</li> <li>• Transported by buses or vans with wheelchair lifts, paratransit vehicles</li> <li>• Taken to evacuation hub or general population shelter</li> </ul>
<b>CTN 3</b>	Able to leave home on their own or with assistance, unable to access regular public transportation, and have special medical needs	<ul style="list-style-type: none"> <li>• Health and medical evacuees</li> <li>• Need door-to-door service</li> <li>• Buses or vans with wheelchair lifts, paratransit vehicles</li> <li>• Taken to special needs shelter</li> </ul>
<b>CTN 4</b>	Unable to leave home on their own or to travel in a sitting position, and have serious medical needs.	<ul style="list-style-type: none"> <li>• Acute health and medical evacuees</li> <li>• Need door-to-door service</li> <li>• Ambulances, fire rescue vehicles</li> <li>• Taken to medically managed facility outside threatened area</li> </ul>

Those dependent upon electricity for a medical device are sometimes taken to regular shelters that have generators and oxygen service, but more often they are taken to special facilities. In some cases, at the time of registration, those with special transportation needs are triaged and their names forwarded to the agency or company that is expected to transport them when the time comes. These providers then contact them and a relationship is established.

When an area is threatened by a hurricane, everyone on the list is called, often using volunteers, such as county workers or the American Red Cross. In a few cases, the first call is Reverse 911 or some other automated service, followed by a call from the transportation service providing the pickup details (identified in Table 1-3).

At least one county in Florida has used a new registration system developed at Florida State University ([www.spinreg.com](http://www.spinreg.com)). The Special Population Information Registry (SPIN Reg) system is a web-based program that allows multiple agencies to assist in the

maintenance of the registry (with permission from the agency in charge). The program also assists in the triage and allocation of services, including mapping transportation destinations, and can provide automated notifications. A Gulf County emergency manager was enthusiastic about the system. More information on registration systems is available in Task 1F.

Typically, our informants knew the approximate size of the special needs registry, but did not know how many of the registrants also needed transportation. In one case, this was reported to be about 16% of the total registry, but more often EMs expected the majority of special needs registrants to also need some type of transportation or assistance in order to get to the special needs shelters.

In past evacuations, the comparison of the number of registrants to the number who actually used the transportation services proved nearly impossible. In most cases, the registry was much larger than the actual need. However, it was reported to be dependent upon the event. When a major storm threatened, more of the registrants wanted transportation, and, in fact, in a few cases the need was greater than the registry had indicated. Quite often there were certain individuals who wanted transportation at the time of evacuation who were not on the registry. They were accommodated where possible, but registrants were given priority. The extent to which the registry reflects the real need is largely dependent upon the rigor of the methodology used to maintain it. All of this makes it difficult for emergency managers to know how to deal with the registration information. Several commented that, while the numbers were difficult to interpret, having the registry was a good idea because it forced people to think about evacuation planning.

Methods of providing transportation varied, but certain modalities were common. School buses were usually the first resource utilized for in-county evacuation of both the general public and some special needs citizens. Many school buses have wheelchair lifts. One emergency manager mentioned being able to convert a school bus so it could carry stretchers. More populated regions had municipal buses that would run their regular route, go to predetermined pickup points, or run special routes to vulnerable areas. Vans and other special transportation or paratransit vehicles, whether county or private, are used to transport people needing extra assistance. In many cases, the evacuee is a normal client of the service provider. Ambulance or fire rescue vehicles are used to transport those with major medical needs, usually to a hospital or medically managed facility. In one Texas County, where evacuations are common, the emergency manager is purchasing several buses. Local police or fire departments often assist in transporting people to special needs shelters. This is more likely to be the case in rural areas with fewer people needing to be transported. In Jackson County, TX, the volunteer fire department helps get people to pickup points. When it is necessary to evacuate out of the region, the usual method is to get people to a hub where they are then transferred to another transportation vehicle, usually chartered buses, for long-distance travel.

## Summary

While the findings from this task are interesting, they provide limited guidance to emergency managers trying to determine the extent of Critical Transportation Needs in their communities. The size and accuracy of the data appear to be dependent upon several factors, including:

- Size of the evacuation area;
- Characteristics of the storm;
- Whether the evacuation is mandatory or volunteer;
- Evacuation experience of the population;
- Assertiveness in promoting registration;
- Rigor in maintaining an up-to-date registry;
- An on-going relationship with the client and the provider.

A proactive registration system with defined, consistent methods to keep it current can provide important guidance for planning transportation resources. It is especially crucial to the evacuation of those with acute medical needs. Since this population tends to fluctuate, the integration of medical and health care professionals, as well as social services providers, into the registration process is of paramount importance.

Despite the fact that many local registration systems have proved difficult to maintain, and rarely accurate, the emergency managers interviewed for this study did not question their need. These EMs believe that registration systems force people to think about what they would do in the case of an evacuation and therefore, serve as both an educational and planning tool. While the number of registrants is usually larger than the true demand, this may be the case in a major hurricane.

In only a few instances are those who just need transportation to regular shelters expected to register in advance. When it comes to estimating how many in the general population will need transportation, the best guidance is likely to be U.S. Census data, particularly the estimates of households with no private vehicle, the number of elderly citizens in the community, and the number of poor households in the community.

Considerable variation exists in the resources used for transportation. Clearly, one plan does not fit all cases. Jurisdictions vary in the available resources, both public and private. The interviews conducted for this task, illustrate considerable creativity in the provision of Critical Transportation Needs.

The problems encountered while trying to gather this information highlight the need for a formal nationwide system for collecting this data from local emergency management agencies in a timely manner after evacuations. Rather than repeat the same mistakes, they should be able to benefit from these experiences.

## E. IDENTIFY COLLECT AND DISSEMINATE CURRENT AVAILABLE DATA

### OVERVIEW

The contractor will identify, collect and disseminate the available data collected in Mobile and Baldwin Counties on populations that may require transportation assistance during evacuations. Using the transportation dependent citizen information, the Contractor will also determine the resources required for transportation-assisted evacuation. **Deliverables will include a description of potential transportation dependent populations, and any available data on their numbers and characteristics, including populations without vehicles, using public transportation, in public housing, low income (in service industries), homebound, homeless, attending feeding kitchens, etc. The locations of these potential transportation dependent populations will be presented in a GIS-based format (probably polygon). The contractor will provide a report outlining their procedure for estimating the type and number of transportation and manpower resources that will be required to respond to the CTNs of the Counties. The contractor will also provide documentation of all meetings including; date, time, place, attendees, discussion and conclusions.**

### NARRATIVE

Effective planning for Critical Transportation Needs (CTNs) during emergency evacuations is enhanced by having in-depth knowledge of the local population. U.S. Census data provide useful information when planning for CTNs, but it is often out of date or incomplete. This project examines the feasibility of supplementing Census data with information gathered from the health, social services and transportation agencies serving potentially transportation-dependent segments of the community.

Some reasons for needing public transportation in order to evacuate include:

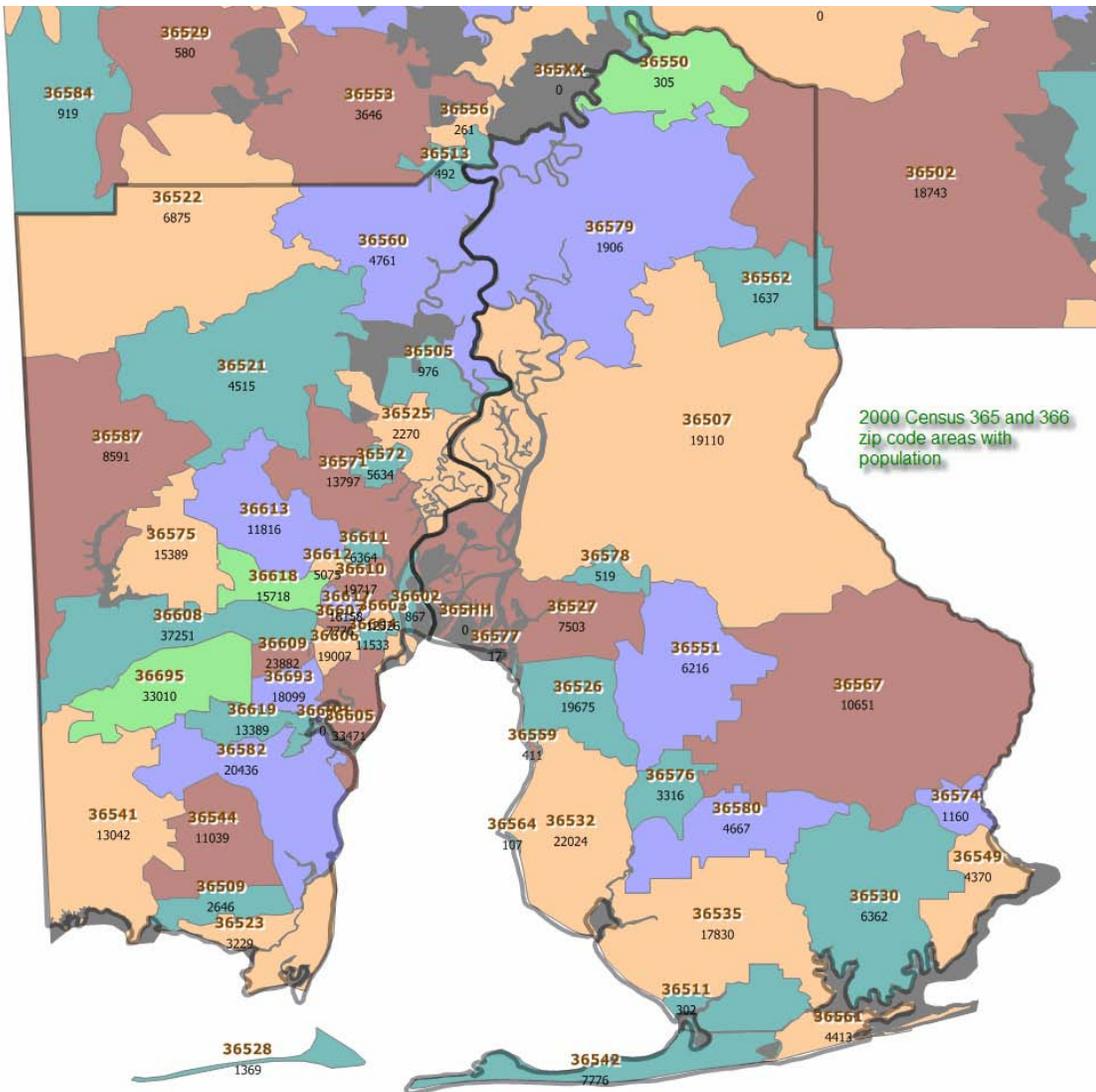
- Lack of a private vehicle;
- Lack of a vehicle in adequate condition to use;
- Lack of a vehicle large enough for the entire household;
- Lack of funds for gas and other expenses;
- Limited ability to drive or to ride in a car due to health or age issues;
- Lack of driving experience outside the local area;
- Uncertainty about the route and destination.

These reasons are not mutually exclusive; in fact, they tend to cluster in ways that can totally eliminate the private transportation option. Responsibilities to social networks were found to be one important reason why African-Americans were reluctant to evacuate from New Orleans for Hurricane Katrina.<sup>1</sup> If, for any reason, some family or friends were not leaving, no one in that social network was inclined to leave. If public transportation had been readily available, perhaps they all would have evacuated. Collecting data about the extent to which each of the conditions that may lead to a need for public transportation exists in a given community can be an important first step in estimating Critical Transportation Needs.

This project tested the feasibility of a model for determining the evacuation transportation needs of Baldwin and Mobile counties based on information about the social, economic, and health characteristics of their respective populations. When available, relevant data were collected from various public and private health, social services, and transportation agencies in each county. The size and circumstances of the clientele of these agencies should be helpful when estimating local CTNs. Even more useful is information about *where* persons with relevant characteristics tend to live within each county. When available, data was collected by ZIP codes and the information put into a geographical database, an effective tool for planning the deployment of resources. For reference, Figure 1-3 depicts the ZIP codes for Baldwin and Mobile Counties. The findings will be discussed separately for Baldwin and Mobile counties.

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<sup>1</sup> Cordasco, Kristina M. “The Paradox of Social Capital as a Liability in Disaster Management: Understanding the Evacuation Failure of Hurricane Katrina.” *Natural Hazards Observer*. January. Pp. 5-6.



**Figure 1-3 ZIP Codes for Baldwin and Mobile Counties**

## FINDINGS

### Baldwin County—Demographic Data

A logical beginning for any Critical Transportation Needs project is the collection of relevant demographic U. S. Census data. Table 1-4 provides data based on the 2008 population estimate for Baldwin County. It is important to note that the population of Baldwin County is estimated to have increased 24.5% between 2000 and 2008.<sup>2</sup> For each attribute, percentages from the 2005-2007 American Community Survey were used to compute numbers based on 2008 population.

Compared to national averages, the population of Baldwin County has: fewer elderly residents (16.1% compared to 23.2%), fewer children (23.5% compared to 34.6%), fewer foreign-born (2.1% compared to 11.1%), about the same poverty level (12.5% compared to 13.0%), fewer renters (23.6% compared to 32.7%), and fewer households without vehicles (4.4% compared to 8.8%).<sup>3</sup> Baldwin residents have higher education levels than the national average (87.2% with high school education compared to 84%). Given these estimates, we would expect Baldwin County to have fewer transportation-dependent residents than the average community. However, there are slightly more disabled persons (16.7% of those age five and over compared to 15.1% nationwide), and far more mobile homes than the national average (20.7% compared to 6.9%). This results in nearly 15,000 mobile home households needing to evacuate for any hurricane, including a Category 1.

The next step is to examine where dependent populations are likely to be concentrated within Baldwin County. Table 1-5 reports how three of the most relevant vulnerability factors – households without vehicles, persons over 65, and population below poverty level – are distributed in ZIP codes in Baldwin County.

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<sup>2</sup> Federal-State Cooperative for Population Estimates and Projections. U. S. Census. [http://cber.cba.ua.edu/edata/est\\_prj.html](http://cber.cba.ua.edu/edata/est_prj.html)

<sup>3</sup> These percentages come from the 2000 Census. Given the large population increase in Baldwin County, the true percentages today are likely to differ considerably.

**Table 1-4 Estimates of 2008 Baldwin County Demographics\*<sup>1</sup>**

	<b>%</b>	<b>Number</b>
<b>Total Population</b>		<b>171,806</b>
Persons under 18 years old	23.5	40,374
Persons over 65 years old	16.1	27,689
Foreign born persons	2.1	3,608
Persons with a disability, age 5+	16.7	28,176
Persons below poverty level	12.5	21,515
High school education or higher	87.2	149,815
Persons per square mile		88.0
<b>Total Households</b>		<b>69,338</b>
With one or more under 18 years	33.8	23,436
With one or more over 65 years	28.8	19,969
Single mother with children under 18 years	7.1	4,923
Over 65 years living alone	9.2	6,379
Grandparent responsible for grandchildren	2.6	1,803
Language other than English spoken in home	4.8	3,328
Rent home	23.6	16,364
Mobile homes	20.7	14,353
No vehicles	4.4	3,029
Median household income		\$50,740

\* Sources (unless otherwise noted): U.S. Census Bureau. *2007 Estimates. Quick Facts.* <http://factfinder.census.gov> or *2005-2007 American Community Survey* (adjusted to 2008 population). <http://quickfacts.census.gov/qfd/index.html>

<sup>1</sup> The *Baldwin County Population and Household Projections 2000-2020* completed by the University of Alabama estimated the 2009 population at 179,963 with 73,245 households. However, these estimates were not provided by ZIP codes. Therefore, we relied on Census estimates.

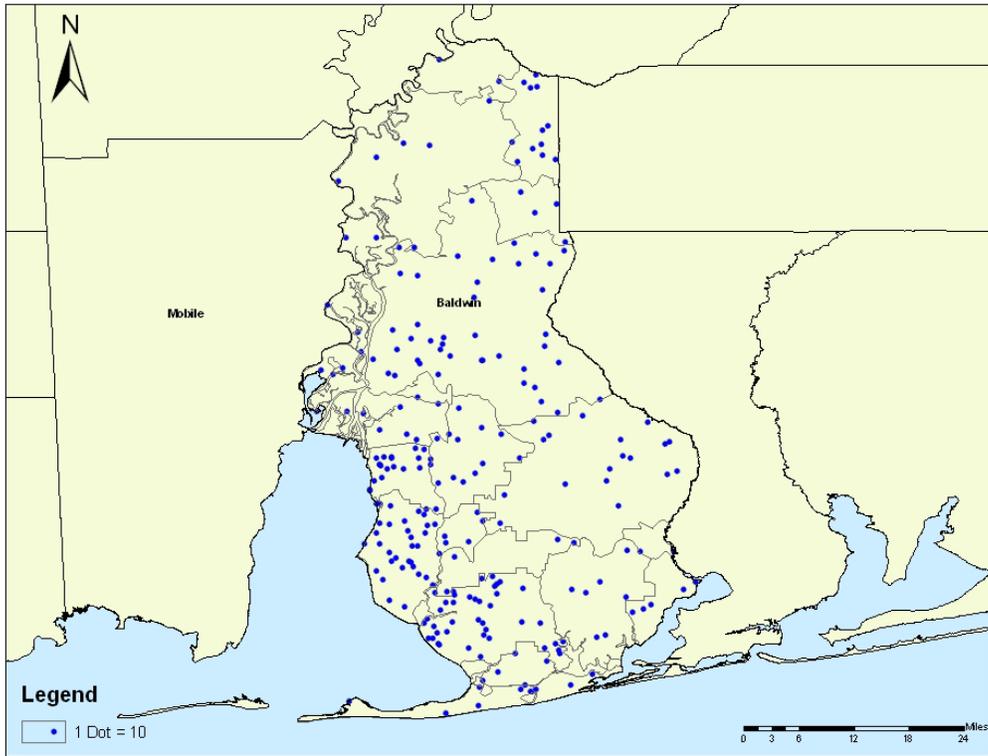
<sup>2</sup> Percent of occupied housing units.

**Table 1-5 ZIP Code Distribution of Selected Variables, Baldwin County**

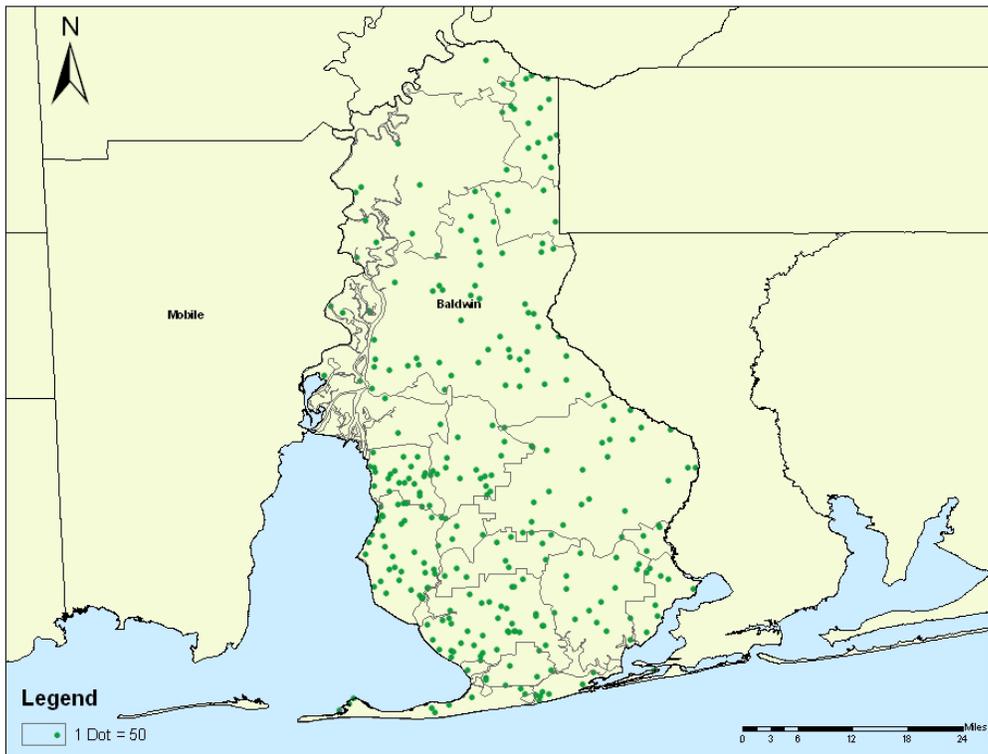
<b>ZIP Code</b>	<b>Households Without Vehicles</b>	<b>Persons Over 65 Years of Age</b>	<b>Population Below Poverty Level</b>
36507	1,465	2,983	4,252
36511	0	45	74
36526	604	2,492	1,767
36527	354	1,453	419
36530	232	1,166	1,106
36532	977	5,475	2,719
36535	1,315	4,078	3,022
36542	335	2,080	1,175
36549	141	2,299	681
36550	22	78	61
36551	442	887	1,433
36559	53	151	0
36561	100	1,138	628
36562	135	188	316
36564	0	26	0
36567	548	1,331	1,833
36574	47	146	300
36576	188	509	363
36578	19	151	0
36579	188	340	507
36580	113	672	859
<b>TOTALS</b>	<b>7,278</b>	<b>27,689</b>	<b>21,515</b>

Over 7,000 households, or 10.5% of total households, in Baldwin County do not have a vehicle. According to this Census data, ZIP Code 36507, Bay Minette, has the highest levels of households without vehicles and population below the poverty level. ZIP code 36532 (Fairhope) has the highest rate of elderly, closely followed by 36535 (Foley) where there also are many households without vehicles.

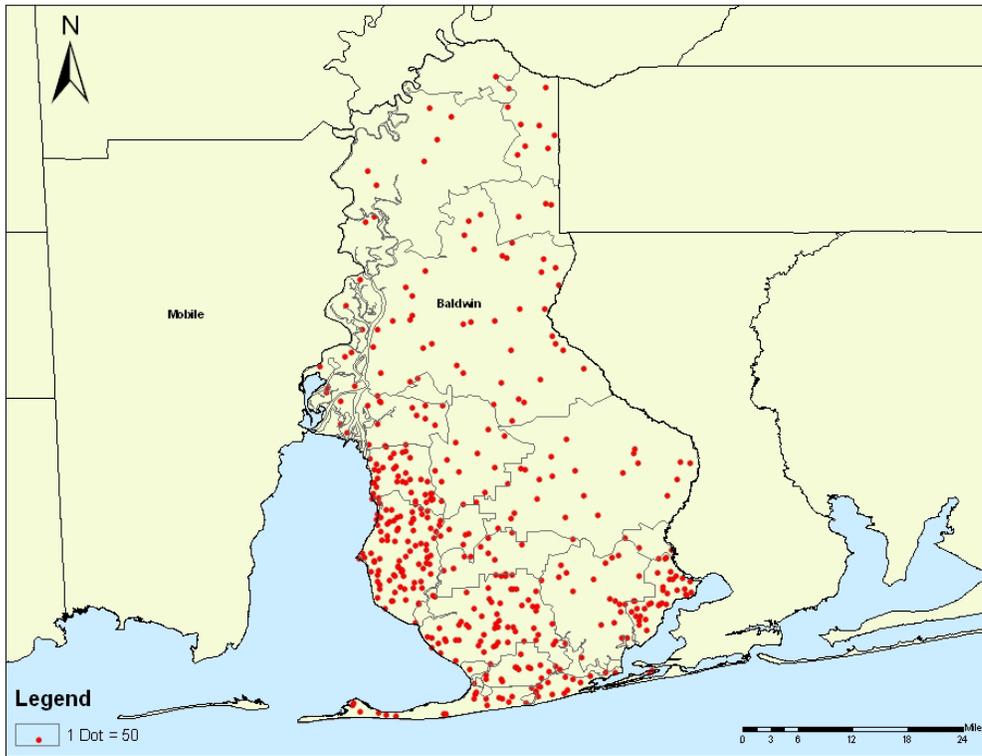
The following three maps illustrate the geographical dispersion of these vulnerability factors (Figure 1-4- Figure 1-6).



**Figure 1-4 Households Without Vehicles, Baldwin County**



**Figure 1-5 Persons Below Poverty Level, Baldwin County**



**Figure 1-6 Persons Age 65 and Older, Baldwin County**

These maps indicate that, with the exception of the ZIP codes previously discussed, persons and households reporting these conditions are widely dispersed throughout Baldwin County. This is a good time to mention that people in general are widely dispersed in Baldwin County; there are only 88 persons per square mile. This can make it more difficult to arrange evacuation transportation assistance.

### **Baldwin County—Health and Social Services Data**

A unique feature of this project was the collection of client data from local relevant agencies related to vulnerability factors. This began with a Kick-Off meeting in Robertsdale, attended by more than 40 local representatives of agencies serving vulnerable groups. The Baldwin County website has an extensive list of community resources which was very useful in identifying agencies to contact. The original intent was to collect as much client data as possible, including addresses. When this became too difficult due to privacy and other issues, the methodology was changed to ask only for how many clients each agency served in each ZIP code. In many cases, this was not available and only totals could be obtained. Locating relevant agencies, making contacts and acquiring data proved to be a time-consuming task, often with dubious results. However, the collected data provide some insight into those who may have Critical Transportation Needs. Table 1-6 reports the results of these inquiries in Baldwin County. Some of the most relevant findings have to do with citizens with disabilities and/or who are homebound.

**Table 1-6 Services Provided to Vulnerable Groups in Baldwin County**

<b>Agencies/Companies</b>		<b>Total Persons or Households Served</b>
<b>Dept. of Rehabilitative Services (Current Clients)</b>		<b>1057</b>
<b>Home Health Agencies (Current Census)</b>		<b>1075</b>
Amedisys Home Health, Foley	300	
Mercy Medical Home Health	100	
Mid-South Health, Foley	136	
Mid-South Health, Daphne	270	
South Baldwin Regional Medical Center	115	
Thomas Home Health	154	
<b>Utilities (Electrically Dependent Registrants)</b>		<b>355</b>
Baldwin EMC	140	
Fairhope Utilities	3	
Alabama Power	24	
Southern	188	
<b>Public Housing (Current Census)</b>		<b>598</b>
Bay Minette Housing Authority	320	
Foley Housing Authority	250	
Lighthouse/Family Promise	28	
<b>Area Agency on Aging (SARPC) (Units of Service 2008)</b>		<b>9413</b>
<b>Community Action Agency (Units of Service 2008)</b>		<b>15000</b>
<b>Home-Delivered Meals (Daily)</b>		<b>480</b>
Ecumenical Ministries, Fairhope	90	
Baldwin County Council on Aging	390	
<b>Feeding Kitchens</b>		<b>0</b>
<b>Homeless (Census – Sheltered and Unsheltered)</b>		<b>99</b>
<b>Public Transportation (Weekday riders)</b>		<b>950</b>
BRATS, including paratransit		

The Alabama Department of Rehabilitative Services is responsible for directing people with disabilities to appropriate agencies for services. According to Census data, more than 28,000 Baldwin County residents have disabilities. However, only about 1,000 are registered with Rehabilitative Services. Home health care agencies reported a similar number of clients, 1,075. According to the utility companies serving Baldwin County, 355 persons are registered as being Electrically Dependent for medical reasons. The Area Agency on Aging, an organization of the South Alabama Regional Planning Commission (SARPC), does not keep a list of clients, only a total for services to the elderly provided during the last year. They reported 9,413 instances of service, but it is difficult to know how to interpret these data. Similarly, the Community Action Agency reported over 15,000 incidents of service during the past year, typically financial assistance related to housing and basic needs.

Looking at resident characteristics that may be associated with a lack of sufficient economic resources to manage their own evacuation, several are particularly relevant. According to the various agencies that provide housing, 598 persons are currently in public housing, including transitional housing. The last homeless count by the Homeless Coalition of the Gulf Coast located 99 persons, but reported that none were chronically homeless. We did not locate any feeding kitchens in Baldwin County, but it was estimated that 480 meals are delivered daily to home-bound residents. The Baldwin Rural Area Transportation System (BRATS), which mostly provides paratransit services, reported an average weekday ridership of 950, implying that at least 1000 persons rely on special public transportation on a regular basis. In interpreting these data, it is important to note that these are not mutually exclusive categories. In fact many of the same people are likely to be users of several of the services reported in Table 2.3.

Since some agencies reported annual data, and others reported current clients, it is difficult to make comparisons. However, Table 1-7 reports the Units of Service for Baldwin County data by ZIP code. While this is really comparing apples and oranges, it nevertheless can shed some light on where the services tend to be concentrated. The most services were reported for ZIP code 36507 (Bay Minette), followed by 36526 (Daphne) and 36535 (Foley). In all three areas, most of the services were provided by the Community Action Agency, an agency that provides financial assistance toward housing and related household expenses for low-income families. Census data from Bay Minette reports the median household income in 2007 at \$41,000 (near the state average) but a poverty level of 15.9% ([www.city-data.com](http://www.city-data.com)). Foley is similar, with median household income reported as \$42,000 with a poverty level of 12.1%. It would appear that both of these areas are home to households at both ends of the economic scale. In contrast, the Daphne ZIP code is reported as having a median income of \$62,000 and a poverty level of only 6.2%, making it difficult to explain the level at which they used social services. The most services reported by the Area Alliance on Aging were reported for ZIP code 36527 (Spanish Fort) which has an older population than the state average. The median household income there is relatively high, and the services provided by the Area Alliance on Aging include many programs for the elderly that are not based on economic need.

**Table 1-7 Baldwin County Data by ZIP Code**

ZIP Code	Rehab. Services <sup>1</sup>	Electrically Dependent	Area Agency on Aging <sup>2</sup>	Catholic Social Services	Community Action Agency <sup>2</sup>	Total Units of Service
36507	123	44	75	43	4,372	4,657
36511	4	5	370		21	400
36526	109		189	19	1,954	2,271
36527	48	1	854	2	327	1,232
36530	32	6		8	252	298
36532	175	11	232	24	1,528	1,970
36535	134	14	148	108	1,834	2,238
36542	34	7	921	15	110	1,087
36549	14		157	2	68	241
36550	1		248		109	358
36551	37	11	26	263	1,063	1,400
36559	3		81		111	195
36561	19	4	242	1	46	312
36562	7	1	249		314	571
36564	13	1	80		77	171
36567	72	21	44	719	960	1,816
36574	4	4	284	34	101	427
36576	139	4	457	146	289	1,035
36577	3		206		56	265
36578		3				6
36579	14	4	254	3	782	1,057
36580	32	13	408	233	468	1,154
	<b>1,017</b>	<b>154</b>	<b>5,525</b>	<b>1,620</b>	<b>14,842</b>	

<sup>1</sup> Individual clients referred to agencies service those with disabilities in 2008.

<sup>2</sup> Units of service, not individuals.

In general, these agency data reveal the same trends that were evident in the Census data. However, the numbers are much lower than those reported by the Census Bureau. Baldwin County, with a population of nearly 172,000, has about 10% of its residents reported in Census data as having disabilities, but only a little over 1,000 people are registered as receiving rehabilitative services, about 1000 currently receiving home health care, about 160 persons who are electrically dependent, and about 500 having meals delivered to their home. These are relatively small numbers, and these characteristics are not mutually exclusive, but in fact, likely include many of the same people receiving various services.

The numbers reported by the health and social services seem quite low when examined against Census data. Given the difficulty in obtaining the health and social services information, and the inconsistency in reporting schemes, it can be assumed that the methodology of using agencies data was not very effective in determining those with CTNs in Baldwin County.

### **Baldwin County—Evacuation Implications**

Using the newly proposed evacuation zones for Baldwin County, Bay Minette (ZIP code 36507, where there appears to be the greatest Critical Transportation Needs) is in Zone 5 and would only be ordered to evacuate for a major hurricane. In contrast, Foley (ZIP code 36535, where there are many elderly and low-income households) is in Evacuation Zone 2. Daphne (ZIP code 36526, which has many elderly persons that used services provided by the Aging Agency) is in Evacuation Zone 3. Given the relatively high median household income there, it is unlikely that many people from the Daphne area will require transportation assistance.

More than 14,500 households live in mobile homes that will have to be evacuated for every storm, but there are no data regarding how many might need transportation assistance. About 21,000 residents are estimated to be living below the poverty level and about 3,000 households (4.4%) are reported as having no vehicle. Putting all of this together, the vast majority of residents of Baldwin County should be able to provide their own transportation during evacuation. However, there are significant numbers that may have CTNs and further data are necessary before being able to estimate these with any degree of certainty.

### **Mobile County—Demographic Data**

The rate of growth in Mobile County has been slow, with only a 1.6% increase between 2000 and 2008. Examining Table 1-8 yields a somewhat different pattern from Baldwin County. Once again, for each attribute, percentages from the 2005-2007 American Community Survey were used to compute numbers based on 2008 population.

In Mobile County, there are fewer children and elderly than national averages. In fact, the percentage of population over age 65 is about half that for the U. S (12% compared to 23%). There are very few foreign-born residents and less than 5% speak a language other than English at home. The demographics are similar to those nationwide in number of renters, and number of elderly living alone.

**Table 1-8 Estimates of 2008 Mobile County Demographics\***

	<b>%</b>	<b>Number</b>
<b>Total Population</b>		<b>419,000**</b>
Persons under 18 years old	26.4	110,616
Persons over 65 years old	11.7	48,822
Foreign born persons	2.3	9,637
Persons with a disability, age 5+	21.4	89,666
Persons below poverty level	21.5	90,032
High school education or higher	76.7	321,373
Persons per square mile		324.3
<b>Total Households</b>		<b>153,894</b>
With one or more under 18 years	36.4	56,017
With one or more over 65 years	23.5	36,165
Single mother with children under 18 years	10.9	16,774
Over 65 years living alone	9.2	14,158
Grandparent responsible for grandchildren	4.1	6,310
Language other than English spoken in home	4.6	7,079
Rent home	31.4	48,323
Mobile home	10.4	16,005
No vehicle available	8.6	13,203
Median household income		\$49,163

\* Sources (unless otherwise noted):

U.S. Census Bureau. *2007 Estimates. Quick Facts.* <http://factfinder.census.gov>.  
 or *2005-2007 American Community Survey* (adjusted to 2008 population).  
<http://quickfacts.census.gov>

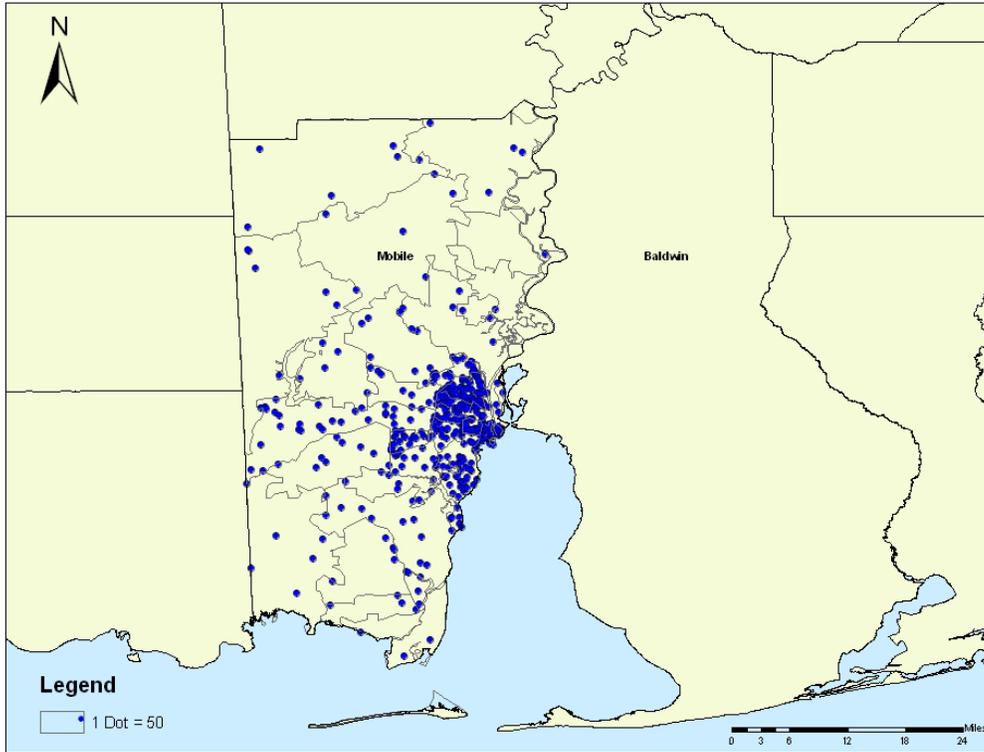
\*\* Estimate from South Alabama Regional Planning Council.

Of particular concern to evacuation planning, Mobile County has a relatively high poverty rate. While the median income is similar to the national average, more than 20% of Mobile County residents live below the poverty level, compared to about 13% nationwide. About 21% are reported to have disabilities of some kind – much higher than the national average of 15%. About one-fourth of the population has less than a high school education. Nearly 9% of the households report having no vehicle. While this is lower than the national average, it still amounts to over 13,000 households. While the percentage of households living in mobile homes is lower than in Baldwin County, it nevertheless results in more than 16,000 in Mobile County. Table 1-9 provides a ZIP code breakdown of three factors often associated with vulnerability for Mobile County.

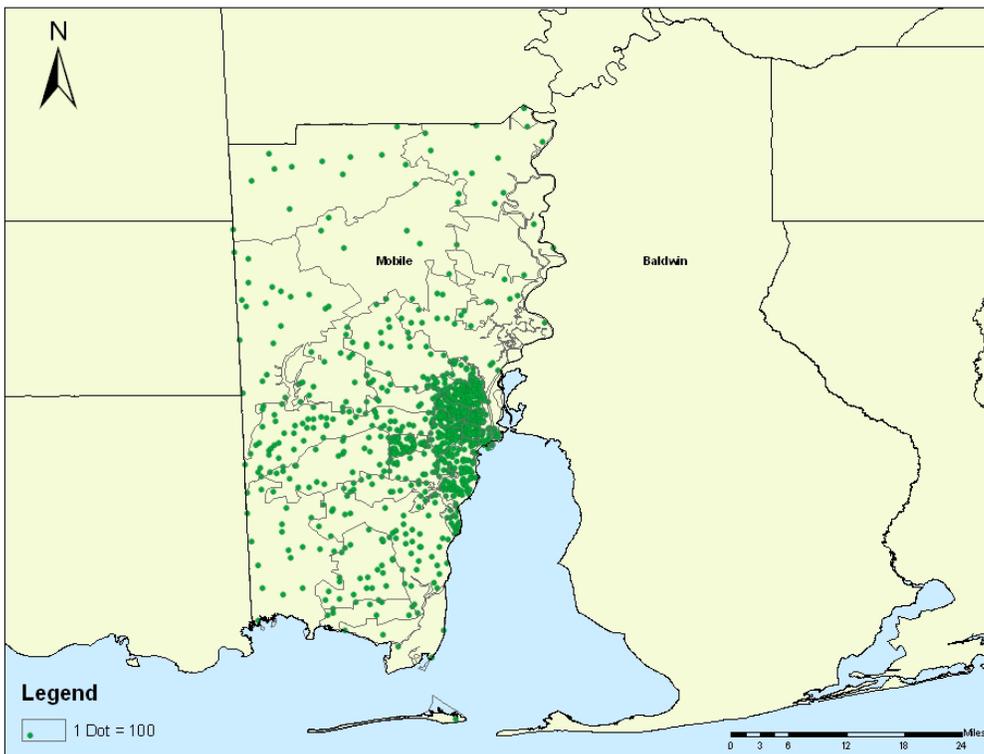
**Table 1-9 ZIP Code Distribution of Selected Variables, Mobile County**

<b>ZIP Code</b>	<b>Households Without Vehicles</b>	<b>Persons Over 65 Years of Age</b>	<b>Population Below Poverty Level</b>
36505	20	84	198
36509	205	285	928
36521	108	380	915
36522	366	599	1,347
36523	153	382	540
36525	74	174	434
36528	11	176	149
36541	273	1,049	1,978
36544	244	761	2,345
36560	244	550	1,070
36571	361	1,504	1,380
36572	66	562	481
36575	282	995	1,668
36582	919	1,817	4,207
36587	361	605	1,879
36602	294	330	246
36603	2,024	1,867	7,158
36604	586	1,579	3,713
36605	2,319	4,518	11,749
36606	985	3,405	4,649
36607	868	1,835	2,532
36608	1,425	4,290	5,968
36609	1,038	3,048	4,702
36610	3,475	2,045	11,449
36611	398	1,162	1,319
36612	404	523	1,452
36613	352	1,030	1,916
36617	1,353	3,551	6,013
36618	377	2,308	1,951
36619	330	1,220	1,732
36693	482	4,151	1,372
36695	472	2036	2592
<b>TOTALS</b>	<b>20,869</b>	<b>48,822</b>	<b>90,032</b>

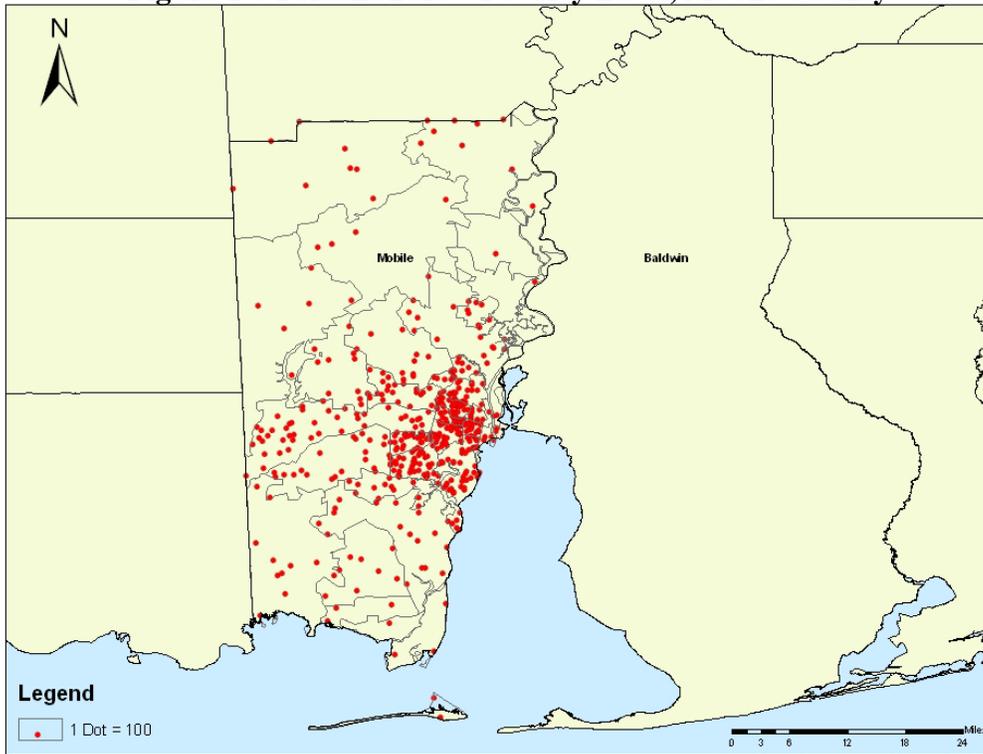
As with Baldwin County, the three maps presented in Figures 1-7, 1-8 and 1-9 show the geographical dispersion of some of these vulnerability factors. The dispersion pattern is quite different for Mobile, with much greater concentrations of these factors on the northwest side of Mobile Bay, particularly in ZIP codes 36603, 36605, and 36610.



**Figure 1-7 Households Without Vehicles, Mobile County**



**Figure 1-8 Persons Below Poverty Level, Mobile County**



**Figure 1-9 Persons Age 65 and Older, Mobile County**

These maps make it clear that the most of the low-income households, households without vehicles and elderly persons in Mobile County are concentrated in the northwest coast of Mobile Bay.

### **Mobile County—Health and Social Services Data**

The Kick-Off meeting for this project in Mobile County was sparsely attended. However, the staff at the Mobile County Emergency Management Agency (MCEMA) provided information on agencies and contacts for this portion of the study. Relevant agencies were contacted by phone or email, usually several times, in order to collect data regarding their clients or patients. The results are presented in Table 1-10.

**Table 1-10 Services Provided to Vulnerable Groups in Mobile County**

Agencies/Companies		Total Persons or Households Served
<b>Dept. of Rehabilitative Services (Current Clients)</b>		<b>2932</b>
<b>Home Health Agencies (Current Census)</b>		<b>1161</b>
Amedisys #1006	233	
Amedisys #1054	99	
Amedisys #1025, Citronelle	160	
Maxim Home Health	28	
Mid-South Home Health	329	
Infirmiry Home Health	312	
<b>Utilities (Electrically Dependent Registrants)</b>		<b>1021</b>
Southern	1021	
<b>Public Housing (Current Census)</b>		<b>2976</b>
Mobile Housing Board	2526	
Mobile County Housing	450	
<b>Area Agency on Aging (Units of Service 2008)</b>		<b>24027</b>
<b>Community Action Agency (Units of Service 2008)</b>		<b>4083</b>
<b>Home-Delivered Meals (Daily)</b>		<b>1030</b>
Area Agency on Aging	793	
Cottage Hill Baptist Church*	120	
Dauphin Way United Methodist	2	
Government Street, Mobile	50	
Saraland Senior Center	40	
Satsuma City Hall	25	
<b>Feeding Kitchens (Daily)</b>		<b>260</b>
Loaves and Fish (Lunch 5 days a week)	150	
Government Street Presbyterian (Breakfast)	110	
<b>Homeless (Census – Sheltered and Unsheltered)</b>		<b>645</b>
<b>Public Transportation (Weekday riders)</b>		<b>3992</b>
WAVE	3692	
Paratransit	300	

\*Includes Cottage Hill Presbyterian and Christ United.

According to this information provided by agencies, there are about 3,000 people receiving disabled services, over 1,000 are registered with utility companies as being electrically dependent, nearly 1,200 are currently listed as home health services clients, and over 1000 have meals delivered to their homes daily. There are nearly 3,000 people in public housing, and the last Homeless Trust census reported 645 homeless persons in Mobile County. Ridership for the transit and paratransit services is about 4,000 each weekday. These are not large numbers, considering that the population of Mobile County is over 400,000 and that many of these services are likely received by the same persons. Mobile ZIP codes 36605 and 36695 are reported as receiving the most services, particularly from the Area Agency on Aging.

Acquiring data from health and social service agencies by ZIP code proved to be difficult. Some of the most relevant data, such as number of households provided economic assistance for housing and food by the Community Action Agency and/or Catholic Social Services, were not available by ZIP code. Therefore, the percentages of services by ZIP codes in Table 2.8 are not particularly useful in determining where the greatest needs are within Mobile County. Since the information collected from health and social services was scarce, it does not contribute very much toward the identification of those with CTNs. ZIP code, 36605 received considerable services, supporting the Census data that there are many low-income households there (30% of households below poverty level and median household income of \$28,600). This ZIP code in the area to the northwest of Mobile Bay is made up of predominantly African American neighborhoods. The agency data also show considerable services provided in ZIP code 36695 but that is a relatively high-income area with many elderly residents who used the Aging Agency services.

Table 1-11 also reports where the current special needs registrants are located. Volunteer Mobile has 166 persons registered. Currently only 21 people are registered from ZIP code 36605 where the data indicate the needs are considerable.

**Table 1-11 Mobile County Data by ZIP Code**

ZIP Code	Rehab. Services <sup>1</sup>	Electrically Dependent	Area Agency on Aging <sup>2</sup>	Total Units of Service	Volunteer Mobile Registrants for Special Needs
36505	7		75		
36509	19	10	370	399	3
36521	23		149	172	
36522	51		462	513	
36523	20	4	203	227	1
36525	16		189	205	
36528	3	2	91	96	
36541	92	50	921	1,063	7
36544	50	36	685	771	8
36560	30	4	242	276	
36571	66	52	689	807	3
36572	30	24	284	338	
36575	88	44	457	589	1
36582	135	92	844	1,071	7
36587	65	40	431	536	
36602	12		965	977	22
36603	99		1,060	1,159	5
36604	131		696	827	5
36605	280	70	1,824	2,174	21
36606	168	40	796	1,004	3
36607	67	26	963	1,056	7
36608	183	42	1,379	1,604	
36609	175	26	760	961	10
36610	192	60	1,591	1,843	20
36611	46		355	401	
36612	53	30	446	529	
36613	114	51	738	903	31
36617	169	35	1,781	1,985	7
36618	130	56	824	1,010	2
36619	66	60	730	856	3
36693	99	47	604	750	
36695	183	96	2,071	2,350	
	<b>2,906</b>	<b>1,021</b>	<b>24,027</b>		<b>166</b>

<sup>1</sup> Individual clients referred to agencies service those with disabilities in 2008.

<sup>2</sup> Units of service, not individuals.

In summary, the data available from health and social services agencies proved to be inadequate for the purpose of determining CTNs. Census estimates likely provide a better indication of possible need for evacuation transportation services. However, it is important to remember that these data are estimates based on the 2000 Census. Also, while they provide information on attributes and conditions likely to be associated with transportation needs, they do not provide good estimates of how many will actually need assistance in evacuations. A survey of a random sample of the local population is needed in order to collect reliable information on who may have Critical Transportation Needs. And even then, reported intent is likely to be different from actual behavior when an evacuation is ordered.

### **Mobile County—Evacuation Implications**

The latest evacuation zone maps indicate that the area of the highest concentration of people likely to have CTNs, that is, the area along the northwest coast of Mobile Bay (ZIP codes 36603, 36605 and 36610), is located in the Category 1 and 2 evacuation zone. Thus, it can be predicted that many of these residents will require transportation assistance whenever a hurricane threatens the area. In addition, there are more than 16,000 households living in mobile homes who will be asked to evacuate for any hurricane. While many of these will have their own transportation and place to shelter, it can be anticipated that many will go to public shelters, and some of these are likely to need transportation assistance as well. In contrast, the residents of ZIP code 36695, many of whom are elderly, are not located in an evacuation zone.

### **AGENCIES CONTACTED**

After the kickoff meetings with agency representatives in Baldwin and Mobile counties, it became clear that the best way to request data was via telephone or email contact with key informants. In most cases, multiple contacts were required and even then, the data often were not forthcoming. Either the agency did not have it in a format that was useful, or they were reluctant or too busy to share it. The contacts made for the completion of this task are provided in Appendix E.

## PROCEDURE FOR DETERMINING RESOURCES

This project tested the feasibility of a model for determining the evacuation transportation needs of Baldwin and Mobile counties based on information about the social, economic, and health characteristics of their respective populations. The following sections of the report outline a possible procedure for estimating the type and number of transportation and manpower resources that will be required to respond to the CTNs of the Counties.

Initially, Post Storm Assessments from past storms and available HES Behavioral Analyses were investigated to determine historical response to hurricanes in the region and to gain insight on model development. Then, a Critical Transportation Needs model was developed specifically Mobile and Baldwin Counties to address the issue of transportation assistance in an evacuation.

### Evacuation Decision Process and Resource Needs in Past Storms

Behavioral analyses from four Post Storm Assessments and the Behavioral Analysis from the most recent the Alabama Hurricane Evacuation Study (HES) were analyzed to provide a rough first estimate of the number of transportation resources that could possibly be required to evacuate the CTN individuals of the counties. The results of this initial investigation are shown in Appendix E and provided in an Excel Spreadsheet as a supplemental deliverable.

First, the evacuation average and the average percentage of population requiring assistance were determined from Post Storm Assessments of Hurricanes Georges, Floyd (1998), Lili (2002) and Isabel (2003). By utilizing data from two Atlantic and two Gulf Storms, a diverse range of storm scenarios is represented.

The next step was to calculate the average evacuation participation rate based on the Behavioral Analysis of the 2001 Alabama HES Technical Data Report (TDR). The report details the telephone interview process conducted with residents of Mobile and Baldwin Counties in January 1996. During that time, respondents were asked a series of detailed questions about their experiences in Hurricanes Opal and Erin. The sample was designed to provide statistically reliable data for three categories of risk areas in the region. The three risk areas were: the beach area, the mainland surge area and the non-surge areas. Non-surge areas included locations adjacent to surge areas. The values for the Regional Area represent the responses from an additional 600 surveys from coastal counties in the panhandle of Florida (Escambia, Santa Rosa, Okaloosa, Walton, and Bay).

An overall evacuation planning average (EPA) was then determined by taking the average of the evacuation participation rates (EPR) calculated using PSAs and the HES Behavioral Analysis.

$$\frac{EPR_{PSA} + EPR_{HES}}{2} = EPA$$

The evacuation planning average, along with the average percentage of population requiring assistance (from PSA analysis) were applied to the 2008 Census population estimates for Baldwin and Mobile Counties to calculate a total estimate of persons requiring assistance (CTNs).

$$\text{Population} \times \text{EPA} \times \% \text{ Requiring Assistance} = \# \text{ of CTNs}$$

Finally, a rough transportation resource estimate was calculated by dividing the estimated number of CTN individuals by an assumed bus capacity.

$$\frac{\# \text{ of CTNs}}{\text{Bus Capacity}} = \# \text{ of Buses}$$

### **Critical Transportation Needs Model Development**

Having gained perspective from a historical storm standpoint, the next step was to develop a specialized Critical Transportation Needs Model specific to the Alabama Hurricane Evacuation Project. The model is designed to calculate the resources and manpower required to evacuate the CTN populations from Mobile and Baldwin Counties.

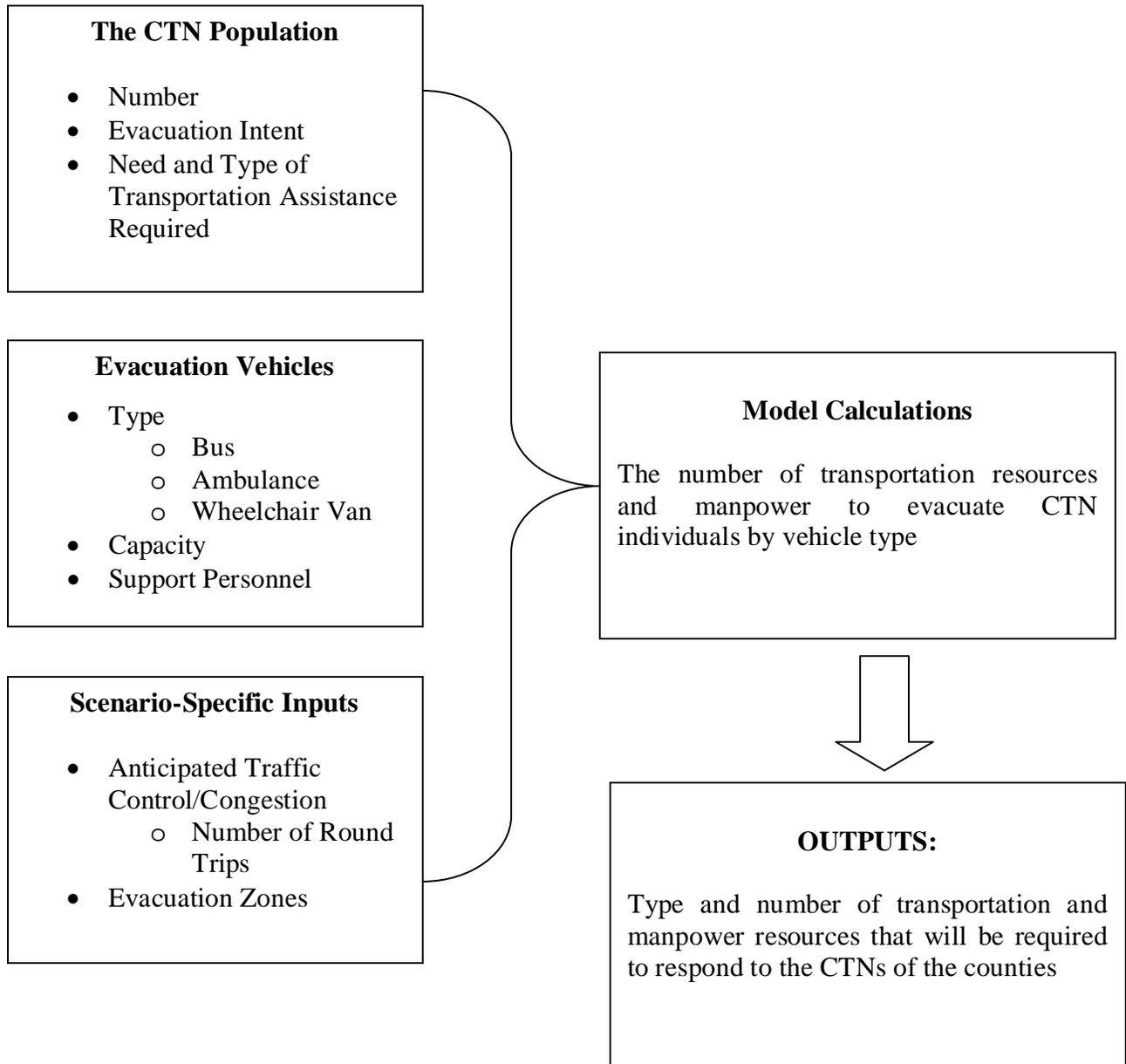
The model considers:

1. **Special Needs populations:** The user must determine their potential transportation dependent populations that might require assistance with transportation and/or resource requirements during an evacuation. These populations may include, but are not limited to: power-dependent, disabled, elderly, limited mobility, medically-dependent, low income, language requirements, populations without vehicles, using public transportation, in public housing, homebound, homeless, attending feeding kitchens, etc. For Mobile and Baldwin counties, it is apparent that telephone surveys of a random sample of the local population are needed in order to collect reliable information on who may have Critical Transportation Needs. Therefore, the telephone survey methodology is utilized to determine the number of CTN individuals in the model.
2. **Vehicle capacity:** The user must identify how many patients each vehicle can carry at a time.
3. **Additional inputs:** Scenario-specific features include: accounting for traffic control and/or congestion by varying the expected number of round trips, and specifying particular evacuation zones to be evacuated.

The primary output of the model is evacuation resources, i.e., the fleet of vehicles and manpower that will be required to evacuate the CTN populations of the counties. This includes the number of ambulances, wheelchair vans, and buses, and their associated drivers and personnel, necessary to execute the evacuation process.

Figure 1-10 illustrates a flow diagram of the model. The user specifies a number of different inputs. Based on the specified inputs, the model determines who will need transportation assistance and the type and number of resources and manpower to transport them to the receiving facilities. The output includes the number of vehicles and staff required to operate them during an evacuation.

## INPUTS



**Figure 1-10 Flow Diagram of Critical Transportation Needs Model**

## **Model Inputs/Assumptions**

In addition to the estimated number of Critical Transportation Needs individuals, other variables in the model will be geographically- and scenario-specific, and must be determined by the user. The variables below should be considered and agreed upon when customizing the model. Following each input is a description of some potential assumptions that could be made if applicable. The model structure is shown in Figure 1-11 and an Excel Spreadsheet incorporating these assumptions is provided as a supplemental deliverable.

### **1. Percentage of the population that will evacuate:**

Post storm behavioral studies have shown that an average of 52% of the population will evacuate for a storm (Appendix E). An advantage of the telephone survey method used in this analysis is the ability to determine evacuation intent, which can then be broken down further by storm category and evacuation zone.

### **2. Percentage of the population requiring transportation assistance (CTNs):**

Only a portion the potential CTN individuals of the counties will actually need government assistance in order to evacuate. A benefit of telephone surveys is that they can be designed to directly ask respondents whether or not they will need transportation assistance if they intend to evacuate. Results of these surveys provide the percentage of the survey population that would need transportation. These percentages can then be applied to the population, either countywide or by evacuation zone, to calculate the number of CTN individuals in that area.

### **3. Percentage of CTNs requiring special transportation assistance:**

Telephone surveys have the ability to determine the percentage of CTN individuals who require special transport vehicles. Similar to how the CTNs are identified; survey respondents in this study indicated whether they would require stretchers, wheelchair vehicles or other type of special transportation. Of those CTN individuals identified as having special transportation needs, the assumption is made that 5% will require either a wheelchair van or ambulance and that the remainder may be transported on a bus that is wheelchair capable<sup>4</sup>.

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<sup>4</sup> Direct correspondence with Dennis Jones, Senior Emergency Management Specialist, Dewberry  
In special needs practices along the Georgia coast, wheelchair bound special needs individuals constituted approximately 15% of the total special needs registry. Of those 15%, about 2/3 (10%) could be transported on a bus that is wheelchair capable; leaving 5% that would require a special transportation vehicle.

#### **4. Vehicle Capacity and Necessary Personnel:**

The model assumes that coach buses will be used for transport of CTN individuals and that each can seat 50 passengers. Each bus will be assigned one driver. The assumption is made that buses transporting CTN individuals who have medical special needs, but are not wheelchair-bound, will have five of those 50 seats allocated to home health personnel, guardians, etc. Buses transporting CTN individuals with medical special needs who are wheelchair-bound are assumed to seat 35 with an additional staff member to assist in operating the wheelchair lift. The capacity of special transport vehicles is assumed to be five, the average of the capacities of wheelchair vans (eight) and ambulances (two)<sup>5</sup>.

#### **5. Anticipated Traffic Control:**

The model incorporates an option to choose the number of round trips for each vehicle type. For planning purposes, the model makes a conservative assumption; that only one trip will be possible for each vehicle. This approach assumes the resources will not have free and clear access back into the County to perform multiple trips. Generally, once an evacuation order is issued, the primary focus is on getting people out of vulnerable areas. However, traffic control points are initiated, control flow operations are ramped up, and traffic flow/direction is often restricted to many of the popular road networks. Vehicles traveling against evacuation traffic are likely to experience difficulties navigating within the County. Additional factors such as evacuation route distance will also play into how many round trips a single resource can make, and should also be considered when selecting this model input.

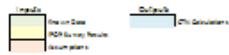
#### **6. Evacuation Zones:**

Another advantage of the telephone survey method for calculating CTN individuals is that respondents can be linked to their geographical location within the County. Therefore, the model is able to calculate the number of CTN individuals by evacuation zone, providing a better, more realistic scenario for planning transportation resource needs.

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<sup>5</sup> Mass Evacuation Transportation Planning Model, Agency for Healthcare Research and Quality, New York City Pilot Test, <http://massevacmodel.ahrq.gov>

Estimating the Number of CTN Individuals that Would Evacuate



Numbers

Category	Evac 1		Evac 2		Evac 3	
	1, 2, 3	4, 5, 6	1, 2, 3	4, 5, 6	1, 2, 3	4, 5, 6
Total Population	1,288,000	1,288,000	1,288,000	1,288,000	1,288,000	1,288,000
Population in CTN	1,288,000	1,288,000	1,288,000	1,288,000	1,288,000	1,288,000

CTN IN EACH EVACUATION ZONE

Evacuation Zone	Population	Population in CTN	Population in CTN	Population in CTN
Evacuation Zone 1	1,288,000	1,288,000	1,288,000	1,288,000
Evacuation Zone 2	1,288,000	1,288,000	1,288,000	1,288,000
Evacuation Zone 3	1,288,000	1,288,000	1,288,000	1,288,000
Evacuation Zone 4	1,288,000	1,288,000	1,288,000	1,288,000
Evacuation Zone 5	1,288,000	1,288,000	1,288,000	1,288,000
Evacuation Zone 6	1,288,000	1,288,000	1,288,000	1,288,000

CUMULATIVE CTN BY INCREASING NUMBER OF ZONES ISSUED TO EVACUATE

Evac Zone	1, 2, 3	4, 5, 6	1, 2, 3	4, 5, 6
Evac 1-1	1,288,000	1,288,000	1,288,000	1,288,000
Evac 1-2	1,288,000	1,288,000	1,288,000	1,288,000
Evac 1-3	1,288,000	1,288,000	1,288,000	1,288,000
Evac 1-4	1,288,000	1,288,000	1,288,000	1,288,000
Evac 1-5	1,288,000	1,288,000	1,288,000	1,288,000
Evac 1-6	1,288,000	1,288,000	1,288,000	1,288,000

Telephone Survey Model

Estimating the Transportation Resources to Evacuate CTN Individuals

Resources and Manpower

Mode	Total # of Transportation Resources			Mode	Total # of Transportation Resources		
	Bus (100 seats)	Bus (50 seats)	General		Bus (100 seats)	Bus (50 seats)	General
Capacity	100	50	0	100	50	0	
Driver	1	1	1	1	1	1	
Manpower	1	1	1	1	1	1	

TOTALS COUNTRYWIDE EVACUATION - ALL ZONES

Mode	Evac 1, 2, 3			Evac 4, 5, 6		
	Bus (100 seats)	Bus (50 seats)	General	Bus (100 seats)	Bus (50 seats)	General
Capacity	1,288,000	644,000	0	1,288,000	644,000	0
Driver	1,288	1,288	0	1,288	1,288	0
Manpower	1,288	1,288	0	1,288	1,288	0

TOTALS IN EACH EVACUATION ZONE

Evac Zone	Evac 1, 2, 3			Evac 4, 5, 6			Evac 1, 2, 3			Evac 4, 5, 6		
	Bus (100 seats)	Bus (50 seats)	General	Bus (100 seats)	Bus (50 seats)	General	Bus (100 seats)	Bus (50 seats)	General	Bus (100 seats)	Bus (50 seats)	General
Evac 1	1,288,000	644,000	0	1,288,000	644,000	0	0	0	0	0	0	0
Evac 2	1,288,000	644,000	0	1,288,000	644,000	0	0	0	0	0	0	0
Evac 3	1,288,000	644,000	0	1,288,000	644,000	0	0	0	0	0	0	0
Evac 4	0	0	0	1,288,000	644,000	0	1,288,000	644,000	0	0	0	0
Evac 5	0	0	0	1,288,000	644,000	0	1,288,000	644,000	0	0	0	0
Evac 6	0	0	0	1,288,000	644,000	0	1,288,000	644,000	0	0	0	0

TOTALS (BY INCREASING NUMBER OF ZONES ISSUED TO EVACUATE)

Evac Zone	Evac 1, 2, 3			Evac 4, 5, 6			Evac 1, 2, 3			Evac 4, 5, 6		
	Bus (100 seats)	Bus (50 seats)	General	Bus (100 seats)	Bus (50 seats)	General	Bus (100 seats)	Bus (50 seats)	General	Bus (100 seats)	Bus (50 seats)	General
Evac 1	1,288,000	644,000	0	1,288,000	644,000	0	0	0	0	0	0	0
Evac 1-2	1,288,000	644,000	0	1,288,000	644,000	0	1,288,000	644,000	0	1,288,000	644,000	0
Evac 1-3	1,288,000	644,000	0	1,288,000	644,000	0	1,288,000	644,000	0	1,288,000	644,000	0
Evac 1-4	0	0	0	1,288,000	644,000	0	1,288,000	644,000	0	1,288,000	644,000	0
Evac 1-5	0	0	0	1,288,000	644,000	0	1,288,000	644,000	0	1,288,000	644,000	0
Evac 1-6	0	0	0	1,288,000	644,000	0	1,288,000	644,000	0	1,288,000	644,000	0

Figure 1-11 CTN Model Structure Utilizing Data from the IPOR Telephone Surveys

## Using the Model

In order to calculate the type and number of transportation and manpower resources that will be required to respond to the CTNs of the counties, the model performs two general steps:

1. Calculates the number of CTN individuals that should be planned for, and
2. Calculates the number of transportation resources and manpower to evacuate those CTN individuals

The outline that follows describes the step-by-step process for utilizing the model. The inputs and outputs are color-coded in the Excel spreadsheet and listed beside each step for reference. Green, yellow and pink cells are data input cells where known data, survey results or assumptions are added to the model. Blue cells are where output calculations are performed. The number of CTNs, vehicles and personnel are broken down further by storm category and evacuation zone. Two ranges of storm category (Category 1 or 2 storms and Category 3, 4 or 5 storms) are presented and each evacuation zone is calculated individually as well as cumulatively. Thus, each 4 x 3 matrix represents one of 16 (Mobile County) or one of 24 (Baldwin County) unique evacuation scenarios that could potentially be used to determine CTN resources<sup>6</sup>.

The Excel spreadsheet that is provided illustrates a possible process for estimating the type and number of transportation and manpower resources that will be required to respond to the CTNs of the Counties. The model incorporates the results of the IPOR telephone survey (presented in Task 2) and the assumptions listed above as model inputs. The population in each evacuation zone was determined by a spatial overlay of 2000 census block data with current hurricane evacuation zones. However, these values should be considered approximate considering the growth in population from 2000 to 2008, particularly in Baldwin County. At the time of the analysis, more recent census data were not available that detailed a level (census blocks) and the Regional Planning Commission's (RPC) new house construction data were not available for Baldwin County to make any estimations of the population at present.

It should be noted, that the inputs in the spreadsheet are only sample values. These inputs represent the behavioral responses of a particular survey population; responses that are constantly changing with the nature of the population surveyed and their perceived notions. As such, they should not be accepted as universal truth. Ultimately, State and Local Emergency Management have the responsibility to decide on the type and source of data to include into the model.

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<sup>6</sup> (2 storm category ranges) x (4 evacuation zones) x (2 situations-individual or cumulative zones) = 16 scenarios for Mobile County  
(2 storm category ranges) x (6 evacuation zones) x (2 situations-individual or cumulative zones) = 24 scenarios for Baldwin County

1. Estimating the Number of CTN Individuals that Would Evacuate
  - a. Inputs-
    - i. Known data (Green)
      1. Population of Mobile and Baldwin Counties (Countywide and in each evacuation zone)
    - ii. IPOR Survey Results (Yellow)
      1. Percent of the population that would evacuate (Both storm category ranges)
      2. Percent of the population needing transportation
  - b. Outputs- (Blue)
    - i. Number of CTNs
      1. By Storm Category
        - a. Countywide
        - b. Each Evacuation Zone
        - c. Cumulative  
(i.e., by increasing number of zones issued to evacuate)
2. Estimating the Transportation Resources to Evacuate CTN Individuals
  - a. Inputs-
    - i. IPOR Survey Results (Yellow)
      1. Percent of people requiring regular transportation
      2. Percent of people requiring special transportation
    - ii. Assumptions (Pink)
      1. Percent of people requiring each type of special transportation
      2. Capacity of each vehicle type
        - a. Buses (Normal and Wheelchair-Accessible)
        - b. Special (Wheelchair Van or Ambulance)
      3. Manpower
        - a. Driver
        - b. Medical Staff/Personnel
      4. Number of Round Trips
  - b. Outputs- (Blue)
    - i. Number of CTNs, Vehicles (**BOLD**) and Manpower
      1. By Storm Category
        - a. Countywide
        - b. Each Evacuation Zone
        - c. Cumulative  
(i.e., by increasing number of zones issued to evacuate)

## F. REVIEW EXISTING CTN PRE-EVENT REGISTRATION SYSTEMS AND PROVIDE SYSTEM IMPROVEMENT RECOMMENDATIONS

### OVERVIEW

The contractor will identify and review any current CTN Pre-Event Registration System being used by Alabama and 3 other registration systems in other areas. The Contractor will make recommendations for system improvements based on their review. This will also include recommendations to enhance the public's awareness of the CTN registration process. **Deliverables will be a summary report of the Contractor's review of the CTN Pre-Event Registration System and their recommendations.**

### NARRATIVE

As a starting point, the current system used to estimate needs related to evacuation transportation, as well the sheltering of special needs populations, was discussed with emergency management professionals in Mobile and Baldwin counties. Mobile County has a Special Needs Evacuation Registry system that utilizes the services of Volunteer Mobile. Under the direction of a paid employee, Volunteer Mobile assumes responsibility for registering those with special transportation needs and for keeping registration information current. A form available on the web can be printed and mailed, or completed on-line. Information is entered into a computer spreadsheet database. Registrations must be completed annually. As of spring 2009, there were 188 persons registered in Mobile County for special evacuation transportation. The map in Figure 1-12 shows the locations of these registrants. At present, any Baldwin County resident needing transportation to a pickup hub or to a shelter can call the Baldwin Rural Area Transportation Services (BRATS) during an evacuation and ask to be picked up.

While the contract called for three other registration systems to be reviewed, the "snowball" process of soliciting examples of effective programs yielded significantly more recommendations. In order to understand the variety of approaches used by various coastal jurisdictions, ten programs were reviewed and the various aspects of these registration systems are summarized in Table 1-12, *Critical Needs Transportation Registration Systems: A Sample*. Clearly, this project did not begin to cover all the good programs that are available – only to sample a few.

The identification of exemplary registration programs was based on the opinions of emergency managers from several states and a review of web-based materials from various coastal jurisdictions. There was consensus that Florida had the most active programs. Further inquiry resulted in seven Florida programs being recommended for investigation, as well as two in Texas, one in North Carolina and one in New York. One Texas program did not provide information, resulting in the review of 11 programs. The jurisdictions are Broward (Fort Lauderdale), Charlotte (Punta Gorda), Collier (Naples), Lee (Fort Myers), Miami-Dade, Monroe (Florida Keys) and Pinellas (Clearwater-St. Petersburg) in Florida, as well as Corpus Christi, Texas, Southeast Texas, New Hanover (Wilmington), North Carolina, and New York City. While it had been recommended, it turned out that New York City, in fact, does not maintain a special needs transportation registry.

Various characteristics associated with registration programs are discussed in the following section along with several exemplars. A summary of the components of effective Critical Transportation Needs registries is provided, followed by specific recommendations for consideration by officials in Baldwin and Mobile counties. A list of persons contacted is included in Appendix G. This task did not deal with those who need public transportation to regular shelters. Methods of estimating the demand for this service will be included in Task 2.

## **COMPONENTS OF EFFECTIVE REGISTRATION PROGRAMS**

### **Education and Outreach**

Evacuation decisions are often complicated. There are many things to consider, beginning with the perceived safety of one's home during a hurricane. There was a general feeling among the emergency management personnel contacted for this project that residents in their areas did not adequately understand the dangers of surge and inland flooding. Several wished for videos and/or 3-D simulations that would show the potential water rise in specific regions in a visual and dramatic manner. Concern for those healthy and able-bodied citizens in evacuation zones who do not leave when conditions warrant was magnified in the case of elderly and special needs populations who are particularly vulnerable in inundation situations. The sample of critical transportation needs registration programs contacted for this project is located in Table 2-1.

Officials are also concerned about those who evacuate unnecessarily, over-burdening transportation and sheltering systems, and causing people undue physical and emotional stress and expense. Most coastal emergency management programs provide materials to help residents make their evacuation decisions. These include brochures, leaflets, PSAs and other materials. An excellent one from the Collier County website is located at [www.colliergov.net/index.aspx?page=2518](http://www.colliergov.net/index.aspx?page=2518).

Citizens should be encouraged to find their own means of transportation, limiting public transportation to those who have no other means for getting to shelters. This message should be an integral part of any registration program. Some programs include a conversation with the registrant before taking their registration information; indeed, some attempt to assist the potential registrant with finding other possibilities. An excellent example of this is New Hanover, NC where volunteers from the Retired or Senior Volunteer Program (RSVP) form a Special Needs Task Force that establishes on-going relationships with registrants (<http://www.tmpapps.nhcgov.com/EM/emSNTF.asp>). They attempt to help them find transportation with family, friends, neighbors, local churches and other groups. The Special Needs information provided on the Pinellas County website ([www.pinellascounty.org/emergency/specialneeds.htm](http://www.pinellascounty.org/emergency/specialneeds.htm)) is particularly noteworthy in the extent to which it stresses personal and family responsibility. On the other hand under-registration of those who need transportation is a problem, making it difficult for managers to plan transportation and shelter resources.

**Table 1-12: Critical Needs Transportation Registration Systems: A Sample**

**Critical Needs Transportation Registration Systems:  
A Sample**

Agency	Methods to Register	Who Keeps Registry	Database	Updated	Call Down Method	How Publicized	Population Served	Number Registered	No. Transported Last Event	Modes of Transport
Broward Co, FL	Web, mail	County Human Services	GIS	1X Yr	Phone	Web	1,751,234	900	*	Paratransit, ambulance service
Charlotte Co., FL	Web,				Phone		150,060			
Collier Co., FL	Web, mail	CEMA	GIS	1x Yr	Auto, phone		315,258			
Corpus Christi, TX	Call 2-1-1, web	Local EMA	Part of 2-1-1 database	1x Yr	Auto	United Way billboards, PSAs	285,267	1215 (.4%)	20-30%+ Major event; 34% Sp. Needs Ike	State provides busses, TX Military Forces, Paratransit, EMS
Lee Co., FL	Web, mail, fax	LEMA	Comp.	1X yr	Phone	Home health care, LeeTV, fairs, web	593,136	336 (.06%)	296 STS 15 ambul. 106 busses	Paratransit, Ambulance service.
Miami-Dade, FL	Web, mail, 3 languages	MDEMA		2x Yr	2 calls	Web, outreach	2,398,245	2100 (.09%)	15 Ambul.	Fire rescue, paratransit, school busses
Monroe Co. FL	Web, phone, mail, home health	EM Special Needs Coord.	Comp.	1x Yr	Phone	Newspaper, Elec.bills, outreach	72,243	362 (.5%)	77 (21%)	County paratransit to pickup, charter busses
New Hanover, NC	Web, mail, outreach, meals program	Retired & Sr. Vol Program and County	Comp.	2x yr	Phone	Newsletters, power co., dr offices, pharmacies, sr. centers	160,307	700	No major	paratransit, ambulances
New York City	None. Call 3 1-1 if event						2,398,245			
Pinellas Co., FL	web, phone, fire station	PEMA & Fire Dept	GIS	1X Yr	Fire dept phones	Sent to med. Providers, utl. Bills,	910,260	3400 (.4%)	75-80% of registrants	Paratransit, school busses, ambul.
SE Texas	2/1/01	EMAs		1x Yr	Phone					

Most programs include outreach designed to locate those people who should register. Some, such as the Pinellas County website referred to above, and the Lee County website ([www.leeec.com/shelterevacuation/specialneeds.aspx](http://www.leeec.com/shelterevacuation/specialneeds.aspx)) include brochures and leaflets about the special needs programs that can be downloaded and distributed by agencies, churches and others to possible registrants. Emergency management and other government personnel often give public talks to citizen groups that include this topic. In Pinellas County all utilities send out flyers about the program, and forms are sent to health care providers, including physicians and pharmacists. Most of their registrants come from the home health care agencies.

### **Role of Emergency Management Officials**

The ideal system appears to be one in which the registration is maintained by the local jurisdiction, usually paid employees of the local emergency management agency. This allows for continuity and control by those who are ultimately responsible for providing the services. Most Florida counties, as well as Corpus Christi, TX, assign this duty to a Special Needs Coordinator in emergency management. In Broward County, FL, however, the registry is maintained by the county Department of Human Services and in New Hanover, NC it is maintained by the County Department of Aging. Pinellas County, FL uses an innovative model in which the registry is maintained by neighborhood fire stations. This has the added advantage of promoting an on-going relationship between paramedics and some of the most medically needy residents in their areas.

### **Registration Methods**

All reviewed programs provide registration information and materials on their websites. Some are set up for on-line registration. Most have forms that can be downloaded and mailed. Several were available in two or three different languages and the New York City one could be obtained in 11 languages! These forms came in assorted formats: from a simple fill-in the blanks for basic questions, to more elaborate complex schemes. Particularly user-friendly ones that provided lots of information included those used by Broward County ([www.broward.org/atrisk/pdf/transportassistance.pdf](http://www.broward.org/atrisk/pdf/transportassistance.pdf)) and Miami-Dade ([www.miamidade.gov/oem/library/EEAP-Application-English-2007.pdf](http://www.miamidade.gov/oem/library/EEAP-Application-English-2007.pdf)). While this project does not deal with sheltering, it is interesting to note that some forms (such as the ones used by Broward and Miami-Dade) require a physician or caregiver to complete the medical part before the registration is accepted. Most require a caregiver to accompany the registrant with special medical needs. In the best scenarios the receipt of these forms is followed by a telephone call to verify the information and provide further advice and information.

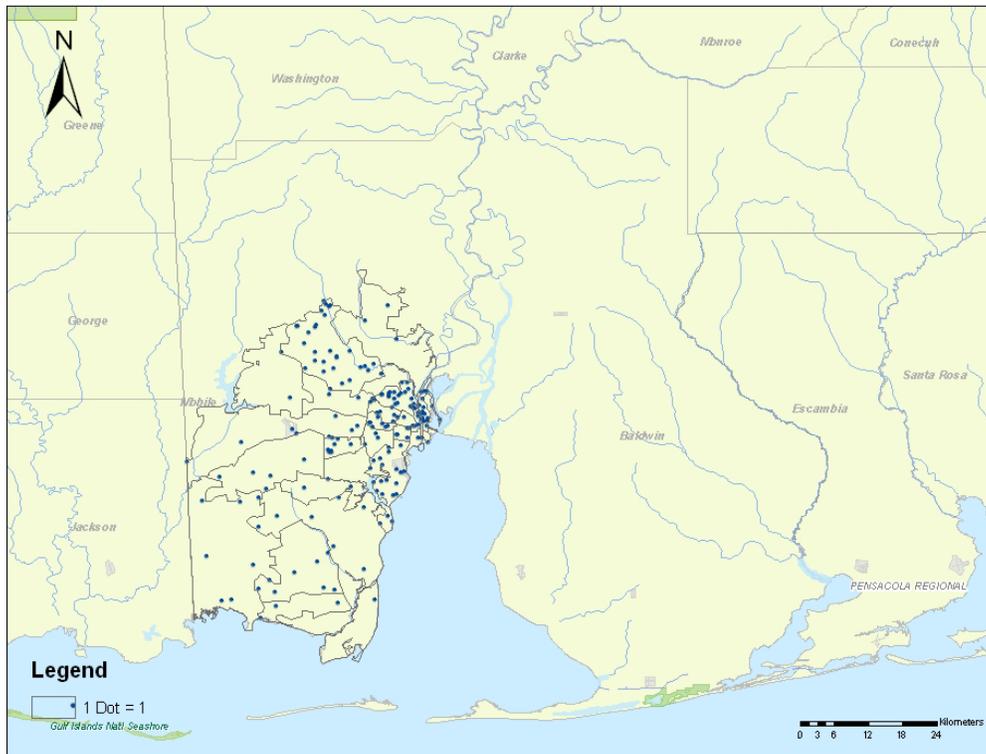
The easiest way for people to enroll, and the most friendly to elderly and/or special needs citizens, are those that provide one simple telephone number. In Texas a call to 2-1-1 can begin the process. In some Florida counties it is 3-1-1. This starts a process that results in a person calling the potential registrant to discuss the issues and collect the information. Self-registration on the web is a time-saver. Increasing numbers of people, including the elderly are using the internet. A recent survey indicated that 46% of those over age 65 have a computer in their

home.<sup>7</sup> However, among the poor, the rate was only 24%. Therefore, it should not be relied upon as the major means of registration of vulnerable populations.

## Registry Database

The most common database is a computer spreadsheet, such as Microsoft Excel or Access. Some databases, such as the one utilized in New Hanover, NC, have been specifically designed for this purpose. Having the registrants' addresses geo-coded in the database is extremely useful when planning and dispatching transportation resources. Geo-coded databases are used in Broward, Collier and Pinellas counties, to name a few. Current Mobile County registrants are illustrated in Figure 1-12. In most cases the same form and procedure is used to register for Special Needs (including medical needs) Shelters and for transportation to get there.

Current Mobile County Registrants



**Figure 1-12: Current Mobile County Registrants**

<sup>7</sup> 2008. Kiefer, J. J., J.A. Mancini, B.H. Morrow, H., Gladwin and T.A. Stewart. *Providing Access to Resilience-Enhancing Technologies for Disadvantaged Communities and Vulnerable Populations*. Oak Ridge: Community & Regional Resilience Initiative, Oak Ridge National Laboratories.

One problem with registries is that they quickly go out of date. People move in and out of coastal communities. Some may need special medical transportation temporarily. Health improvements can make the service no longer necessary. Others are released from hospitals and have temporary needs. Many elderly registrants move on to nursing homes and independent living facilities that are responsible for providing evacuation transportation. And of course, deaths within the special medical needs population are common. For these reasons, any registration system must have provisions for keeping it current. Some require people to initiate a new registration each year. Others mail a form to registrants asking them to respond if there has been a change.

By far the most effective programs have a mechanism for calling the list at least once a year to verify on-going needs. The most innovative idea to accomplish this was in Miami-Dade, FL, where twice a year volunteers from county agencies, American Red Cross, AARP, and local colleges come into the EOC on Saturday and call-down the list. Local restaurants provide food. According to an official there, this has become an important educational and service event, well-publicized and supported. In New Hanover, NC this is done by the volunteer organization RSVP.

Database size depends not only on the size and nature of the population served, but on the effectiveness of educational and information campaigns. Not surprisingly, in those areas where there have been recent evacuations, the registries tend to be larger. In Monroe County (Florida Keys) there are 362 persons registered for Special Needs Transportation out of an estimated population of 72,243, or 0.50% of the population. Similarly, Corpus Christi, TX currently has 1215 registrants, or 0.40% of its population. More commonly, the proportion is between 0.05% and 0.09% for those in this sample for which the information was available.

### **Notification during Event**

In all cases it is necessary to call registrants when a storm is approaching to see if they still need the service and/or make arrangements for pick up. In most cases this is done with two calls, the first to see if they need the service, and the second to provide the time window in which they should be ready to leave. In some counties, such as Corpus Christi and Charlotte County, the first call comes from an automated service such as PhoneMaster. The second call usually comes from the agency responsible for providing the transportation.

### **Transportation Resources**

In all cases, it is necessary to determine the type of transportation needed at the time of registration. Some people qualify for a Special Needs shelter but can ride in a regular car, van or bus. Others require wheelchair lifts or stretchers. The following Transportation Assistance Levels (TAL) used in New York City seem useful:

- |              |  |
|--------------|--|
| <b>TAL 0</b> | Need public transportation but can get to a bus pickup point;  |
| <b>TAL 1</b> | Can get to front of house and may need chair-lift vehicle;     |
| <b>TAL 2</b> | Can sit for extended periods but need assistance leaving home; |
| <b>TAL 3</b> | Need stretcher or ambulance service.                           |

In all of these jurisdictions the primary source of transportation to Special Needs Shelters was the normal paratransit service used by this population on a routine basis. In many cases the vehicles will pick up the person and take them to the shelter of their choice, including the home of family or friends. In other words, they do not have to be registered for a Special Needs shelter in order to use the service for evacuation. In many areas, the municipal or county busses are equipped with wheelchair lifts that can be used for this purpose. School busses are sometimes used for pickups as well. Fire rescue or private ambulance services are used for those who must be transported by stretcher. The Texas Military Forces assist when needed in Corpus Christi.

It is difficult to discern a trend related to the relationship between the number of registrants and actual transportation needs during an event. No two events are the same in terms of hazards threat, timing, etc. The number of registrants in some jurisdictions is woefully small, given the need. In spite of the considerable effort in Corpus Christi to get people registered, an emergency manager estimated that the actual use exceeds the number of registrants by 20-30%. At the other end of the spectrum, most of the Florida counties said only a small percentage of those registered actually used the service in recent events (which were not major hurricanes). They either elected not to evacuate, or found other sources of transportation and/or shelter. Many of these jurisdictions attempt to keep continuing relationships with vulnerable populations, including calling them after an event to see how they are doing.

In summary it appears that an effective registration program:

- Has a strong educational and outreach program to assist people in finding transportation;
- Is the ultimate responsibility of a government agency;
- Has one simple number to initiate the process, such as 2-1-1;
- Provides forms in appropriate languages and formats;
- Has an easy-to-understand registration form that provides complete information to determine the level of transportation needed;
- Uses a computer database, preferably geo-coded;
- Has a regular system for keeping the data current;
- Has an effective call-down system in an event;
- Follows up with registrants when they return home.

## RECOMMENDATIONS FOR BALDWIN AND MOBILE COUNTIES

Based on this small sample, it would seem that Baldwin County, with an estimated population of 174,000, would have a registry of people needing transportation to special needs shelters of somewhere between 150-700 registrants (0.09% - 0.40%). Similarly, Mobile County, with a population of 406,000 residents, would have a registry somewhere between 360-1,600 registrants. These, of course, are rough estimates that do not take into consideration the extent to which elderly, disabled, and other special needs populations live in each county. Hopefully, the surveys conducted as part of Task 2 will provide more insight in that regard.

The current registration system in use in Mobile County contains many, if not most, of the recommended components. Its size would indicate that there is still much to be done to reach those who would need transportation for evacuation to special shelters. This will undoubtedly require additional county resources to assist Volunteer Mobile in education and outreach, as well as database management.

The programs reviewed here provide some excellent materials (many available on their website) and ideas for use in developing and maintaining a registry. Further, the personnel contacted were pleased to share their experiences and would be excellent sources of information. Contact information for these agencies is located in Appendix F.

An on-going registration program in Alabama can also be examined as a model. The Alabama Special Needs Population Program ([www.alabamaspp.com](http://www.alabamaspp.com)) is part of the Chemical Stockpile Preparedness Program associated with the Anniston Army Depot in central Alabama. As part of this program, the Alabama Emergency Management Agency identifies and registers people with special needs in Calhoun, Clay, Cleburne, Etowah, St. Clair and Talladega counties. In addition to persons with disabilities, the program considers people without transportation, those who do not speak English, and children who are home alone without nearby assistance, as people with special needs. The online registration form is well designed to collect the information in an easily understood manner.

## G. IDENTIFY ORGANIZATIONS WITH WHICH TO GROUND TRUTH INFORMATION ON DATA SETS

### OVERVIEW

Identify organizations with which to ground truth information on data sets public transit authorities, applicable governmental, private and non-profit social services providers, including feeding kitchens and homeless shelters etc. The contractor will compile a list of those organizations and agencies that provide social services in Mobile and Baldwin Counties. **Deliverable will be a list of organizations currently providing social services to individuals with high likelihood of needing public transportation for evacuations in Mobile and Baldwin Counties, Alabama. Their locations should be displayed in a separate GIS point layer with pertinent information contained in the database. (i.e. address, phone, POC, facility type, etc.)**

### MOBILE COUNTY SOCIAL SERVICE AGENCIES

Area Agency on Aging  
110 Beauregard Street  
Mobile AL 36633  
(251) 706-4650  
Della Sanchez

Housing First  
Homeless Coalition  
2900 Old Shell Road  
Mobile AL 36607  
(251) 450-3345  
Dan Williams

Department of Rehabilitative Services  
2419 Gordon Smith Drive  
Mobile AL 36617  
(251) 479-8611  
Manny Russo

Salvation Army  
1009 Dauphin Street  
Mobile AL 36604  
(251) 438-1625  
Trinitius Pucket

Waterfront Rescue  
206 State Street  
Mobile AL 36633  
(251) 433-1847  
Sam Bradley  
Men's Shelter

15 Place  
15 N. Joachim Street  
Mobile AL 36602  
(251) 432-7227  
Lyn Manz-Walters  
Homeless Services  
Loaves and Fishes Feeding Kitchen

Mobile Housing Authority  
1645 U.S. Highway 45  
Citronelle AL 86522  
(251) 866-9696  
Frank Nelson

Mobile Housing Board  
151 S. Claiborne Street  
Mobile AL 36602  
(251) 434-2200  
Karen Washington

Mobile Community Action Agency  
204 East Main Street  
Prichard AL 36610  
(251) 457-5700  
Gwen Darty

The WAVE  
110 Beauregard Street Suite 104  
Mobile AL 36602  
(251) 344-6600  
Gerald Alfred  
Public Transit

Tender Loving Care  
(Amedisys #1054)  
273 Azalea Road Bldg. 2 Suite 100  
Mobile AL 36609  
(251) 476-0192  
Home Health Care

Amedisys # 1025  
19375 N. Third Street Suite 101  
Citronelle AL 36522  
(251) 866-3261  
Home Health Care

Amedisys # 1006  
820 S. University Boulevard Suite 3E  
Mobile AL 36609  
(251) 343-0985  
Home Health Care

Maxim Home Health  
3103 Airport Boulevard Suite 454  
Mobile AL 36606  
(251) 470-0223  
Home Health Care

Mid-South Home Health  
67 E. Midtown Park  
Mobile AL 36606  
(251) 476-1279  
Home Health Care

Infirmery Home Health  
618 Azalea Road  
Mobile AL 36609  
(251) 450-3300  
Home Health Care

Government Street Presbyterian  
300 Government Street  
Mobile AL 36602  
(251) 432-1749  
Feeding Kitchen (Breakfast)  
Meals on Wheels

Catholic Social Services  
Service Center  
555 Dauphin Street  
Mobile AL 36601  
(251) 434-1550  
Marilyn David King, Dir.

Cottage Hill Baptist Church  
4255 Cottage Hill Road  
Mobile AL 36609  
(251) 660-2422 x227  
Alice Harvell  
Meals on Wheels

Saraland Senior Center  
718 Mae Street  
Saraland AL 36571  
(251) 375-5438  
Meals on Wheels

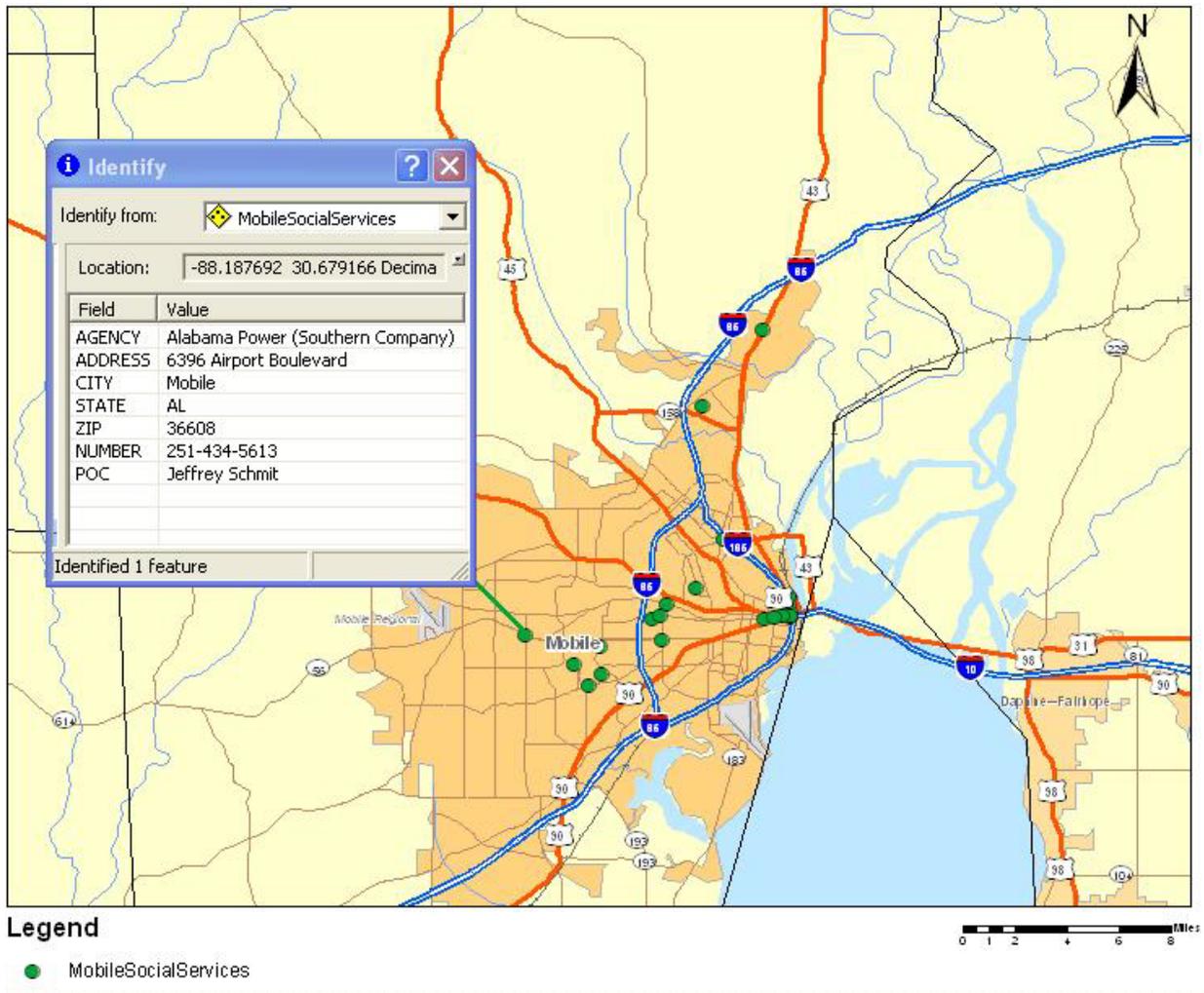
Satsuma City Hall  
5464 Old Highway 43  
Satsuma AL 36572  
(251) 377-9642  
Meals on Wheels

United Cerebral Palsy  
3058 Dauphin Square Connector  
Mobile AL 36607  
(251) 479-4900  
Susan Watson

Alabama Power (Southern Company)  
6396 Airport Boulevard  
Mobile AL 36608  
(251) 434-5613  
Jeffrey Schmit  
Electrically Dependent Registrants

Lutheran Family and Children's Services  
13280 N. Wintzell Avenue  
Bayou La Batre AL 36509  
(251) 824-7026  
Mark Johnson

American Red Cross  
853 Dauphin Street  
Mobile AL 36602  
(251) 436-7913  
Ron Baughman



**Figure 1-13. Social Service Agencies, Mobile County**

## **BALDWIN COUNTY SOCIAL SERVICE AGENCIES**

Alabama Department of Public Health  
23280 Gilbert Drive  
Robertsdale AL 36567  
(251) 947-6206  
Peggy Thompson

American Red Cross  
300 N. Hoyle Avenue  
Bay Minette AL 36507  
(251) 937-3801  
Diane Clewell

American Red Cross  
412 E. Laurel Avenue  
Foley AL 36535  
(251) 943-3844

Baldwin Council on Aging  
22251 Palmer Street  
Robertsdale AL 36567  
(251) 972-8506  
Kelly Childress

Community Action Agency  
26440 N. Pollard Road  
Bay Minette AL 36507  
(251) 626-2649  
Carjetta Williams

BRATs  
18100 County Road 54E  
Robertsdale AL 36567  
(251) 872-8576  
Taylor Rider

Catholic Social Services  
23010 Highway 59N  
Robertsdale AL 36567  
(251) 987-2293  
Michelle Prockup

Lighthouse  
23306 Chicah Street  
Robertsdale AL 36567  
Jerry Sommer

Alabama Power  
600 D'Olive Street  
Bay Minette AL 36507  
(251) 937-0992  
Hiram Templeton  
Electrically Dependent Registry

Bay Minette Housing Authority  
400 South Street  
Bay Minette AL 36507  
(251) 937-2211

Thomas Home Health  
27961 U.S. Highway 98 -Ste 16  
Daphne AL 36526  
(251) 626-6646  
Christina Crocker

Mercy Medical Home Health  
177 Baldwin Square  
Fairhope AL 36532  
(251) 928-5514  
Julie Wagner

Mid-South Home Health  
9037 Independence Ave Ste B  
Daphne AL 36526  
(251) 621-0082  
Angela Lambert

Mid-South Home Health  
1390 N. McKenzie Street  
Foley AL 36535  
(251) 743-3002  
Alma Outlaw

Amedisys Home Health  
100 Elecia Lane  
Foley AL 36535  
(251) 971-1436  
Nancy Hessert

South Baldwin Medical Center  
1613 N. McKenzie  
Foley AL  
(251) 949-3400  
Carolyn Phillips

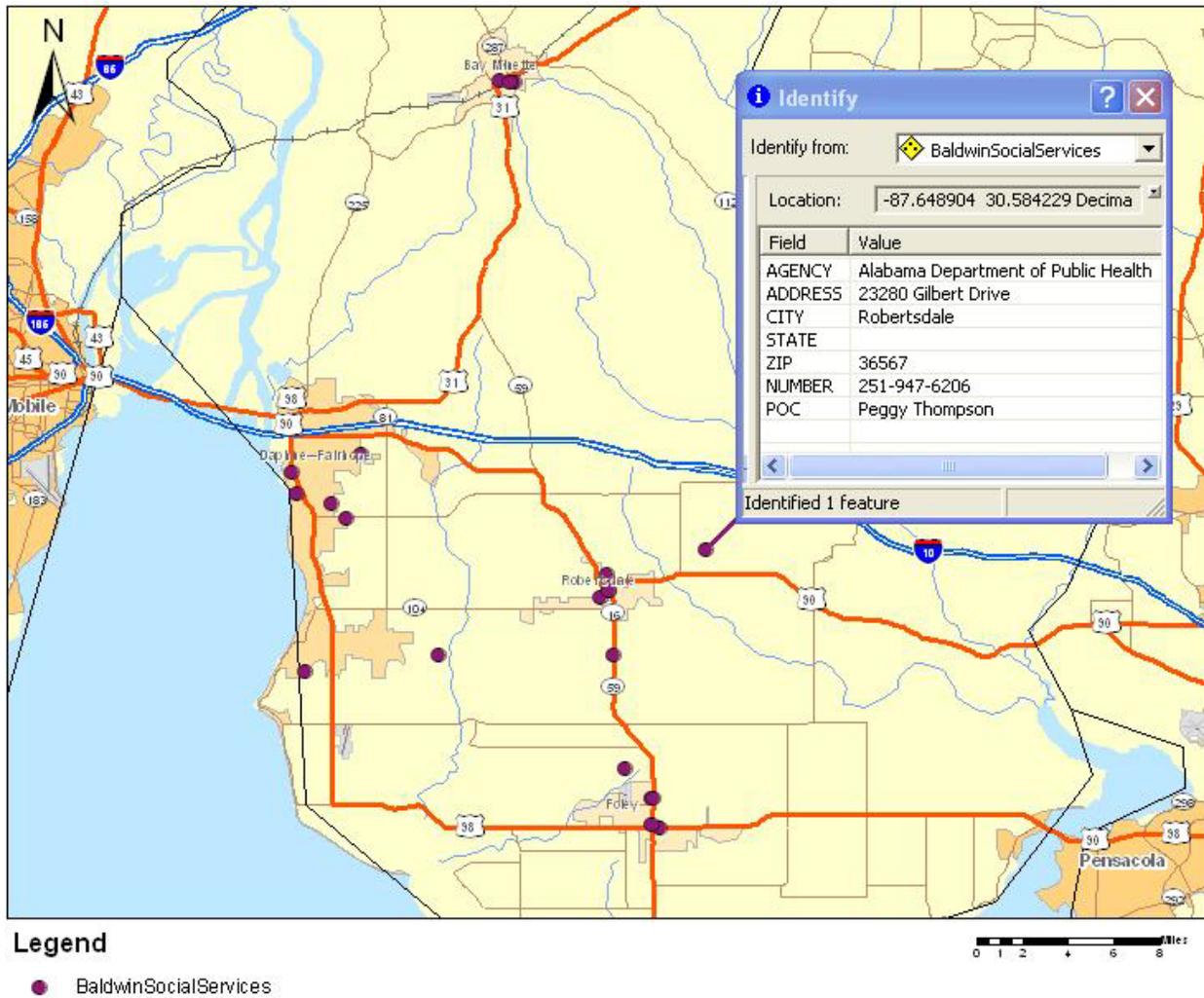
La Clinica de Baldwin  
1628 N. McKenzie Street Ste 102  
Foley AL 36535  
(251) 947-1083  
Mike Trainor

Family Promise  
23010 Highway 59N Bldg C  
Robertsdale AL 36567  
(251) 947-5641  
Mike Brokowsky

Riviera Utilities  
700 Whispering Pine Road  
Daphne AL 36526  
(251) 626-5000  
Tom Byrne  
Electrically Dependent Registry

Baldwin EMC  
19600 Highway 59  
Summerdale AL 36580  
(251) 989-6247  
Tom Page  
Electrically Dependent Registry

Fairhope Utilities  
555 S. Section Street  
Fairhope AL 36533  
(251) 928-8003  
Scott Sligh  
Electrically Dependent Registry



**Figure 1-14 Social Service Agencies, Baldwin County**

## H. MEET WITH ORGANIZATIONS TO GROUND TRUTH/VERIFY DATA SETS AND HOLD MID-PROJECT BRIEFING

### OVERVIEW

The contractor will meet with the major organizations and agencies in Mobile and Baldwin Counties that provide services to ground truth data. **Deliverables will include a ground truthed report that summarizes and validates the current information known to organizations providing services to the groups listed in Task 1-E. Their locations should be displayed in a separate GIS point layer with pertinent information contained in the database. The contractor will also prepare a power point presentation for the Mid-Project briefing.**

### NARRATIVE

A draft of the information collected in Task 1E was circulated to the respective county emergency management agencies. The major agencies that provided data related to their clients were identified and put into a GIS-based database in Task 1G. Meetings were subsequently scheduled in each county to discuss and verify the findings. Each agency decided who to invite to its meeting. The Powerpoint presentations presented at each Mid-Project Briefing are provided as supplemental deliverables. A list of attendees at each meeting is included in Appendix H.

### BALDWIN COUNTY MEETING

The Baldwin County meeting was held on June 22, 2009 at the Baldwin County Emergency Operations Center. The collected data were presented and discussed. The Baldwin County Emergency Management Director, Leigh Anne Ryals questioned a GIS map of U.S. Census data that showed a concentration of vulnerable people in the northeast corner of the county. Subsequent investigations revealed this to be an error. A part of Escambia County had inadvertently been included. The maps were corrected. No additional issues were raised about the data, but it was agreed that the data collected from the health and social services agencies was likely to under-represent the level of Critical Transportation Needs in the county. A final slide presented results from early analysis of the Telephone Survey. According to this survey more than 7% of Baldwin households are likely to need transportation in a major hurricane evacuation. These results were highly controversial and will be discussed in more detail in the Final Briefing.

## **MOBILE COUNTY MEETING**

The Mobile County meeting was held on June 23, 2009 at the Mobile County Emergency Operations Center. The collected data were presented. It was agreed that these agency reports of clients and services likely under-represent the Critical Transportation Needs in Mobile County. The Census data were again discussed as more realistic indicators of CTN. As with Baldwin, a final slide presented results from early analysis of the Telephone Survey. According to this survey about 11% of Mobile households are likely to need transportation in a major hurricane evacuation. These results were highly controversial and will be discussed in more detail in the Final Briefing.

## TASK TWO

### A. DEVELOP/REFINE SURVEY INSTRUMENT COMPATIBLE WITH ALABAMA EMA'S RAPID CAST SYSTEM

#### **OVERVIEW**

The contractor will develop a short, concise survey instrument to obtain data from transportation dependent citizens, including CTN subset populations to assess needs and numbers of the individuals who are likely to be dependent on public transportation for an evacuation. The survey instrument will be provided to the Alabama EMA for review and comment prior to being finalized. A test of the Rapid Cast System will be conducted by Alabama EMA to determine the feasibility of utilizing this system to collect valid behavioral data. An analysis of the test results will be performed and provided to Alabama EMA. An alternate instrument will be developed using standard telephone survey methodology. **Deliverables will include approved survey instruments for use with Rapid Cast and with standard telephone surveying methodology. The Contractor will also provide a summary report analyzing the Rapid Cast System results.**

#### **NARRATIVE**

Two survey instruments were drafted, one for the automated Rapid Cast System and one for standard telephone methodology, and presented at the mid-project meeting. Only minor changes were made. The Rapid Cast questions were included in the survey conducted by the Institute for Public Opinion Research (IPOR), but additional questions were asked. Both instruments are provided in Appendix I.

It was determined that conducting an automated survey using Rapid Cast was feasible and should be tried. Therefore, it was decided that two surveys would be completed in each county. The Rapid Cast survey was to be conducted by High Ground Solutions, supplier of the Rapid Cast system to the Alabama Emergency Management Agency, and a regular telephone survey was to be conducted by IPOR. Given this decision, it seems appropriate to describe the Rapid Cast methodology and results along with those of the IPOR survey in subsequent tasks rather than as part of Task 2A.

## B. IDENTIFY SURVEY POPULATIONS

### OVERVIEW

The contractor will identify the populations to be surveyed using standard population survey methodologies designed to reach the target populations. **Deliverables will include a list of survey populations showing geographical locations based on demographical qualifiers in a GIS format.**

### NARRATIVE

For the Rapid Cast survey, landline telephone numbers were purchased and, along with their internal listings, were randomized to spread call distribution throughout the counties to ensure a good, county-wide sampling. In total, 2427 surveys were completed using Rapid Cast.

IPOR used two subsamples. The landline subsample was randomly selected from listed numbers purchased from a provider. This permitted access to addresses and geo-coding of the responses. A second sample was done for cell phone numbers generated by Random-Digit-Dialing (RDD). Numbers were called and interviews completed with persons over 18 years of age who could speak for the household. A total of 765 interviews were completed by the Institute for Public Opinion Research.

According to the public service announcements that preceded the survey, respondents would not have to provide information about themselves. Therefore, some of the more personal demographic questions usually asked (such as income range) were eliminated on this survey. However, several questions about their household were included. The answers indicate that the demographics of the samples in both counties varied somewhat from what would be expected given the U.S. Census data. Tables 2-1 and 2-2 report the demographics of the IPOR sample and compare them to Census data in each county.

The largest difference between the Baldwin IPOR sample and 2008 U.S. Census estimates is in number of elderly households. A disproportionate number of elderly households are represented in the survey. Elderly persons are more likely to be at home to answer the phone and respond to the survey. There are somewhat more women represented in the survey and this reflects the common finding that women are more likely to answer the phone and respond to surveys. The households represented in the IPOR survey are slightly larger on the average (2.6 persons) than Census data reported for Baldwin County.

**Table 2-1 Baldwin County Sample Demographics**

	<b>SAMPLE</b>	<b>CENSUS</b>
<b>Single Person Households</b>	21%	21%
<b>Households with Someone Over 65</b>	49%	29%
<b>Households with Children Under 12</b>	25%	34%*
<b>Women</b>	60%	51%
<b>Average Household Size</b>	2.6	2.5
* Children Under 18		

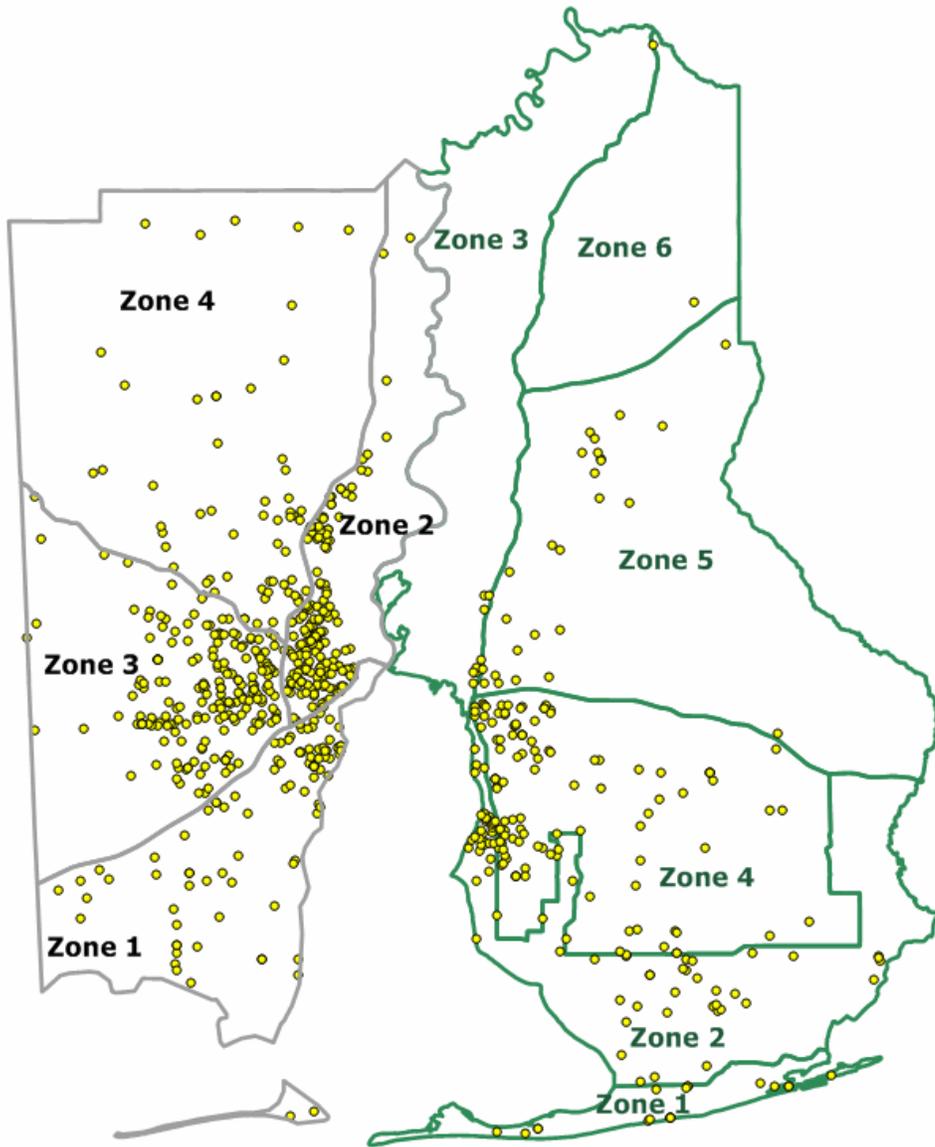
**Table 2-2 Mobile County Sample Demographics**

	<b>SAMPLE</b>	<b>CENSUS</b>
<b>Single Person Households</b>	19%	27%
<b>Households with Someone Over 65</b>	46%	24%
<b>Households with Children Under 12</b>	23%	36%
<b>Women</b>	60%	52%
<b>Average Household Size</b>	2.7	2.6
* Children Under 18		

Similarly more elderly households are represented in the IPOR sample for Mobile County than reflected in the U.S. Census data, and more women completed the survey. There are disproportionately fewer single persons represented and larger families. These sample differences will be discussed later in relation to the survey findings.

Figure 2-1 reveals the geographic locations of respondents who completed the IPOR survey.

The samples appear to be appropriately distributed in each county with the largest concentrations occurring in evacuation zones and areas with the largest populations.



**Figure 2-1 Locations of IPOR Respondents**

One dot = One person  
(Note: Some dots may fall on top of others)

## C. RECOMMEND SURVEY METHOD

### OVERVIEW

The contractor will recommend the most appropriate methodology and tools required to conduct the required population survey of the populations likely to need transportation assistance in Mobile and Baldwin Counties. It is anticipated that the sampling frame will include both landline and cell phones in the relevant areas of the two counties. **Deliverables will include a description of the recommended survey methodology elements for gathering survey inputs.**

### NARRATIVE

High Ground Solutions conducted the Rapid Cast surveys. The Baldwin and Mobile directors of emergency management, Leigh Anne Ryals and Walter Dickerson, recorded introductory remarks for the beginning of the automated surveys in their respective county. Respondents were then asked by the automated voice to press in their response, such as “press 1 for yes, 2 for no,” for seven questions related to their evacuation intention and needs. The automated phone calls took place on the evenings of June 15-16, June 20-21 and June 26-29.

The Institute for Public Opinion Research (IPOR) conducted a standard telephone survey. The protocols were approved by the AEMA and by the Institutional Review Board of Florida International University. A total of 25 questions were asked. The telephone survey was conducted at IPOR in the evenings and weekends from May 21st through June 2nd. A total of 765 interviews were completed by trained interviewers monitored by supervisors. If an interview was not completed on the first call, a total of 10 attempts were made to that telephone number. A Computer Assisted Telephone Interviewing (CATI) system was used to make the calls. The interviewers entered the answers in the CATI system during the calls. The data were checked throughout the process. Data analysis was completed using SPSS and the results were geo-coded.

## D. COLLECT, COMPILE, ANALYZE AND VALIDATE SURVEY DATA

### OVERVIEW

The contractor will conduct a statistically valid survey of the transportation dependent citizens, including CTN subset populations and conduct a statistically valid survey of the transportation dependent citizens and analyze the collected survey data to validate the collected data. If appropriate, data collected via Rapid Cast will be compared to data collected with more traditional survey methodology. **Deliverable will be a summary report of validated survey outputs of the various CTN citizens, including subset populations, for use in local planning efforts.**

### NARRATIVE

Two surveys were conducted in each county, one utilizing the Rapid Cast automated system and the other completed at IPOR using CATI telephone methodology. The results of the Rapid Cast surveys in Baldwin and Mobile Counties will be presented, followed by the results of the IPOR survey in both counties. Then the two sets of results will be compared and the implications for meeting the Critical Transportation Needs of each county discussed.

### RESULTS

#### Rapid Cast Surveys

A total of 16,460 Rapid Cast calls were conducted. The outcome in terms of completed surveys is reported in Table 2-3.

This results in a 14.5% completion rate for total calls attempted in Baldwin County and 15% in Mobile County. However, of Rapid Cast calls actually answered by a person, 30.2% completed the survey in Baldwin and 40.3% in Mobile. This is a higher than expected response rate, perhaps explained by the recorded introductions by the local emergency managers.

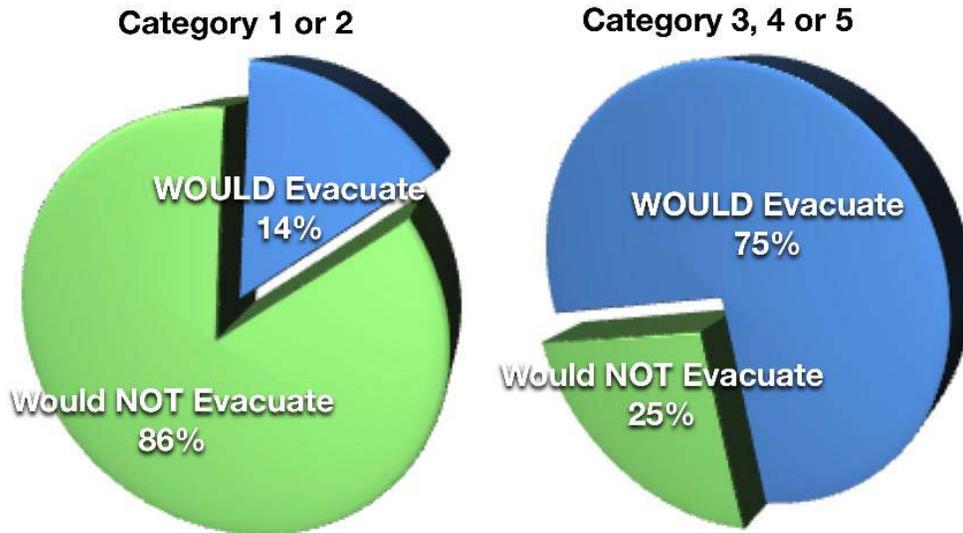
**Table 2-3 Rapid Cast Survey Results**

	<b>Baldwin</b>	<b>Mobile</b>
Total Calls Made	8806	7654
Calls Unanswered	2331	3501
Calls Answered by Machine	2239	1309
Calls Answered by Person	4236	2844
Surveys Completed	1281	1146

**Baldwin County**

Respondents were first asked if they would evacuate for Category 1 or 2 hurricanes; then they were asked if they would evacuate for a major Category 3, 4 or 5 hurricane. The results are reported in Figure 2-2 and Table 2-4.

The results show a dramatic increase in evacuation intent in Baldwin County for a major Category 3 or higher tropical storm, from 14% to 75%.

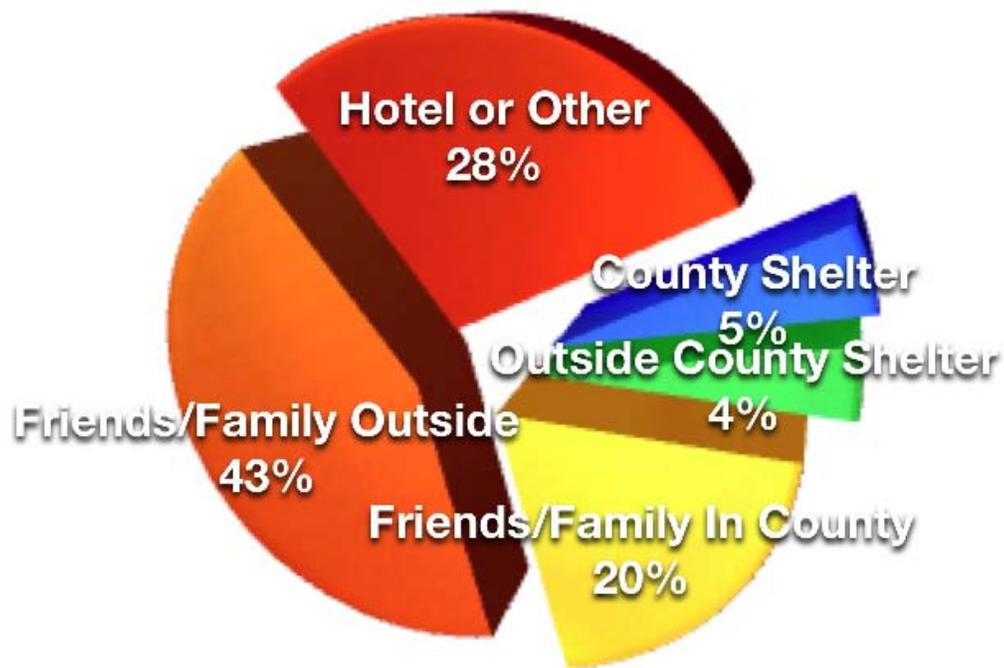


**Figure 2-2 Baldwin County Evacuation Intent (Rapid Cast)**

**Table 2-4 Baldwin County Evacuation Intent (Rapid Cast)**

	Category 1 or 2 Hurricane		Category 3, 4 or 5 Hurricane	
WOULD Evacuate	201	14%	1038	75%
Would NOT Evacuate	1231	86%	339	25%
Total Responses	1432	100%	1377	100%

Respondents were then asked where they would go if they evacuated. The results are presented in Figure 2-3 and Table 2-5.



**Figure 2-3 Baldwin County Evacuation Destinations (Rapid Cast)**

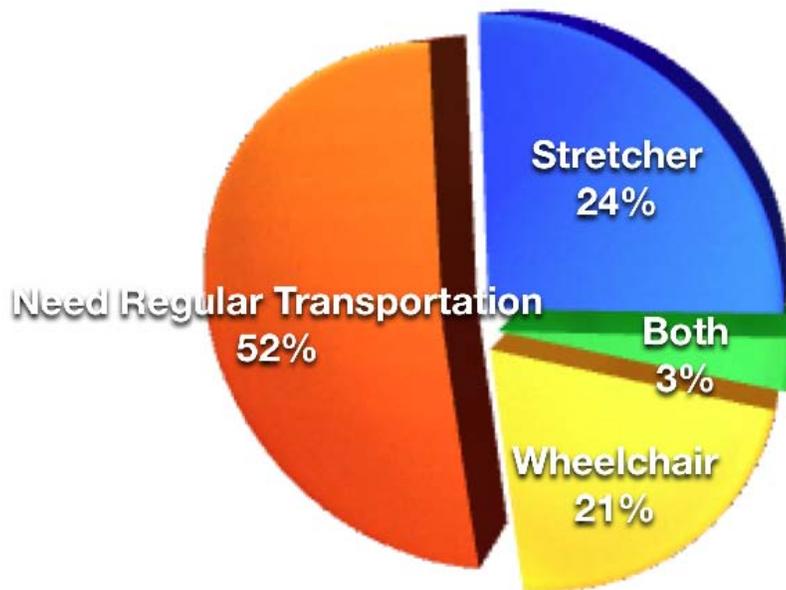
The most frequent response (43%) was that they would evacuate to the home of friends or family outside Baldwin County, followed by hotel or other arrangement (28%), and then with friends or family in the county (20%). Only 5% said would go to a county shelter and 4% to one out of the county.

**Table 2-5 Baldwin County Evacuation Destinations (Rapid Cast)**

<b>Where Would Evacuate</b>	<b>#</b>	<b>%</b>
County Shelter	60	5%
Outside County Shelter	51	4%
Friends/Family In County	263	20%
Friends/Family Outside	573	43%
Hotel or Other	373	28%
<b>Total Responses</b>	<b>1320</b>	<b>100%</b>

When asked if they needed transportation assistance in order to evacuate, 2.5% of the total sample answering that question (N=1303) pressed 1 for yes.

Respondents were then asked what type of assistance they or someone in their household might need. Figure 2-4 and Table 2-6 depict their answers.



**Figure 2-4 Baldwin County Special Transportation Assistance (Rapid Cast)**

**Table 2-6 Baldwin County Special Transportation Assistance (Rapid Cast)**

Type of Assistance	#	%*	% of Total Sample
Stretcher	8	24.0%	0.62%
Both	1	3.0%	0.08%
Wheelchair	7	21.0%	0.55%
Need Regular Transportation	17	52.0%	1.3%
Total Requiring Transportation	33	100%%	2.50%

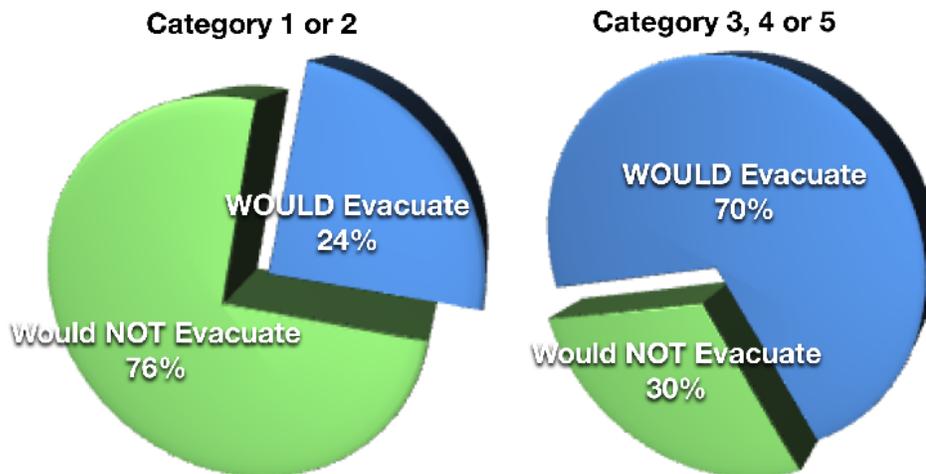
\*% of total needing transportation

According to these data, most people who lack transportation do not have special transportation needs. However, about 25% of the surveyed population need a stretcher (this seems high), and another 21% report needing transportation equipped with wheelchair lifts. **The more important finding for planning purposes is that 1.3% of the total sample had some type of special transportation need.**

**When those saying they would go to an in-county or out-of-county shelter were asked if anyone in their household would need to go to a special medical needs shelter, 7.3% of this Baldwin Rapid Cast sub-sample said yes.** The next question asked them to enter in the number of people who would require an Electrical or Medical Support Shelter. Only 74 respondents completed this question and some of their answers were 11 and 22, making the response to this question invalid.

### Mobile County

The same set of questions was asked in Mobile County. The results of the two questions about whether they would evacuate for either a Category 1 or 2, or a Category 3, 4 or 5 storm are reported in Figure 2-4 and Table 2-7.



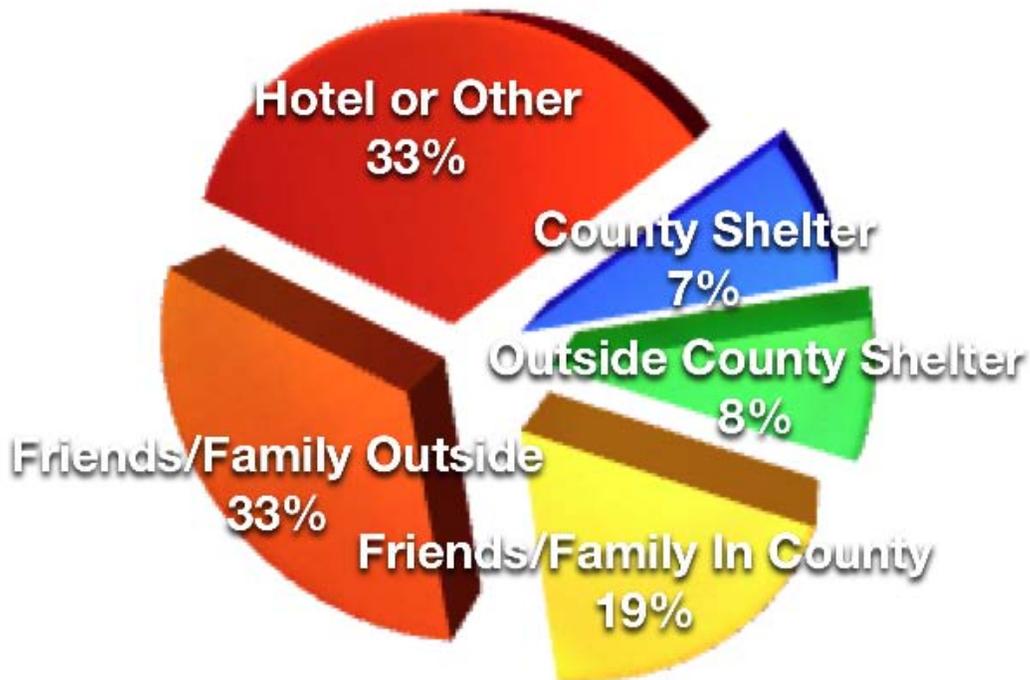
**Figure 2-5 Mobile County Evacuation Intent (Rapid Cast)**

**Table 2-7 Mobile County Evacuation Intent (Rapid Cast)**

	Category 1 or 2 Hurricane		Category 3, 4 or 5 Hurricane	
WOULD Evacuate	292	24%	841	70%
Would NOT Evacuate	950	76%	363	30%
Total Responses	1242	100%	1204	100%

Once again the answers differ dramatically when referencing a major hurricane. While only 24% said they would evacuate for a Category 1 or 2, 70% said they intended to leave their homes for a Category 3 or above hurricane.

Results for the subsequent question about where those who intend to evacuate would go are shown in Figure 2-6 and Table 2-8.



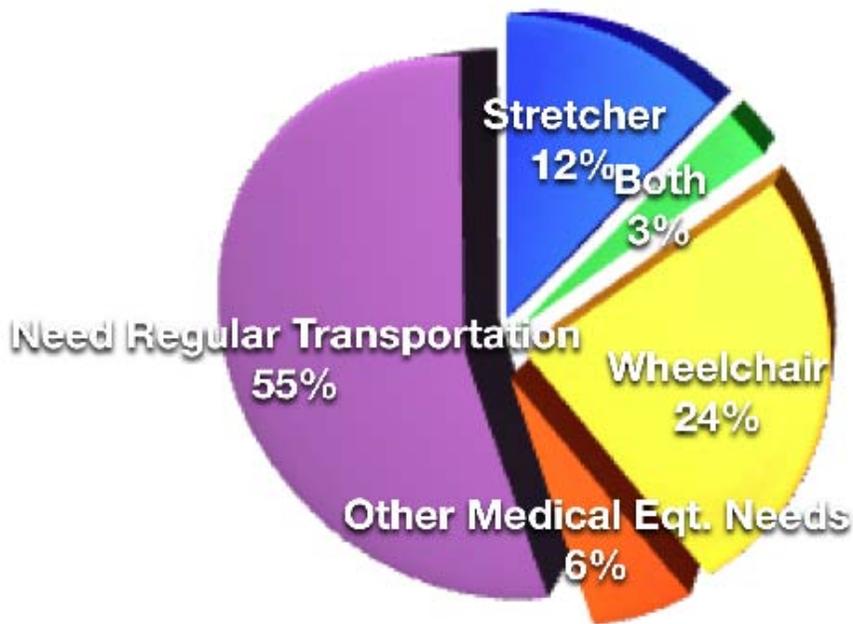
**Figure 2-6 Mobile County Evacuation Destinations (Rapid Cast)**

**Table 2-8 Mobile County Evacuation Destinations (Rapid Cast)**

<b>Where Would Evacuate</b>	<b>#</b>	<b>%</b>
County Shelter	82	7%
Outside County Shelter	87	8%
Friends/Family In County	223	19%
Friends/Family Outside	387	33%
Hotel or Other	381	33%
<b>Total Responses</b>	<b>1160</b>	<b>100%</b>

The results are similar to those for Baldwin County. However, more respondents stated an intention to go to a county shelter (7%) or a shelter outside of Mobile County (8%). About one-third would go to friends or family outside of the county and one-third would go to a hotel or other arrangement.

Respondents were asked if they would need transportation assistance in order to evacuate. **In Mobile County about 6.8% of the Rapid Cast respondents answering this question (N=1160) indicated a need for transportation assistance, more than double the rate for Baldwin County.** The results are presented in Figure 2-7 and Table 2-9.



**Figure 2-7 Mobile County Special Transportation Assistance (Rapid Cast)**

**Table 2-9 Mobile County Special Transportation Assistance (Rapid Cast)**

Type of Assistance	#	%*	% of Total
Stretcher	9	11.5%	0.78%
Both	2	2.6%	0.17%
Wheelchair	19	24.3%	1.70%
Other Medical Eq. Needs	5	6.4%	0.44%
Need Regular Transportation	43	55.0%	3.7%
Total Requiring Transportation	78	100.0%	6.80%

\* % of total needing transportation

N = 1147

The majority (55%) of those who reported needing transportation did not need special transportation. Nearly one-quarter of the surveyed population, however, said someone in their household would need transportation for wheelchairs, and 12% would need stretchers. **For planning purposes it is important to note that nearly 4% of the total sample needed special transportation assistance.**

**Nearly 11% said someone in their household would need to go to a special medical needs shelter.** Obviously, all of these would not need transportation in order to get there.

The question which asked respondents to press the number of people who would require an electrical or medical support shelter was again confusing as some people put in 11 and 22 and only 109 answered this question. Therefore, the results do not appear useful.

### Standard Telephone Survey

A standard telephone survey was completed at the Institute of Public Opinion Research using Computer-Assisted-Telephone-Interviewing (CATI) in which a person asks the questions and the data are entered into the computer during the interview. A total of 25 questions were asked. The outcome in terms of completed calls is reported in Table 2-10. The results of this survey will now be discussed for each county.

This resulted in a 20.2% response rate for landline calls and a 7.2% response rate for cell phone calls.

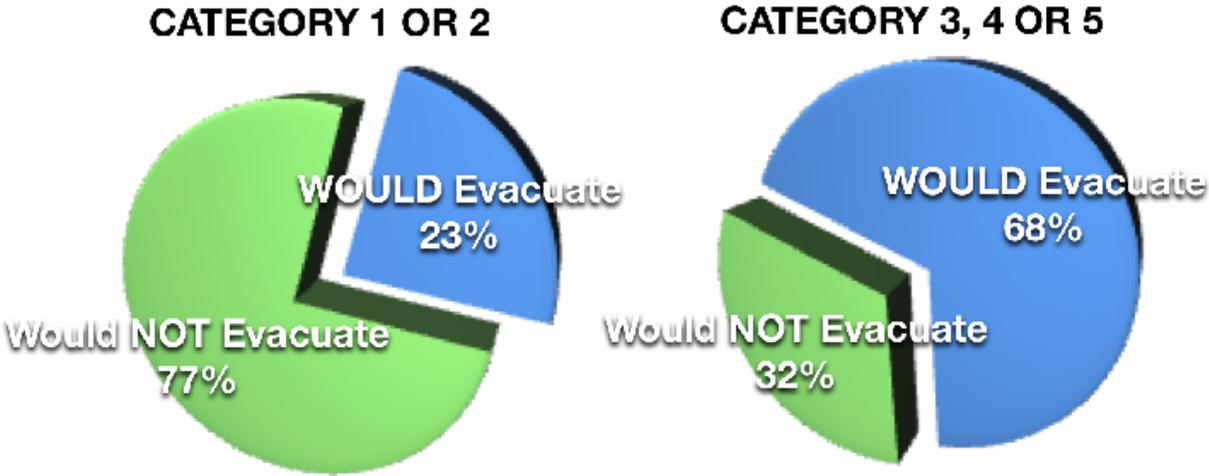
The results for each county are reported separately. In a subsequent section comparisons are made between the two surveys for each county and the implications discussed.

**Table 2-10 IPOR Phone Survey Results**

	Baldwin		Mobile		Total	
	Made	Completed	Made	Completed	Made	Completed
<b>Cell Phone</b>	408	17	1804	143	2212	160
<b>Landline Calls</b>	1031	192	1963	412	2994	604
<b>Totals</b>	1439	235	3767	530	5206	764

**Baldwin County**

As with the Rapid Cast survey, respondents were asked two questions about their evacuation intent, one for a Category 1 or 2 and another for a Category 3, 4 or 5 hurricane. The results are reported in Figure 2-8 and Table 2-11.



**Figure 2-8 Baldwin County Evacuation Intent (IPOR)**

**Table 2-11 Baldwin County Evacuation Intent (IPOR)**

	Category 1 or 2 Hurricane		Category 3, 4 or 5 Hurricane	
	WOULD Evacuate	53	23%	155
Would NOT Evacuate	175	77%	73	32%
Total Responses	228	100%	229	100%

**Table 2-12 Baldwin Evacuation Intent by Evacuation History**

Evacuation Intent	Evacuation History		Total
	Have Evacuated	Never Evacuated	
Would For Cat 1 or 2	74.0%	26.0%	100.0%
Would For Cat 3, 4 or 5	65.0%	35.0%	100.0%

Ten respondents in Baldwin County said they would “decide at the time” whether to evacuate for a Category 1-2 and 33 gave that answer for Category 3, 4 or 5 storms. These answers are included in the “would not evacuate” group given that they are more likely to not evacuate. On this survey, less than one-quarter of the surveyed population said their household would evacuate for a Category 1 or 2 storm. Over two-thirds, however, said they would leave their homes for a Category 3 or higher hurricane.

Past surveys have revealed past evacuation behavior to be a prime predictor of future evacuation intent. Therefore a question on evacuation history was asked. Table 2-12 confirms this pattern for Baldwin County. Those who have evacuated before are more likely to do so again. Conversely, non-evacuators tend to be consistent in their evacuation intent and behavior.

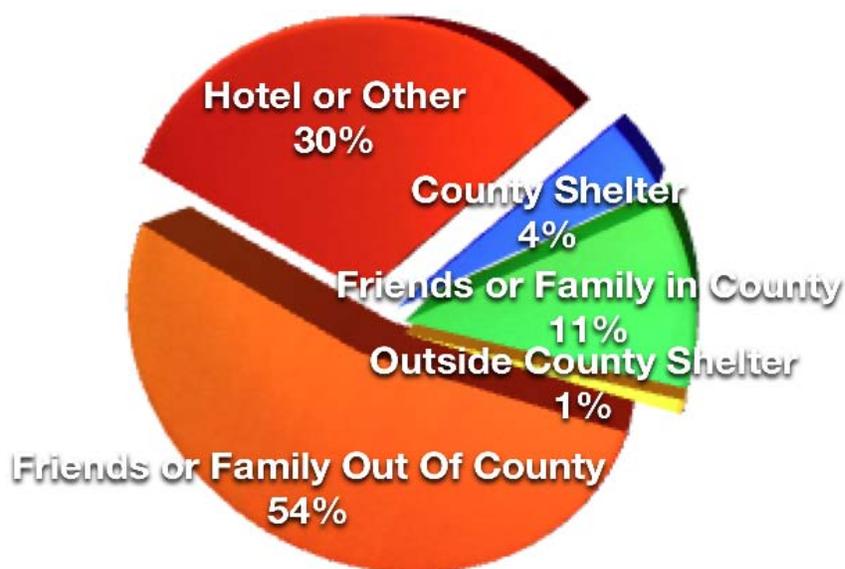
The interviewees were then asked where they would go and the answers are shown in Figure 2-9 and Table 2-13.

The most common answer was with friends or family out of the county, followed by hotel or other. On this survey only 4% said they would go to a county shelter and 1% to a shelter outside the county.

**When asked if someone in their household would need transportation in order to evacuate, 7.7% of those answering this question (N = 234) indicated yes.**

**Table 2-13 Baldwin County Evacuation Destinations (IPOR)**

Where Would Evacuate	#	%
County Shelter	9	4%
Friends or Family in County	25	11%
Outside County Shelter	2	1%
Friends or Family Out Of County	124	54%
Hotel or Other	69	30%
Total Responses	229	100%



**Figure 2-9 Baldwin County Evacuation Destinations (IPOR)**

Extra questions on the IPOR survey allowed some insights into the types of households most likely to need transportation assistance. Table 2-14 provides the results for people who live alone, households with children, and households with elderly members.

According to this sample, while only 7.7% of the general population will need transportation assistance, the need is much greater among those who live alone, the elderly, and households with children. Respondents were asked if they would like someone to call back to register them for transportation assistance and 72 indicated yes.

**Table 2-14 Transportation Needs of Certain Baldwin Household Types (IPOR)**

Household Characteristics	Need	Do Not Need	% Need
Live Alone	6	42	12.5%
Children Under 12	5	51	9.0%
Person(s) Over 65	11	100	9.9%

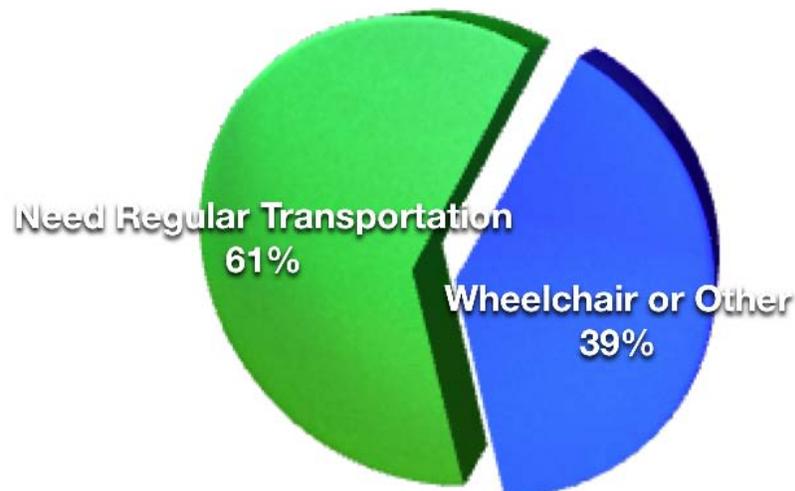
**Table 2-15 Baldwin County Special Transportation Assistance (IPOR)**

Type of Assistance	#	%*	% of Total Sample
Wheelchair or Other	7	39%	3.0%
Need Regular Transportation	11	61%	5%
Total Requiring Transportation	18	100%	7.7%

\* % of Total Needing Transportation

N = 234

They were then asked whether “someone in your household would require special equipment while evacuating, such as a wheelchair, stretcher or something like that.” Unlike the Rapid Cast survey, these were lumped together as one answer. The results are reported in Figure 2-10 and Table 2-15.



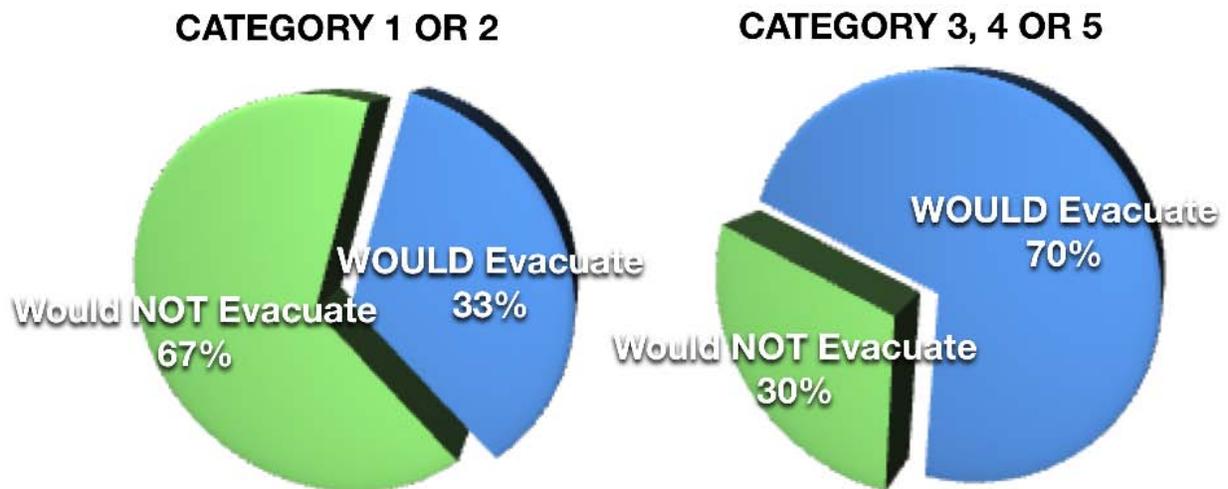
**Figure 2-10 Baldwin County Special Transportation Assistance (IPOR)**

Of those requiring transportation, 39% have special transportation needs, such as a stretcher or wheelchair accessible vehicle. More important for planning purposes, this amounts to about 3% of the total Baldwin County sample.

### Mobile County

The same survey methodology was used to sample Mobile County citizens. A total of 530 surveys were completed, using both cell phones and landlines.

On this question 27 in Mobile County said they “would decide at the time” about Category 1 or 2 storms and 64 gave that response for a Category 3, 4 or 5 hurricane. Once again these answers were added to the “would not evacuate” category. The evidence indicates that people are much more likely to say they intend to evacuate for a major hurricane. This time 33% would evacuate for Category 1 or 2 storms, but 70% would leave for a Category 3 or higher hurricane. See Figure 2-11 and Table 2-16.



**Figure 2-11 Mobile County Evacuation Intent (IPOR)**

Mobile County respondents were also asked if they had ever evacuated for a hurricane and 43% said yes. Their answer on this question is compared to whether they said they would evacuate in the future (Table 2-17). Once again, there appear to be consistent evacuators and non-evacuators.

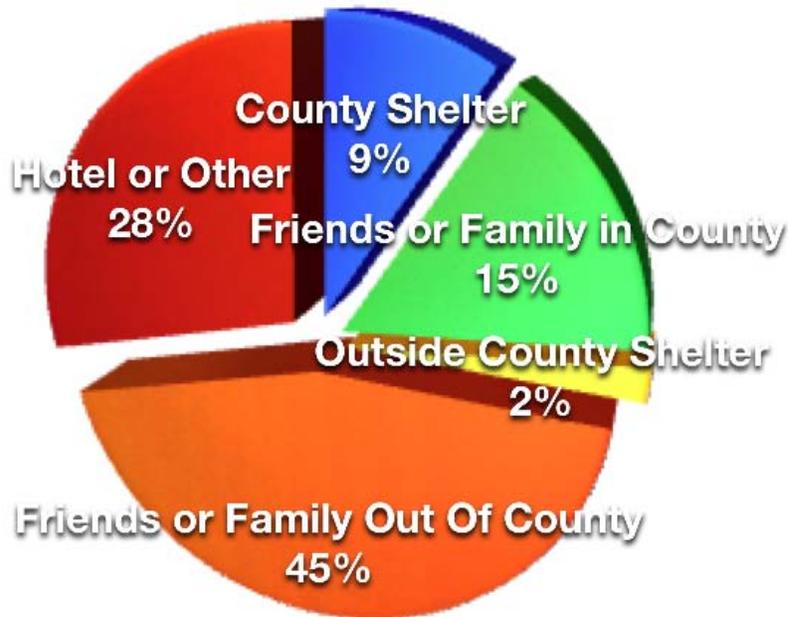
**Table 2-16 Mobile County Evacuation Intent (IPOR)**

	Category 1 or 2 Hurricane		Category 3, 4 or 5 Hurricane	
	WOULD Evacuate	171	33%	361
Would NOT Evacuate	342	67%	155	30%
Total Responses	513	100%	516	100%

**Table 2-17 Mobile Evacuation Intent by Evacuation History**

Evacuation Intent	Evacuation History		Total
	Have Evacuated	Never Evacuated	
Would For Cat 1 or 2	62%	38%	100%
Would For Cat 3, 4 or 5	54%	46%	100%

The next question asked where they would evacuate to and the responses are provided in Figure 2-12 and Table 2-18.



**Figure 2-12 Mobile County Evacuation Destinations (IPOR)**

**Table 2-18 Mobile County Evacuation Destinations (IPOR)**

Where Would Evacuate	#	%
County Shelter	47	9%
Friends or Family in County	78	15%
Outside County Shelter	10	2%
Friends or Family Out Of County	232	45%
Hotel or Other	145	28%
Total Responses	512	99%

**Table 2-19 Transportation Needs of Certain Mobile Household Types (IPOR)**

Household Characteristics	Need	Do Not Need	% Need
Live Alone	19	81	19.0%
Children Under 12	13	106	10.9%
Person(s) Over 65	34	201	14.5%

Once again the most common response is that they would stay with family or friends outside the county, followed by a hotel or other arrangement. However, on this survey 9% of the Mobile sample said they would go to a county shelter, and 10% would go to a shelter outside the county.

The Mobile respondents were then asked the important question about whether they would need transportation in order to evacuate. The results are quite surprising. **More than 11% (58 out of 525) said they would need transportation assistance.**

Table 2-19 examines how the need for transportation assistance varies by household type.

Once again it appears that these households have greater need for transportation to evacuate than most households. Of those in the sample who live alone, 19% said they would need transportation. Similarly, 14.5% of households with elderly persons and 10.9% of Mobile households with children under 12 reported needing transportation.

Responses to the question about whether they would require stretchers, wheelchair or other special transportation are reported in Figure 2-13 and Table 2-20.

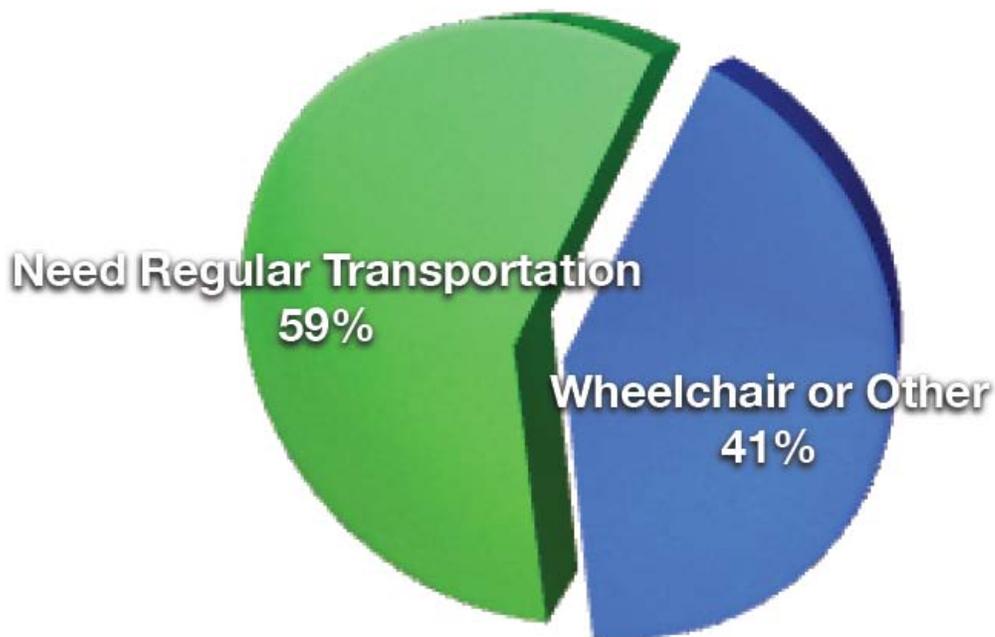
Of those who say their household will need transportation, 41% report needing special transportation for stretchers or wheelchairs. **Of special note, this is 4.6% of the total sample.**

**Table 2-20 Mobile County Special Transportation Assistance (IPOR)**

Type of Assistance	#	%	% Of Total Sample
Wheelchair or Other	24	41%	4.6%
Need Transportation but No Special Kind	34	59%	6.50%
Total Requiring Transportation	58	100%	11.0%

\* % of total needing transportation

N = 525



**Figure 4.12 Mobile County Special Transportation Assistance (IPOR)**

**Table 2-21 Evacuation Intent by County, Storm Category and Survey Method**

	Category 1 or 2		Category 3, 4 or 5	
	Rapid Cast	IPOR	Rapid Cast	IPOR
<b>Baldwin</b>	14%	23%	75%	68%
<b>Mobile</b>	24%	33%	70%	70%

**Table 2-22 Baldwin Evacuation Intent by Storm Category and Evacuation Zone:  
IPOR Sample**

BALDWIN (N=230)	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6	
<b>CATEGORY 1,2</b>												
<b>Would Evac</b>	7	37%	16	23%	1	12%	22	21%	6	23%	0	
<b>Other</b>	12	63%	54	77%	7	88%	82	70%	20	77%	3	100%
<b>CATEGORY 3,4,5</b>												
<b>Would Evac</b>	16	84%	52	72%	4	50%	66	64%	5	24%	6	86%
<b>Other</b>	3	16%	20	28%	4	50%	37	36%	16	76%	1	14%

### Comparison of Survey Results from Baldwin and Mobile Counties

This project involved two different citizen surveys, one using an automatic system, and one conducted with standard CATI methodology. The results can now be compared and discussed. Table 2-21 compares evacuation intention across counties and methodologies.

The greatest variation occurs for a Category 1 or 2 storm with the IPOR results being considerably higher. The rates range from 14% to 23% for Baldwin County and 24% to 33% for Mobile. For a major storm, however, the rates are more similar for Baldwin and exactly the same for Mobile County.

Table 2-22 examines evacuation intent by evacuation zones for Baldwin County.

In Baldwin County it appears that the majority of citizens in Zones 1 and 2 do not intend to evacuate for Category 1 or 2 storms. At the same time there would be considerable over-evacuation: 12% of Zone 3, 21% of Zone 4, and 23% of Zone 5 intend to leave.

Evacuation intent is more appropriate for Category 3, 4 or 5 hurricanes with the majority of these Baldwin County households in Zones 1, 2, 3 and 4 intending to evacuate. The results for Zone 6 indicate an over-evacuation potential (unless these are mobile home residents).

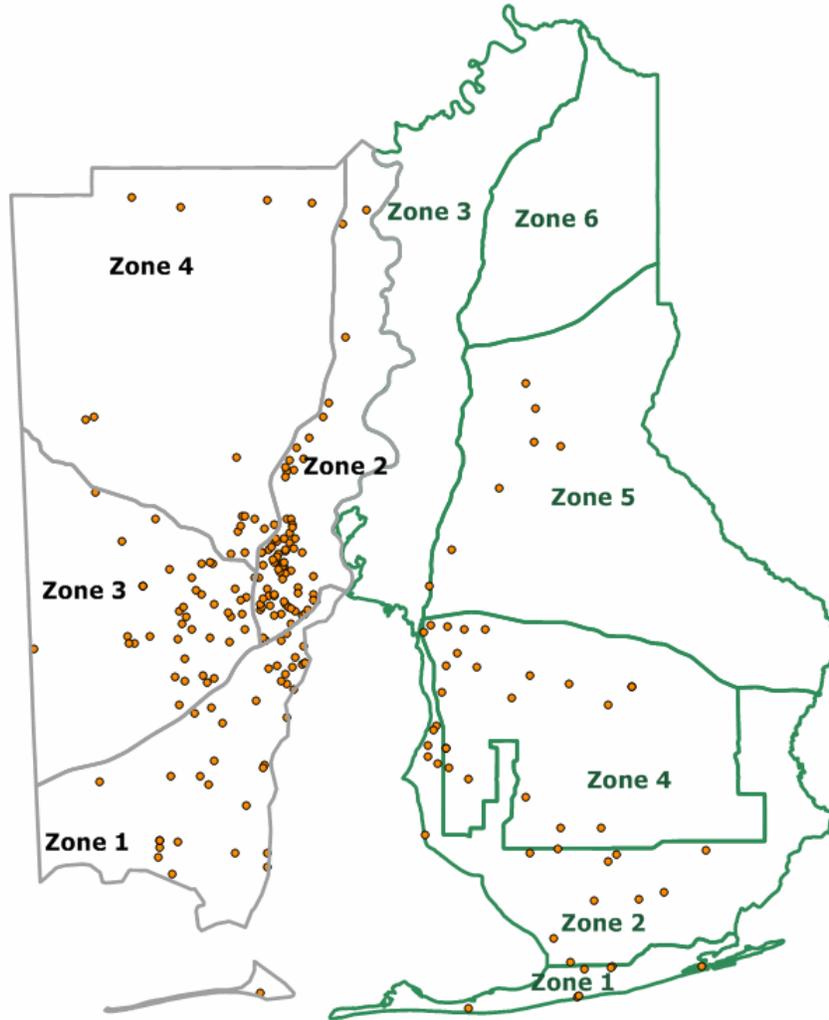
**Table 2-23 Mobile Evacuation Intent by Storm Category and Evacuation Zone:  
IPOR Sample**

<b>MOBILE (N=522)</b>	<b>ZONE 1</b>		<b>ZONE 2</b>		<b>ZONE 3</b>		<b>ZONE 4</b>	
<b>CATEGORY 1,2</b>								
<b>Would Evac</b>	37	41%	77	43%	41	21%	16	28%
<b>Other</b>	53	59%	104	57%	153	79%	41	72%
<b>CATEGORY 3,4,5</b>								
<b>Would Evac</b>	69	77%	146	81%	110	57%	35	61%
<b>Other</b>	21	23%	35	19%	84	43%	22	39%

Table 2-23 depicts the intent of Mobile County residents to evacuate for Category 1 or 2 storms, and for Cat 3, 4, or 5 storms by evacuation zones.

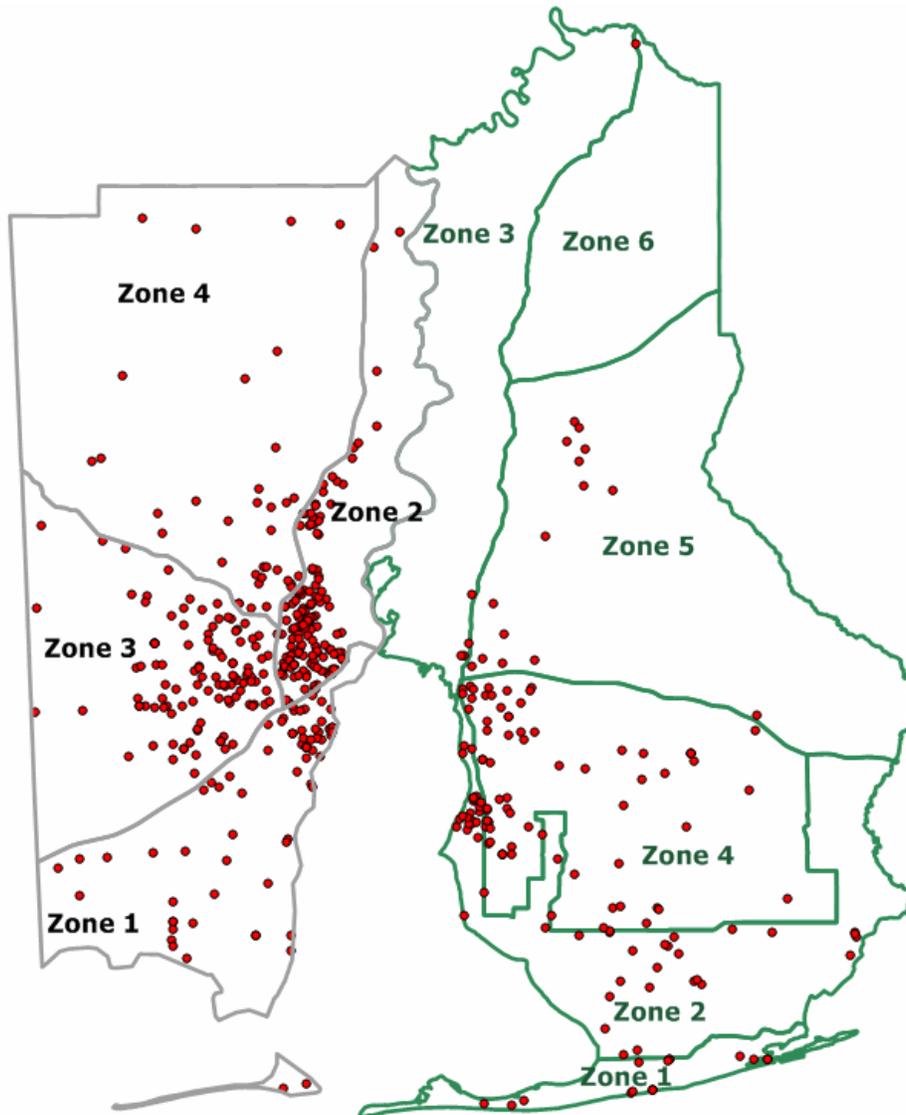
In Mobile County it appears that most of those living in Zones 1 and 2 do not plan to leave for a Category 1 or 2 storm. At the same time 21% of Zone 3 and 28% of Zone 4 do plan to leave, once again indicating likely over-evacuation.

For a Category 3, 4 or 5 hurricane, the majority in all four zones report intending to evacuate. However, this still leaves large numbers who do not plan to leave even for a major storm. This problem is illustrated by the maps in Figures 2-14 and 2-15.



**Figure 2-14 Locations of Respondents Indicating They Would Evacuate for Category 1 or 2 Hurricanes (IPOR)**

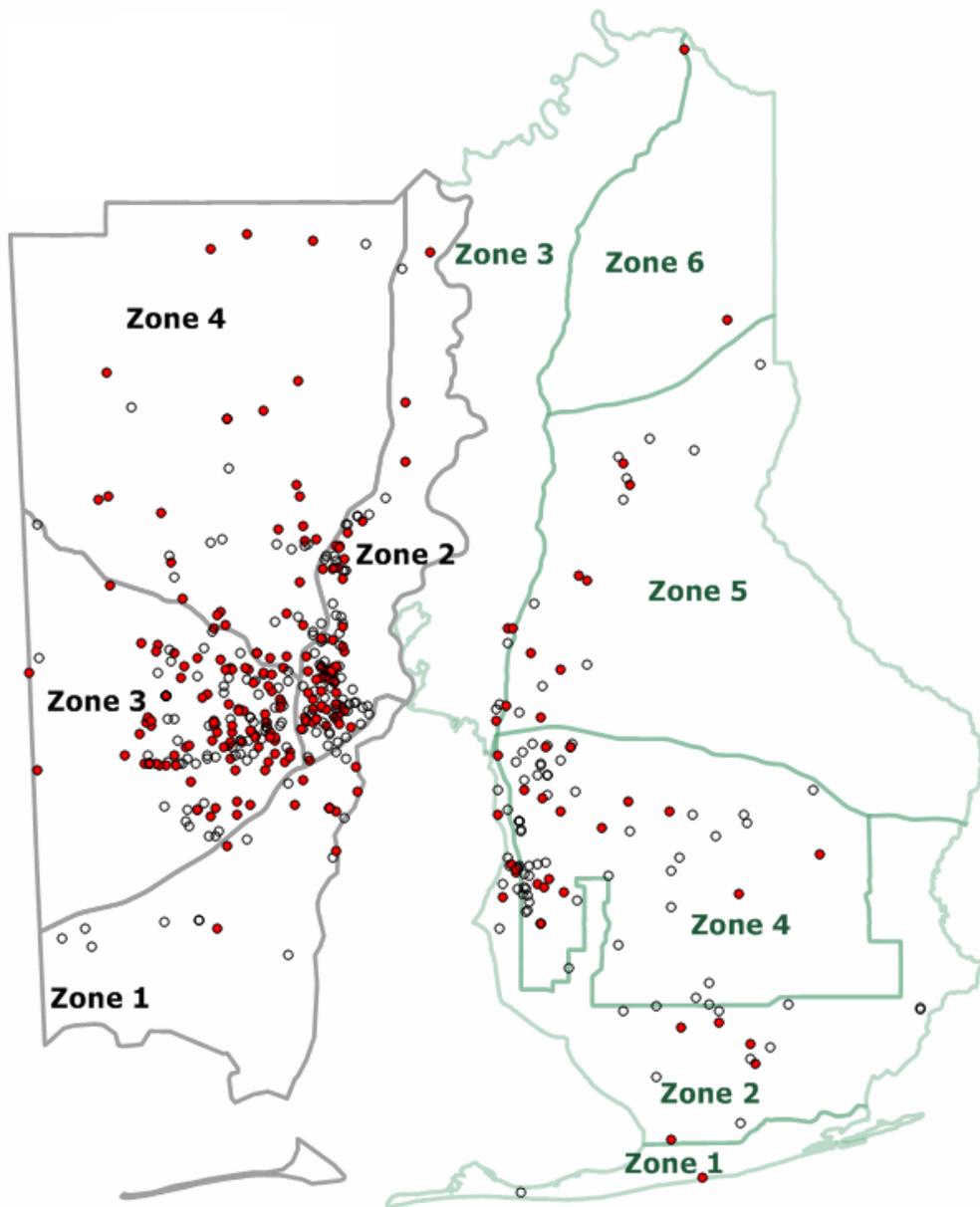
One dot = One person



**Figure 2-15 Locations of Respondents Indicating They Would Evacuate for Category 3, 4 or 5 Hurricanes (IPOR)**

One dot = One person

Respondents were asked whether they lived in an evacuation zone. Many did not know or gave incorrect answers. Figure 2-16 shows those who said they did not live in an evacuation zone (red circles) or that they did not know their actual evacuation zone location (hollow circles).



**Figure 2-16 Respondents Knowledge of Evacuation Zone (IPOR)**

One dot = One person

**Table 2-24 Evacuation Destinations Comparison by County and Survey Method**

	Baldwin		Mobile	
	Rapid Cast	IPOR	Rapid	IPOR
<b>County Shelter</b>	5%	4%	7%	9%
<b>Out of County Shelter</b>	4%	1%	8%	2%
<b>Family/Friends in County</b>	20%	11%	19%	15%
<b>Family/Friends Out of</b>	43%	54%	33%	45%
<b>Hotel or Other</b>	28%	30%	33%	28%

**Table 2-25 Transportation Assistance by County and Survey Method**

	Rapid Cast	IPOR
<b>Baldwin</b>	2.5%	7.7%
<b>Mobile</b>	6.8%	11.0%

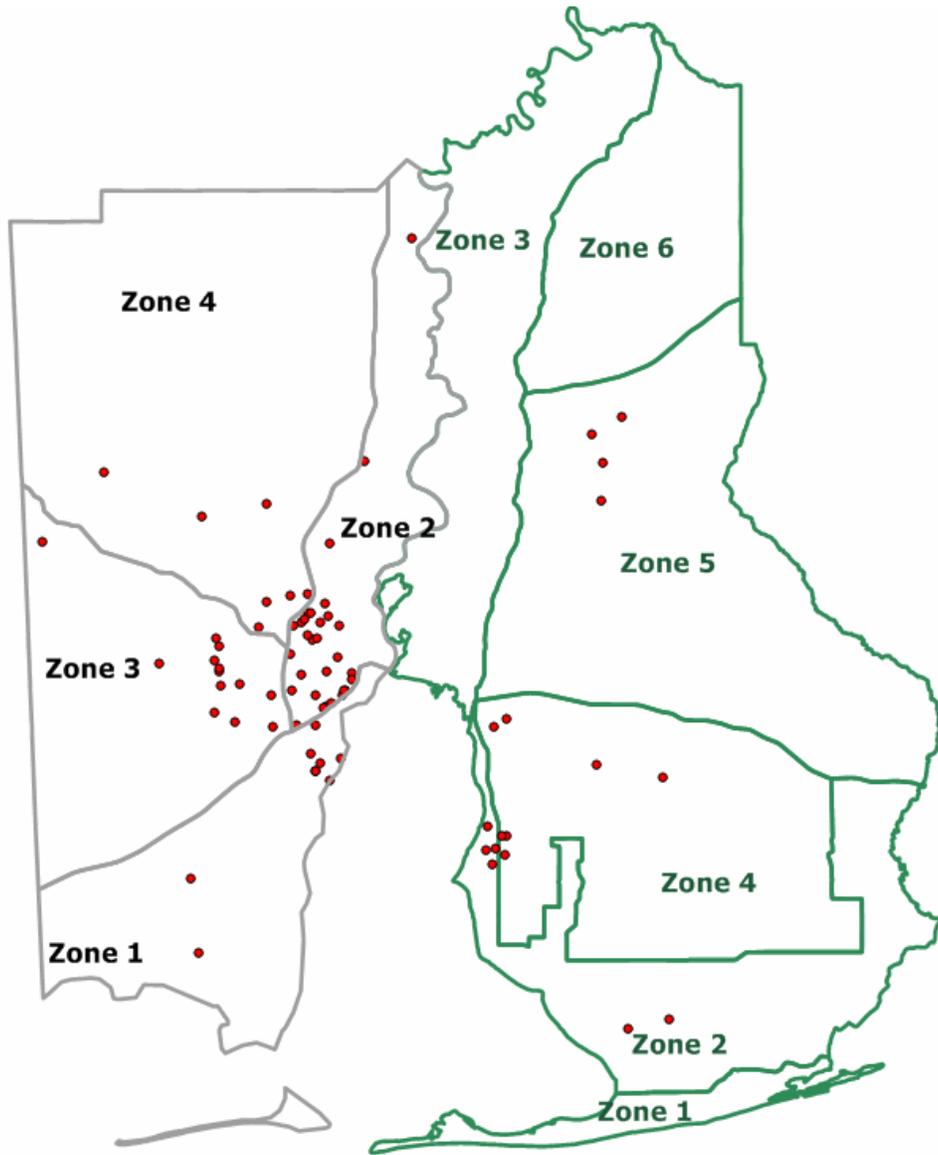
This indicates a major challenge related to educating citizens on the evacuation zones. Table 2-24 compares the responses given to the question about likely evacuation destinations.

Results from the two surveys vary considerably. However, in all cases the first choice is to visit friends or family out of the county. The percent planning to evacuate to county shelters varies from 4-5% in Baldwin and from 7-9% in Mobile.

The most important question on each survey was whether households needed transportation in order to evacuate. There is considerable variation in the results presented in Table 2-25.

In Baldwin County the percentages of those who would need transportation in order to evacuate were 2.5% and 7.7% in the Rapid Cast and IPOR surveys, respectively. In Mobile they were 6.8% and 11%. In all cases the Rapid Cast results indicated fewer CTNs than the IPOR survey. One possible explanation for some of this variation in reported need for transportation assistance may be a result of the slight difference question wording in each survey. The Rapid Cast question read “If you’re going to evacuate, do you need transportation assistance?” while the IPOR question was “If you had to evacuate, would you or someone in household need transportation assistance?” There is an inference in the latter question that the household would have to leave even if they had not intended to evacuate.

Figure 2-17 shows the location of IPOR respondents who indicated they would need transportation.



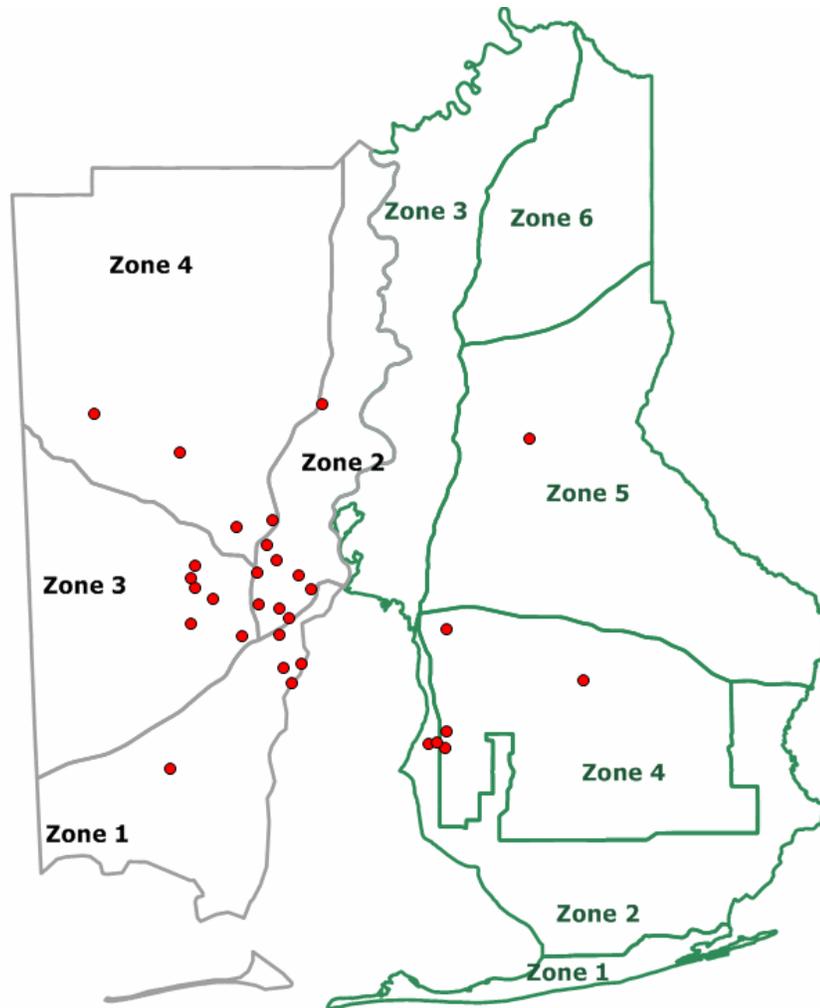
**Figure 2-17 Locations of Households with Transportation Needs (IPOR)**

One dot = One person

It is important to note that in both counties the majority of households needing transportation are located within evacuation zones. However, location would make it appear that some who plan to evacuate would probably not need to, unless they were living in mobile homes.

Figure 2-18 indicates the geographic location of households reporting the need for special transportation.

In Mobile County most appear to be in evacuation zones for even Category 1 or 2 storms. The numbers are so small, however, that the results are inconclusive.



**Figure 2-18 Locations of Households with Special Transportation Needs (IPOR)**

One dot = One person

## Discussion of Results

While the Rapid Cast system had a better than expected response rate, it is still likely that some of the most vulnerable households were not included. The results do support the use of an automated system for reaching at least some citizens with emergency information. However, given the methodologies involved, including the repeated callbacks to phone numbers in the sample, the IPOR results, despite being based on a much smaller sample, are likely more representative of those households with CTNs. Therefore, the implications of the IPOR results will be discussed.

The reported evacuation percentages were applied to Census population data to calculate in the evacuation numbers shown in Table 2-26.

The resulting numbers still seem high, especially when compared against past evacuations in Baldwin and Mobile Counties. In interpreting these data it is important to note that comparisons between evacuation intent and actual evacuation indicate that more people say they will leave than actually evacuate when the time comes. One estimate is that intention figures are about 25% too high for a Category 1 hurricane, 20% for a Cat 2, 15% for a Cat 3, 10% for a Cat 4 and 5% for a Category 5 storm.\* It should be noted that intention figures tend to more nearly match evacuation rates for larger storms, for those living close to the coast, and for veteran evacuees. Also, it should be noted that elderly households were over-represented in the sample. Yet, it is safe to say that the numbers in Table 2-26 are over-estimates of Critical Transportation Needs. How much they over estimate the need is difficult to say.

When estimating the number of people and households needing evacuation transportation, it makes sense to only apply the percentages from the IPOR survey to those who said they intended to evacuate, and not to the entire population. The results are reported in Table 2-27.

Applying the percentages of those needing transportation to the number who say they intend to evacuate results in estimates of 3,000 people or 1,200 households needing transportation in Baldwin County for a Category 1 or 2 hurricane, and 9,000 people or 3,700 households needing transportation for Category 3, 4 or 5 storms.

For Mobile County, the estimates are 15,200 people or 5,600 households needing transportation for Category 1 or 2 storms, and 32,300 people or 11,900 households needing transportation in order to evacuate for Category 3, 4 or 5 hurricanes.

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\* Email correspondence with Dr. Earl J. Baker

**Table 2-26 Population and Households Intending to Evacuate**

	<b>% Intending to Evacuate for Cat 1-2</b>	<b># Intending to Evacuate for Cat 1-2</b>	<b>% Intending to Evacuate for Cat 3-5</b>	<b># Intending to Evacuate for Cat 3-5</b>
<b>Baldwin</b> <b>172,000 Population</b> <b>70,000 Households</b>	23%	40,000 Pop. 16,000 Hh.	68%	117,000 Pop. 48,000 Hh.
<b>Mobile</b> <b>419,000 Population</b> <b>154,000 Households</b>	33%	138,000 Pop. 51,000 Hh.	70%	293,000 Pop. 108,000 Hh.

**Table 2-27 Population and Households Reporting Transportation Needs**

<b>Baldwin</b>	<b>% Reporting Transp. Needs</b>	<b># Intending to Evacuate for Cat 1-2</b>	<b># Needing Transp. for Cat 1-2</b>	<b># Intending to Evacuate for Cat 3-5</b>	<b># Needing Transp. for Cat 3-5</b>
	7.7%	40,000 Pop. 16,000 Hh.	3,000 Pop. 1,200 Hh.	117,000 Pop. 48,000 Hh.	9,000 Pop. 3,700 Hh.
<b>Mobile</b>	11.0%	138,000 Pop. 51,000 Hh.	15,200 Pop. 5,600 Hh.	293,000 Pop. 108,000 Hh.	32,300 Pop. 11,900 Hh.

Comparing the IPOR survey results with Census data indicates that these estimates may not be that far off. Tables 2-28 and 2-29 report some comparisons for Baldwin and Mobile Counties.

The Census estimates that 3,000 households in Baldwin County have no vehicle. Multiplying this by the average household size yields a potential 7,500 persons without private transportation. Perhaps the survey estimate of 9,000 needing transportation for a major storm is not unreasonable.

Given the level of poverty and other vulnerability factors in Mobile County, these estimates may not be that far out of line, especially for a Category 5 storm predicted to make landfall in the area. It is noteworthy that the Census estimated 16,000 households without vehicles, resulting in 33,800 persons without private transportation. This makes the survey estimate of 32,300 needing transportation in a major hurricane seem reasonable.

**Table 2-28 Comparison of Census and Survey Data for Baldwin County**

<p><b><u>Census Data</u></b> Mobile Homes = 12,000 x 2 people = 24,000 Persons Households without Vehicles = 3,000 x 2.5 = 7,500 Persons Persons Over 65 = 28,000 Persons at Poverty Level = 21,000 Single Mothers = 5,000</p> <p><b><u>IPOR Survey</u></b> Cat 1-2 23% Intend to Leave = 40,000 Cat 3-5 68% Intend to Leave = 117,000 7.7% Need Transportation in Cat 1-2 = 3,000 7.7% Need Transportation in Cat 3 = 9,000 3% Need Special Transportation in Cat 1-2 = 1,200 3% Need Special Transportation in Cat 3-5 = 3,000</p>
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**Table 2-29 Implications of Census and Survey Data for Mobile County**

<p><b><u>Census Data</u></b> Mobile Homes = 16,000 x 2 people = 32,000 persons Households without Vehicles = 13,000 x 2.6 = 33,800 persons Persons Over 65 = 49,000 Persons at Poverty Level = 90,000 Single Mothers = 17,000 Persons with Disabilities = 90,000</p>
<p><b><u>IPOR Survey</u></b> Cat 1-2 33% Intend to Leave = 138,000 Cat 3-5 68% Intend to Leave = 293,000 11% Need Transportation in Cat 1-2 = 15,200 11% Need Transportation in Cat 3 – 5 = 32,300 4.6 % Need Special Transportation in Cat 1-2 = 6,000 4.6% Need Special Transportation in Cat 3-5 = 13,000</p>

In summary, the IPOR survey data are probably more accurate than the Rapid Cast results given the methodology differences and the likelihood that some of the most vulnerable groups, such as the elderly, are less likely to respond to an automated system. While the IPOR findings related to evacuation rates and CTN are no doubt on the high side, they nevertheless should draw attention to the very real possibility that there are likely to be higher demands for transportation in future hurricanes than past evacuation history might indicate.

Planning for the transport of up to 30,000 people in the case of Mobile County for a major hurricane is a difficult and expensive undertaking. Other ways to begin to address the Critical Transportation Needs of coastal Alabama include:

- Education and outreach programs on evacuation zones to reduce the amount of over-evacuation and promote evacuation necessary for safety;
- Initiatives encouraging people to find own transportation;
- Providing more shelter space inside each county.
- Active implementation/maintenance of a centralized special needs/CTN registration system

## E. PACKAGE PROCESS INTO SUSTAINABLE SYSTEM

### OVERVIEW

The contractor will develop a survey “package” that includes survey instruments, survey methodologies and procedures, and measures for analyzing data sets. **Deliverables will include a package process and related tools for maintaining and updating information on CTN citizens including subset populations.**

### Definition

In simplest terms, Critical Transportation Needs (CTN) individuals can be considered to be transportation-dependent citizens, including those with special physical and medical needs.

### Narrative

A basic premise of planning for any activity is that discussion and decisions be based on validated data and positive communication between individuals and agencies. While there are many and varied areas of planning that must take place in developing an emergency plan for dealing with the impacts of a hurricane, one that must take precedence is planning for individuals who will require assistance in removing themselves from the threatened area. Planning for helping CTN individuals becomes particularly challenging for most emergency managers because of the difficulty in determining the extent of the need.

Individual members of CTN populations are constantly changing due to their circumstances or are difficult to identify due to the nature of their situation. While many Individuals with special medical or transportation needs might need the service over an extended period of years, the circumstances of others change fairly quickly so that they no longer need assistance from one hurricane season to the next. Legislation and privacy issues often make getting aggregate and individual information difficult if not impossible to access. The very nature of their transportation need often restricts the willingness of CTN individuals to self-identify.

While the challenges of addressing this issue are many, the need to provide assistance overshadows the difficulties in developing a plan because these individuals are the ones who are the most likely to be negatively impacted by a hurricane event if they are not relocated to a safe location. Therefore, as has been demonstrated by a number of recent successful response events already discussed in other sections of this report, it is necessary to follow some sequence of activities to develop a plan that will address this need for both the short-term and the long-term.

## Program Development Steps

**The activities in the program will be ongoing as further information is received, events and exercises occur, and new opportunities and program tools are developed not only in Baldwin and Mobile Counties but also throughout the State.**

1. Identify agency responsible to initiate program activity
2. Maintain or create a project team to identify needs and resources including, but not limited to:
  - a. Public and private social service and health agencies
  - b. Special Needs committees
  - c. Transportation Resource Agencies
  - d. Utility Companies
3. Maintain or begin program activities
  - a. Issue press release to inform the community of program activities  
EXAMPLE: March 25, 2009 Baldwin County Press Release (Appendix J)
  - b. Conduct meeting(s) to update or begin work on project
  - c. Select chairperson, vice chairperson, and person or agency responsible for maintaining and distributing minutes
4. Maintain or create a contact database for above agencies
  - a. Update/create Excel spreadsheet for listing contact name, organization, address, purpose and services  
EXAMPLE: Contact List for Baldwin County EMA CTN GROUPS (Appendix J)
  - b. Update/create GIS map depicting locations of agencies which will also display information from list  
EXAMPLE: Map of Mobile County Social Service Agencies (Appendix J)
5. Obtain and review current population demographics for local jurisdictions
  - a. Get data from available sources
    - i. US Census Data
    - ii. County data
  - b. Evaluate data to determine the best representation of the current situation
6. Maintain or create a list of potential CTN populations residing in local area of jurisdiction based on functional or resource needs.

7. Verify or determine the local jurisdiction's CTN population by updating or collecting current data on evacuation intent and need for transportation assistance of the community by:
  - a. Using a live telephone survey  
EXAMPLE: IPOR Survey (Appendix I)
  - b. Using an automated calling system  
EXAMPLE: Rapid Cast Survey (Appendix I)
  - c. Reviewing records of social services currently being provided by local agencies  
EXAMPLE: Table of CTN populations (Appendix J)
8. Verify or determine the number of CTN individuals who intent to evacuate and sort by geographical areas (i.e., evacuation zones, risk areas, etc.)
9. Update or create a GIS based map to display CTN population distribution  
EXAMPLE: Map of CTNs by evacuation zone (Appendix J)
10. Verify or select planning percentages that will be used in calculating resource needs for the CTN individuals who intent to evacuate using either:
  - a. National historical data or
  - b. Local experience
11. Update or calculate the expected number of CTNs for which evacuation assistance must be planned by applying the selected planning percentage to number of CTN individuals who intend to evacuate
12. Review or identify transportation resources available in or to the local jurisdiction
  - a. Buses – private and public
    - i. Local transit
    - ii. School
    - iii. Charter
  - b. Wheelchair Assist Vehicles
  - c. Ambulances
13. Review or identify transport vehicle capacity and support personnel resources
14. Update or evaluate transport vehicle requirements of the CTN individuals for whom the jurisdiction is planning

15. Verify or identify resources and constraints of the transportation process to calculate the likely number of vehicle round trips
  - a. Verify or identify the number and location of transportation end-points for the various subsets of the CTN population who intent to evacuate
    - i. Non-medically dependant members of the general population that are transportation dependant only
    - ii. Special Needs individuals who are medically dependant and require specialized transportation assistance, but are able to utilize general population shelters
    - iii. Special Needs individuals who are medically dependant and require specialized transportation to medical support locations
  - b. Verify or identify evacuation routes and collection points for gathering CTN subsets  
EXAMPLE: Baldwin County Evacuation Route Map  
(Appendix J)
  - c. Verify or identify operational guidelines needed to maximize availability of resources when an emergency requiring evacuation transportation support is declared
    - i. Cessation of normal operating procedures and routes
    - ii. Handling of pets and service animals
  - d. Implement written agreements to activate supplemental resources
    - i. Contingency contracts
    - ii. Memorandums of Understanding (MOUs)
  
16. Maintain or create a CTN Resource Support spreadsheet to calculate transportation needs  
EXAMPLE: CTN Transportation Estimates spreadsheet  
(Appendix J)
  
17. Update or create informational material for public awareness to promote program availability and services
  - a. Website for dissemination of general and location-specific information
  - b. Informational sheets, etc. for placement in public venues
  - c. Information sheets for distribution to clients of agencies providing services
  
18. Maintain or establish a GIS based CTN Pre-Event Registration process
  - a. Select product
    - i. Evaluate/select from currently available products
    - ii. Create product specific to needs of local jurisdiction
  - b. Identify agency(s) which will have/share responsibility for populating registration tool
  - c. Determine guidelines for registration and classification of individuals seeking assistance
  - d. Contact eligible CTN individuals on a regular basis to confirm level of need and location.

19. Conduct an exercise (orientation, drill, tabletop, functional or full-scale) on a regular basis to validate program guidelines and/or identify additional needs
20. Using information on concerns identified in the Exercise After Action Report, review existing plan and update as needed by continuing project team activity to implement improvements

## F. FINAL PROJECT BRIEFING

### OVERVIEW

The contractor will develop and brief using a PowerPoint presentation that identifies the status of the project at the completion of Task 2. This project briefing will occur at the AEMA EOC in Clanton, Alabama. **Deliverables will include a PowerPoint presentation.**

# APPENDICES

**APPENDIX A: SUPPLEMENTAL MATERIALS FOR TASK 1A  
KICK-OFF MEETING POWERPOINT PRESENTATION (ON CD)**

## APPENDIX B: SUPPLEMENTAL MATERIALS FOR TASK 1B

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## APPENDIX C: SUPPLEMENTAL MATERIALS FOR TASK 1C

### MEETING NOTES

#### **31-Mar-2009 Meeting with Mobile County and associated agencies that deal with CTN**

Walt Dickerson explained why we were having the meeting, introduced Betty Morrow and let all attendees introduce themselves and the agencies they represent.

Betty gave a power point presentation showing a number of maps with population and demographic data and asked for comments. The group discussed what CTN means and how it relates to medical needs.

Betty displayed an outline of the tasks that will be included in this study effort.

Betty discussed the registration requirements in FL and other states that are building registration systems. Mobile EMA works with an agency called Volunteer Mobile that assists them in getting lists of people that need transportation to evacuate. They have less than 100 on their list now.

Betty explained that she would be doing surveys to better determine the actual number of CTN people. She is planning to use the AEMA rapid cast system but would like to consider the use of Mobiles call out system.

Betty stayed to talk to some of the agencies that attended.

## **1-Apr-2009 Meeting with Baldwin County and associated agencies that deal with CTN**

Leigh Anna Ryals explained why we were having the meeting, introduced Betty Morrow and let all attendees introduce themselves and the agencies they represent. Betty asked that all present file out the sign in sheet and specifically give a street address for their agency so they can be shown in GIS presentations in the future.

Betty gave a power point presentation basically outlining the study purpose and procedure. She also had slides showing a number of maps with population and demographic data and asked for comments. Population data in the presentation was taken from census data. The group discussed what CTN means and how it relates to medical needs.

Leigh Anna discussed the evacuation zones and explained that they will be changed for the 2010 hurricane season to better fit the surge areas. The current zones were developed about 10 years ago and were designed to make it easy to announce an evacuation to the public. At that time the county wasn't as populated so this over evacuation wasn't as critical as it is now.

Betty displayed an outline of the tasks that will be included in this study effort. Betty explained that all present can assist in this study based on their knowledge of where people needing transportation to evacuate are located.

Betty discussed the registration requirements in FL and other states that are building registration systems. Some counties use their fire departments to keep a log of people needing transportation and tell people to call their local fire departments. Many counties nation wide do not have registration systems. Baldwin County does not have a formal registration system. Some county agencies may have their own lists.

Betty explained that she would be doing surveys to better determine the actual number of CTN people. She is planning to use the AEMA rapid cast system but would like to consider the use of any Baldwin county call out systems that might be available. Betty will also make a historic review of how CTN was addressed in the last few historic storms. Baldwin county has reverse 911. Betty stated that she would be doing surveys with 2 techniques, one actual phone calls and one with an automated system asking participants to hit a number to respond. She will try to make most surveys in the areas of likely transportation needs.

Betty talked about pickup points and how some counties have signs out designating these points. One lady asked if there was a flyer available that they could hand out to people who need transportation so they would know who to contact. To maintain an accurate and up-to-date list of CTN it takes a lot of public education. Special consideration has to be given to blind and deaf as far as notification techniques.

Betty stated that one of the purposes of this pilot study effort was so it could be used by other areas in the US.

Audience comments: Some Hospitals do not release patients unless they have a place to go. Thomas hospital has built a new extension that is safer during hurricanes. Some people recently discharged from hospitals can't drive during their recuperation period and might need

transportation assistance. Hospice patients are another critical group that could need transportation. Council on aging has a list showing what their clients would do if asked to evacuate (i.e. Go to shelter, picked up by friend etc.) Meals on wheels or similar assistance groups would be a great way to identify CTN. Dialysis is critical before an evacuation and needs some consideration. Some people actually evacuate to the hospitals but hospitals don't dispense prescriptions. Betty mentioned that the elderly are usually reluctant to leave. Central Baldwin middle school is a senior citizen shelter.

Betty opened up a question session as follows:

To what extent do you feel your clients will need evacuation transportation? Nursing homes need special transportation assistance to evacuate nursing homes.

What data do you have on clients that will be useful? Evacuation is not always the answer. In some cases structures need to be modified to withstand strong winds.

How should we share this data? Baldwin has a "medical health committee" that could provide data. Their next meeting is June 5<sup>th</sup>.

How can you help in distributing transportation information? A Flyer would be helpful to instruct people on how to register for assistance.

Betty stayed to talk to some of the agencies that attended.

**APPENDIX D: SUPPLEMENTAL MATERIALS FOR TASK 1D**

**Table D-1 Past Hurricane Evacuation Data**

Points of Contact	Contact Info	Storm	Did they evacuate people with Critical Transportation Needs?	If so, how many and how were they transported?	Did they have a Pre-Registration system in place prior to the evacuation?	If so, how many had registered?	If so, did they call down the list at the time of the evacuation to see who still needed transportation?	If so, how did the registration number compare to the actual number transported?
Rick McLester, Coord., <b>Aransas</b> Co, TX EM (361) 790-0108 rmclester@aransascounty.org	5/14,5/28,6/02 emails; 5/19 phone	Claudette		No Response				
		Ike						
Leigh Anne Ryals, Dir.EM, <b>Baldwin</b> Co., AL; lryals@co.baldwin.al.us; (251) 972-6807	5/21 email	Ivan	Yes	DK #. . Used transit to get to pickup points. Then 4-6 buses out of county.	No	NA	NA	NA
		Katrina	Yes - coastal areas only	DK #. Transit to in-county shelters.	No	NA	NA	NA
Sid Busick, Emergency Management Specialist, <b>Bay</b> Co, FL EM (850) 784-6167 sbusick@co.bay.fl.us	5/15 & 5/19 email	Dennis	Yes	DK number	Yes	3000 spec. needs. DK for transp.	No	DK
		Ivan		DK. Council on Aging does it.	Yes		No	DK
William Winn, Dir., <b>Beaufort</b> County, SC EM (843) 470-3100 wwinn@bcgov.net	5/14 & 5/19 email	Gaston	No	NA	NA	NA	NA	NA
		Isabel	No, but answered for Floyd	1500 by bus	No	NA	NA	NA
Tom Smith, Dir., <b>Berkeley</b> County, SC EM (843) 719-4817 tsmith@co.berkeley.sc.us; Nick Marino nmarino@berkeleycountysc.gov	5/14 Email; 5/26 talked to & emailed Nick Marino	Gaston		No Response				
		Isabel						
Doc Adams,EM Coord., <b>Brazoria</b> Co, TX EM (979) 864-2015 doca@brazoria-county.com	5/15 & 5/19 email	Ike	Yes	1275 people by county transit company& school buses	Yes	2200	Yes	Of 1275 transported, only 16% were registered
Lacie David, <b>Brevard</b> Co, FL lacie.davis@brevardcounty.us	5/15, 5/26 emails	Frances	Yes	DK#. Transported by bus or ambulance if requested to pick up; 1800 total sheltered	Yes	2100	Yes	DK

Bill Johnson Deputy Dir., <b>Broward</b> Co,FL (954) 831-3900 wpjohnson@broward.org; LoriVunKannon@semtribe.com; Cheryl Rashkin- crashkin@broward.org (health & med.); Audrey Cohan, Human Services (954) 327-8750	5/15,5/19 emails; 5/26, 6/1 phone w/johnon, vunKannon,Rashkin	Wilma (vol.)	Yes	Buses ran regular routes and mobile home parks. Public paratransit, STS agencies picked up according to transp. Needs	Yes. Maintained by County Human Services. They triage and turn names over to agency or company that will be transporting them. They contact them to make plans.	About 1000. Most need transportation. List is called down 1x year	Yes. The agency or company that has been assigned to them, calls and makes arrangements for pickup.	About 40% on special needs list say they need transportation too. Only about 10% of people on health and medical list actually evacuated
		Katrina (vol.)	Yes					
Dick Gremillion, Dir., <b>Calcasieu</b> Parish, LA Office of Homeland Security and Emergency Preparedness (337) 721-3800 oep@cppj.net; John Buttterick; Rob Daughdril	5/7 Left mess; 5/15, 5/19,5/28 email 5/26,5/28 phone	Gustav	Yes	Each time about 125 by plane from hosps; 200 spec needs buses & amb.; 2600 buses	911 SNAP program; keeps registry of sp needs	DK	Yes	DK
		Ike	Yes	To Civic ctr hub w/city buses; charter buses from state to Shreveport		DK	Yes	DK
		Rita	Yes	To Civic ctr hub w/city buses; charter buses from state to Shreveport		DK	Yes	DK
LaDonna Thigpen, Coord., <b>Calhoun</b> Co, TX EM (361) 553-4400 emermtg@tisd.net	5/4 email	Ike		400; process unspecified.	Yes	DK; use Texas 211	Yes	Unknown at this time.
Clifton Hebert, <b>Cameron</b> Parish, LA Office of Emergency Preparedness (337) 775-5551 cameron_oe@caml.net	5/26 phone	Gustav	Yes	About 20. Council on Aging vans	Yes. Maintained by Co. on Aging	Currently 200	1x year by Co. on Aging. Calldown for storm.	Fewer use it
		Ike	Yes					
		Rita	Yes					
Ryan Holzaepfel, EM Coord., <b>Chambers</b> Co., TX EM (409) 267-8343 rholzaepfel@co.chambers.tx.us	5/6 Spoke with Ryan	Ike	Yes	150; 20 by ambul.from individual sites; 125 by bus from staging areas.	YES; implemented after Hurricane Rita.	175	YES	85%
		Katrina	Yes	50; 17 by ambulance from individual sites; 33 by bus from staging areas.	No	NA	NA	NA

Cathy Hayes, Dir., <b>Charleston Co.</b> , SC (843) 202-7408 chaynes@charlestoncounty.org	5/14 & 5/16 email	Gaston	Yes	Doesn't remember	No	NA	NA	NA
		Isabel	Yes	Yes, if it was a mandatory one	No	NA	NA	NA
Wayne Sallade, Dir., <b>Charlotte Co.</b> , FL EM (941) 505-4621 wayne.sallade@charlotte.com	5/7, 5/14 & 5/19 email	Charley	Only spec. needs; no time for others	180 Special Needs using Dial-A-Ride System and ambulances.	Yes	700	Yes	Higher; a lot of them were in areas that were at low risk.
		Wilma	No	NA	Yes	670	Yes	Numbers higher due to impact of Charley
Captain Joseph Eckstein, Dir., <b>Citrus Co.</b> , FL EM (352) 746-6555 jeckstein@sheriffcitrus.org	5/16 emailed & 5/19	Charley						
		Jeanne						
Dan Summers, Dir., <b>Collier Co.</b> , FL (239) 252-8000 DanSummers@colliergov.net	5/4 Rick; 5/14 Judy	Charley	Yes	Sending him questions for further research.	YES	Not Sure	YES	Not sure
		Wilma		Records in storage	YES	1200-1500	YES	
Mary Beths News, Interim Director, EM, <b>Corrituck Co.</b> , NC (252) 232-2115 sgriggs@co.currituck.nc.us	5/4 Spoke with new coordinator;	Isabel	No	NA	NO	NA	NA	NA
N.H. (Sandy) Sanderson, Dir., <b>Dare Co.</b> , NC EM Phone: (252) 475-5655 darecoem@darenc.com	5/4 Jessica	Isabel	No	No	NO	NA	NA	NA
<b>Duval Co.</b> , FL EM (904) 630-2472 Martin Senterfit, Dir. msenter@coj.net also arizabal@coj.net	5/16 & 5/19 emailed; 5/27 recd. Email	Charley	Yes	224 gen. popul. 311 spec. needs		Was 8000 then; now 2000 with new procedure	City transp. Authority assisted with call down	A lot fewer
		Frances	Yes	194 gen. popul. 23 special needs				
		Jeanne	Yes	506 gen. popul. 108 spec. needs				
John Dosh, Chief, <b>Escambia Co.</b> , FL EM (850) 471-6409 john_dosh@co.escambia.fl.us	5/19 emailed; 5/26 phone	Dennis	Yes	Not sure. Less than 100	Yes	2000 for spec.needs. Much less for transp.	Area transit buses	A lot fewer
		Katrina	Yes		Yes			
		Ivan	Yes		Yes			
LaDonna Thigpen, Coordinator, Calhoun Co EM (361) 553-4400 emermgt@tisdnet		Claudette	5/4 LaDonna out today and tomorrow; person who answered phone was not there in 2003.					

Troy Harper, EM Chief, <b>Flagler Co.</b> , FL EM, (386) 313-4200 tharper@flaglercounty.org; Michele Salmons	5/16 & 5/19 emailed 5/28 left mess. 6/2 phone	Frances	Yes	150 sheltered, most needed transp. Or assistance. Used county transp. Buses. If needed would also use school buses	Yes. Maintained by EM	424 currently	County call center calls down the list.	A lot fewer actually need it when time comes
Pam Register, Coord., <b>Franklin Co.</b> , FL EM (850) 653-8977x4	5/8 spoke w/her	Ivan	No	NA	NA	NA	NA	NA
		Katrina	No	NA	NA	NA	NA	NA
John Simsen, EM Coord., <b>Galveston Co.</b> , TX EM (281) 309-5002	5/4,5/19 mess. 5/26 spoke with Lee Lockwood	Ike	Yes	School buses to pickup pts for state coaches.	Yes. Texas 211	1400 currently	Vols. Call. Moving to automated system	3000 sheltered
		Rita	Yes	Also private ambul services contract	Yes. Texas 211			More because of Katrina effect
Sam Hodge, Mgr., <b>Georgetown County</b> EM (843) 545-3273 shodge@georgetowncountysc.org, Angela Snow	5/18 phone; 5/21 email	Gaston	No	NA	NA	NA	NA	NA
		Isabel	No	NA	No	NA	NA	NA
Tim Doss, Chief Deputy. <b>Gloucester Co.</b> , VA EM, (804) 693-1390 tpdoss@gloucesterva.info	5/4 Phone.	Isabel	No	NA	No	NA	NA	NA
Marshall Nelson, Coord. <b>Gulf Co.</b> , FL EM (850) 229-9110 mnelson@gulfcounty-fl.gov	5/16, 5/19 emailed; 5/26 phone	Dennis	Yes	About 100 each time. Paratransit; ambulances; school buses for gen.population.	Yes	About 50. Hope to use new system from FSU	Health & ambul. Service people come into EOC and make calls	About double
		Katrina	Yes		Yes			
		Ivan	Yes		Yes			
Brian (Hooty) Adam, Dir. <b>Hancock Co.</b> , NC EM (228) 466-8320 hcema1@att.net; Tamara Patterson	Phone w/Tamara Patterson	Katrina	Yes	Number not available at this time	No	NA	NA	NA
		Gustav	Yes	52; specific info not available.	Yes; implemented after Hurricane Katrina.	85	Yes	35 registered were transported; plus an additional 17 call-ins
Rick Shepherd <b>Hardee Co.</b> , FL (863) 773-6373	5/18 spoke w/him. Records spotty	Jeanne	Less prepared	DK	DK	DK	DK	DK
	5/18 spoke w/him	Wilma	Yes	Only 4-5	Not for transp.	About 50	Yes	Much larger. Many register more than once.
Theresa Wigley, EM Coord, <b>Hardin Co.</b> , TX EM, (409) 246-5119	5/18 spoke w/her	Rita	Yes but not well organized	DK		DK	DK	Larger. Many multiple registrations
		Gustav		200 gen popul.; 15-20 spec med needs	Texas 211	DK	Yes	Larger. Many multiple registrations

Mark Sloan EM Coord <b>Harris Co., TX</b> EM (713) 881-3100 mark.sloan@oem.hctx.net; Niky Smith; niky.smith@oem.hctz.net	5/22 phone; 5/29email	Rita	Yes; didn't go well	Lots of problems; over-evacuation				
		Ike	Yes; went well	1000 people to hub by metro buses, school buses, then out of area	Texas 211 used for 1st time	8500	Yes	
Rupert Lacy, Dir. <b>Harrison Co., MS</b> EM (228) 865-4002 civildefenseinfo@co.harrison.ms.us	Phone 5/7	Gustav	YES	400	Yes	Uncertain; number had increased since katrina.	YES; it was done by the Coastal Transit Authority.	Lower; once again, more people called in for assistance as the storm was approaching.
		Katrina	Yes	Number not available.	YES; only for spec. needs	100	AMR called them all.	Lower. Some called near landfall
Mark Tobert EM Coord. <b>Hernando Co., FL</b> EM (352) 754-4083 Mtobert@hernandosheriff.org	5/16 emailed; 5/19 return email	Charley	Yes	DK how many. Used school buses to shelters. Also Wheelchar vans and ambul. To hospitals & nursing homes	Yes	1200	Yes	About 25% from registry
		Frances	Yes		Yes	1200	Yes	
		Jeanne	Yes		Yes	1200	Yes	
Bill Nichols <b>Highlands Co., FL</b> (863) 385-1112	5/18 email	Jeanne	No	NA	NA	NA	NA	NA
Larry Gispert, Dr. <b>Hillsborough Co., FL</b> EM, (813) 236-3800 gispertl@hillsboroughcounty.org; Mike Trimpert & Steve Porter	5/7 Spoke w/Mike Trimpert & Steve Porter	Charley	Yes	1000 Specialized buses;HART buses for gen. population	Yes	4000	Call down when threat occurs	40% who requested assistance did not use it.
Randall Webster, Dir. <b>Horry Co., SC</b> EM (843) 915-5150 Websterr@horrycounty.org	5/14 & 5/19 Emailed.5/26 phone.	Isabel	No	NA	No	NA	NA	NA
David Warren, Dir. <b>Hyde Co., NC</b> EM (252) 542-0870 dwarren@hydecountync.gov	5/4; 5/14 & 5/19 Email. 5/26 phone.	Isabel	Yes	DK. Wasn't there at the time	DK	DK	DK	DK
Etta LoPresti, EM Planner, <b>Indian River Co., FL</b> EM (772) 226-3856 elopresti@irc.gov.com	5/19 email;5/24 phone;5/28 email	Frances	Yes	DK #; School buses, sr. transport services; county buses; Ambulances	Yes	500 Sp. Needs	Names given to transport services and they call	Never the same. Many more show up
		Jeanne	Yes					
		Wilma	Yes					
Allan Friedrich, Em Coord <b>Jackson Co., TX</b> EM (361) 782-3398 jceoc@co.jackson.tx.us	5/19 email	Claudette	Yes	150. Vol. fire dept helped get people to pickup points. School buses used.	Yes. Local one in addition to Texas 211	22	Yes	Many more than registry
	5/19 email	Ike	Yes	150. Vol. fire dept helped get people to pickup points. School buses used.	Yes. Local one in addition to Texas 211	22	Yes	Many more

Donald Langham, EO Dir., <b>Jackson Co.</b> , MS EM (228) 769-3111 Donald_Langham@co.jackson.ms.us	5/18 return email	Katrina	YES	DK	Yes	DK	Yes	DK
Billy Ted Smith, Program Mgr./Coord. <b>Jasper/Newton/Sabine, TX</b> Office of Homeland Sec. (409) 994-2543 billysmith@ih2000.net	5/16 & 5/19email; 5/24 phone mess.	Ike	No Response					
Greg Fountain, Coord. <b>Jefferson Co.</b> , TX EM (409) 835-8757 gfountain@co.jefferson.tx.us	5/16 & 5/19 email;5/26 phone mess.	Ike	No Response					
		Katrina						
Florentino L. Rivera, Sr., Department Head, <b>Jim Wells, TX</b> Safety Dept. (361) 668-1018 flriverasr@yahoo.com; Sylvia Ramirez	5/21; 5/27 & 5/28 email	Ike	No	NA	NA	NA	NA	NA
J. Allen Metheny, Asst. Dr., <b>Kent Co.</b> , TX EM (302) 735-3461	5/4 Spoke wth him	Isabel	No	NA	No	NA	NA	NA
John Wilson, Dir. <b>Lee Co.</b> , FL EM, (239) 533-3622 wilsonjd@leegov.com		Charley	Yes	Do not have the full database – 190 sheltered during Charley – transportation not noted.	Yes	2003 = 1131 2004 – do not have actual database	Yes	DK
		Wilma	Yes	237 sheltered. Transportation not noted in database	Yes	989	Yes	DK
Mark Johnson, <b>Levy Co.</b> , FL (352) 486-5213 LCDem@bellsouth.net; Connie Conley	5/18 email; 5/26 phone	Frances		DK #; County transit used	Yes	DK	Yes	DK
		Jeanne	Yes	50 or fewer; County transit	Yes	150-250	Yes. CERT vols.; also paratransit helps with records	Fewer needed it.
Tom Branch, Coorrd., <b>Liberty Co.</b> , TX EM (936) 334-3219 tom.branch@co.liberty.tx.us	5/16 emailed	Ike		No Response				
Laurie, Feagans, Chief, <b>Manatee Co.</b> , FL EM, (941) 749-3500, laurie.feagans@mymanatee.org	5/4 email;5/18 phone	Charley	Yes	200; will try to provide further info on breakdown	YES; EXCEL database.	1000	YES; individual calls were made	Higher
		Jeanne			Yes			
Chip Wildy, <b>Marion Co.</b> , FL (352) 369-8100 cwildy@marionso.com	5/18 sent email	Jeanne	Yes	DK	Yes	DK	Yes	Proportionate
Keith Holman, Dir. <b>Martin Co.</b> , FL EM (772) 288-5694 kholman@martin.fl.us	5/19 recd email	Frances	Yes	About 300 each time using fire rescue staff as drivers of buses supplied by local council on aging	Yes	270	Yes	Actually transport more - who have not registered
		Jeanne	Yes		Yes	270	Yes	
		Wilma	Yes		Yes	270	Yes	

Doug Matthes, Coord. <b>Matagorda</b> Co, TX EM (979) 323-0707 dmatthes@co.matagorda.tx.us	5/14. 5/16 Sent email	Claudette	Yes	School buses & police officers to pickup points for state buses	Am. Red Cross keeps list	320	Reverse 211	300
	5/26 Phone	Ike	Yes			DK	Reverse 211	700
Frank Reddish, Prog Mgr., <b>Miami Dade</b> Co., FL EM, (305) 468-5424 frank.reddish@miamidade.gov; Roberto Cepeda roberto.cepeda@miamidade.gov	5/22 email; 6/3 phone	Frances	Yes	Use school buses, fire dept & ambul. for spec. needs, public buses for gen. pop. 2262 HEC -transit to reg. shelters; 114 SNEC school buses & STS to spec. needs shelters; 123MMF to med. Managed facilities	Yes. Maintained by public health dept.	~1100 Spec Needs, 400 of whom live in evac zones. Other 700 for other types of emerg.; 950 MMF for hosp. Estimate 90% need transportation	Yes and 2X year. When people register, they are assigned to a transportation provider	More needed it
		Jeanne	Yes	HEC 8062; SNEC 269; MMF 101	Yes		Yes and 2X year	Many more needed it
		Dennis	Yes	HEC 10; MMF 30	Yes		Yes and 2X year	Fewer needed it.
		Katrina	Yes	HEC 326; SNEC 4; MMF 47	Yes		Yes and 2X year	Fewer needed it
		Wilma	Yes	HEC 3442; SNEC 105; MMF 121	Yes		Yes and 2X year	More needed it
John Kilkullen, Planner, <b>Mobile</b> Co., AL (251) 460-8000 jkilkullen@mcema.net	5/18 return email	Ivan	Yes	Few	No	NA	NA	NA
		Dennis	Yes	2 buses from pickup points. Last resort bus from public housing	No	NA	NA	NA
		Katrina	Yes	300 from pickup points using transit buses. 30 vans & ambulances	No	NA	NA	NA
Anna Haskins, Sp.Needs Coord., <b>Monroe</b> Co., FL (305) 292-4591; JoseTezanos Tezanos- Jose@monroecounty-fl.gov,	5/19 phone; 5/20, 6/2 emails	Denise	Yes	77 regular to sp needs shelter; 30 ambul to nursing homes	Yes	306	2 x year	More on list.
		Wilma	Yes	Transported 39 (11.7% of those registered. Regular buses from pickup points; home pickup by county buses; transported out of county by vendor buses	Yes	405	Yes.	Fewer used it, but these were not major storm threats.
		Rita	Yes	Transported 41	Yes	405	Yes	
		Ike	Yes	Transported 67	Yes	389	Yes	

David Carpenter, Coord., <b>New Castle</b> Co., DE EM (302) 395-2700	4/16 Spoke with him	Isabel	Yes	15	No	NA	NA	NA
Bill Roberts, Coord. <b>Nueces</b> Co., TX EM, (361) 888-0513	5/18 spoke w/him	Ike	Yes	94	Yes	1560 sp needs, 22% for transp.	Yes, used nursing students	More on list
Randy McDaniel, Coord., <b>Okaloosa</b> Co., FL EM (850) 651-7150 rmcdaniel@co.okaloosa.fl.us	5/16 emailed, 5/26 phone	Dennis	Yes	Less than 20	Yes. Kept in EM and also health dept.	Currently 235	Send list of health agencies who do most of the regis.	Less than 60 and often not those who registered
	5/16 emailed	Ivan	Yes	Less than 20			Call down when event occurs	
		Katrina	Vol. only	Less than 20				
Mike Faulkner, <b>Okeechobee</b> Co., FL, (863) 763-3212	5/19 spoke w/him	Frances	He's new, DK	DK	DK	DK	DK	DK
	5/19 spoke w/him	Jeanne	Yes	8, in Sheriff's cars, school buses	Yes	52	Yes	More on list.
Jeff Kelley, Emergency Management Coordinator, <b>Orange</b> Co., TX EM jkelly@co.orange.tx.us	5/21 email	Rita	yes	900. Used transit, church, school buses, paratransports from state, EMS units	Yes	1283 Currently	Yes and 2X year	Plan for 25% more. Also plan for 1 in 4 nursing homes plans to fail & county has to come in to assist
	5/21 email	Gustav	Yes	1200. Used transit, church, school buses, paratransports from state, EMS units	Yes		Yes and 2X year	
	5/21 email	Ike	Yes	1300. Used transit, church, school buses, paratransports from state, EMS units	yes		Yes and 2X year	
Palm Beach Co EM <b>Palm Beach</b> Co., FL (561) 712-6400; Matt Cronin	5/26;5/29 phone mess	Jeanne	Yes	No Response				
James D. Martin, Dir., <b>Pasco</b> Co., FL EM (727) 847-8137 jmartin@pascocountyfl.net; Peg Thomas	5/16 & 5/19 emailed; 5/26 spoke to him & to Peg Thomas	Charley	Yes	Small rural transit system. County ambulances	Yes. Done by ambulance service billing people	2700 currently	Yes	150 in ambulances; not sure about others
		Frances	Yes					
		Jeanne	yes					
		Ivan	Yes					

Sally Bishop, Dir., <b>Pinellas</b> Co., FL EM, (727) 464-5550, sbishop@pinellascounty.org	5/18 email	Charley	Yes	DK #. Transit runs its reg sched. & then transfers people. Use school buses. Have contract for paratransit.	Yes	1700	Yes	DK
Stan Upton, EM Coord, <b>Refugio</b> Co., TX EM (361) 526-2820	5/18 phone	Ike	Yes	87 gen popul + 24 Sp. Needs. School buses pick most up at hubs	Texas 211	120	No. They have to call in even if pre-registered	Many on list do not use. But others added. Plan for more.
		Claudette	DK	DK	DK	DK	DK	DK
William Zagorski, Coor. <b>San Patricio</b> Co., TX EM (361) 364-9650	5/18 phone	Ike	Yes	142 in 6 buses, 16 ambulances	Yes Texas 211	DK	Yes	Registration list is larger because people register more than once . Fewer need it than are reg.
Brad Baker, Emergency Services Coord. <b>Santa Rosa</b> Co., FL EM (850) 983-5360 emergency- management@santarosa.fl.gov	5/16 emailed; 5/26 phone	Dennis	Yes	School buses	Yes	120 spec needs	1x year by vols. (county employees)	List much larger
		Ivan	Yes					
		Katrina	No					
Edward McCrane, Dir, <b>Sarasota</b> Co EM, (941) 861-5495 emccrane@scgov.net	5/14 phone	Charley	YES	DK	YES; ACCESS database	1300	YES; individual calls.	DK
Alan Harris <b>Seminole</b> Co., FL (407) 665-5017	5/19 Phone	Frances	Yes	165	Yes	500-600	Reverse 911 - person calls back if want	About 30% actually use the service
		Jeanne	Yes	150	Yes			
E. R. Aston, <b>St. Johns</b> Co., FL (904) 824-5550; Jody Pfannkuche	5/26 phone	Jeanne	Vol. only	School buses; Co. on Aging vans	Yes	600+	Annual letters. Call down for storms	List much larger
Tom Daly, <b>St. Lucie</b> Co., FL (772) 461-5201 dalyt@stlucieco.org; Mary Powell	5/19 email	Frances	Yes	DK #. Sch. Buses; Co on Aging; ambulances	Yes	520	Call 1x year. Call down for storms	List much larger
		Jeanne	Yes		Yes			
Joe Thomas, EOC, <b>Sussex</b> Co, DE. (302) 855-7807	5/21 email	Isabel	No	NA	No	NA	NA	NA
Steve Proctor <b>Taylor</b> Co., FL (850) 838-3575	5/18 phone	Katrina	No	NA	NA	NA	NA	NA

John Paul Finney, <b>Tyler Co.</b> , TX (409) 782-7886	5/18;5/28 phone	Ike		No Response				
Doug York <b>Union Co.</b> , FL (386) 496-4300	5/4, 5/18 email	Jeanne	Yes	DK. Used public & private services	Yes	Yes	100	Only 25% needed transportation
Larry LaHue llahue@co.volusia.fl.us answered for Charles Craig, Dir. <b>Volusia Co.</b> , FL EM (386) 736-5980 ccraig@co.volusia.fl.us	5/8, 5/18 email	Floyd*	About 3000	Public buses and school buses. To shelter or wherever they wan to go	Yes	1000	With pre-recorded message telling them to call if still need transport.	Much lower than actual need
Ed Baltzley, Dir. <b>Walton Co.</b> , FL EM (850) 892-8065 baledwin@co.walton.fl.us	5/18 return email	Dennis	No	None	Only for Special Needs	800-900 Spec Needs Shelter	No	NA
		Ivan	No	None			No	NA
Scott Nelson <b>Wakulla Co.</b> , FL (850) 926-0861	5/18 left mess; 5/26 phone	Dennis	Yes	Only 3. Plan to use paratransit; sch. buses for backup	Yes, maintained by Health Dept.	120	Health Dept. calls 1x yr. Call down in event	List much larger

**Table D-2 Additional Comments Received by the Interviewed Emergency Managers**

County or Parish	Comments
Baldwin, FL	Have 2 approved Special Needs shelters and 2 with electrical support. Public health runs them.
Beaufort, SC	Commercial bus companies were very unreliable and could not supply enough buses. Fees were high. We use local transportation authority and school buses. Do not use registration program because of potential liability.
Calcasieu, LA	Had trouble keeping track of people during Rita; now have software for this. When sending buses out of the parish have learned to put a police officer on each bus. Had past problems with security people at shelters out of their area.
Chambers, TX	Keeping a good database and making phone calls on a yearly basis is critical! Follow up in person is also very helpful.
Charlotte, FL	1. Pre-identify necessary transportation resources. 2. Publicize registration process to identify level of need. 3. Do a self-registration process and keep records protected from public view.
Collier, FL	This project will bolster some weaknesses in their system.
Corrituck, NC	County is in the process of implementing a registration process that will include self and county registration components.
Dare, NC	Currently using a voluntary registration process through the Health Department and Department of Social Services. County has to do data input. Biggest challenge is doing public education of need to evacuate and individual responsibility for so doing. They are currently working with schools and employers to inform transient populations.
Duval, FL	Revised registration procedure. Now must re-register annually. List was too large and inaccurate before.
Escambia, FL	Have to emphasize that if they change their minds, we won't come get them.
Galveston, TX	The registry is a moving target.
Gloucester, VA	Our county is currently implementing a self-registration process due to HIPAA constraints.
Gulf, FL	We pilot tested SPIN Reg program and really liked it. Cost may be an issue.
Hancock, NC	Having an ENS system to make pre-landfall notifications is very helpful. Ongoing maintenance of list is critical. The county currently registers people who call in; we are moving toward a self-registration process.
Hardin, TX	We lose volunteers for reentry. Cities and churches get people from rural areas to hub.

County or Parish	Comments
Hillsborough, FL	1. Partnership with local transportation agency and school district for bus transportation. 2. Collaboration with home health agencies and other organizations that provide services. 3. Promote ongoing training of agency personnel especially in regard to change of personnel. 4. Create a TRANS SOP to augment CEMP. 5. Health Department maintains registry; county personnel take calls from applicants as there is not currently a self-registration capability.
Jackson, TX	People don't take registration seriously. They just show up at shelters. Two totally disabled residents we did not know until time for evacuation showed up at a shelter.
Kent, TX	Our county is currently starting to work on identifying people with special medical needs.
Manatee, FL	It's important to promote awareness of need ahead of time so that people are prepared to activate.
Martin, FL	Requires dedicated staff who understand how to deal with elderly and infirm. Special needs shelters staffed by ocean life guards who are EMT-trained and health department staff.
Miami-Dade, FL	Most residents do not live in evacuation zones and are encouraged to stay in homes. We use the term evacuation center for those facilities used during a storm and term shelter for longer-term housing.
Monroe, FL	We evacuate special needs anytime there is a tropical storm or hurricane watch. Pets, too. Have agreements with Miami-Dade for assistance and agreements with private bus vendor.
Orange, TX	If you think it will go wrong, it will. If you think it might go wrong, it will. If you think it will not go wrong, it will. And concrete vaults with caskets inside will float at least 23 miles!
Pinellas, FL	A couple years ago I conducted 4 focus groups to find out what people liked, wanted, didn't care about when it came to our hurricane guide so we had some real input. To save time I used our County Volunteer pool to ask for focus group members. The groups were so enthusiastic -- they really got into the work. I'm particularly proud of that effort because it took our guide from good to great.
Refugio, TX	In big events, plan for more than registered.
San Patricio, TX	We evacuate often. We're using some state funds to purchase 6 buses with lifts and 3 medical buses.
Sarasota, FL	1. County transportation agency involvement is key to success. 2. Creation of quadrants is very helpful for assignment of resources. 3. Double up on resource ordering to have additional people and back-up equipment.
Union, FL	Our health department keeps the list up to date.

**APPENDIX E: SUPPLEMENTAL MATERIALS FOR TASK 1E**

**CRITICAL TRANSPORTATION NEEDS SPREADSHEET (ON CD)**

**Table E-1 Baldwin and Mobile County Contacts**

<b>County</b>	<b>Agency</b>	<b>Contact Person</b>	<b>Contacts</b>
Baldwin	AL Dept Public Health	Peggy Thompson	Emails 4/4-4/26
Baldwin	AL Dept Public Health	Jan Perry	Email 4/4
Baldwin	Baldwin Ctr on Aging	Kelly Childress	Email, phone 3/31, 5/6
Baldwin	Baldwin EMC	Karen Moore	Emails, Phone 4/9,4/28
Baldwin	Baldwin VOAD	Angie Anderson	Email 4/6
Baldwin	Catholic Social Services	Michele Prockup	Emails & Phone 4/9-4/28
Baldwin	County Coun. On Aging	Pat Harris	Phone, email 4/28
Baldwin	Ecumenical Ministries Meals on Wheels	Sally Deane Pam Meredith	Emails 4/14. Phone 4/29 Phone 4/14
Baldwin	Fairhope Utilities	Scott Sligh	Email, Phone 4/25
Baldwin	Foley Housing Authority	Ben Day	Phone 5/14
Baldwin	Habitat for Humanity		Phone 5/14
Baldwin	La Clinica de Baldwin	Mike Trainor	Phone 4/6
Baldwin	Lighthouse (Shelter)	Jessie Howell	Phone 5/15
Baldwin	Mercy Medical Home Health	Julie Wagner	Phone 5/14
Baldwin	Mid-South Home Health - Foley	Alma Outlaw	Phone 5/14
Baldwin	Mid-South Home Health- Daphne	Angela Lambert	Phone 5/14
Baldwin	MidSouth Home Health	Jennifer Strachan	Emails 4/6-4/13
Baldwin	Riviera Utilities	David Horton	Phone 5/14
Baldwin	Salvation Army	Trinitius Picket	Phone 4/7,4/13,5/20
Baldwin	So.Baldwin Meals on Wheels	Linda Konier	Phone 4/13
Baldwin	South Baldwin - Foley	Carolyn Phillips	Phone 5/14
Baldwin	St. Paul's Episcopal - Daphne		Phone 5/14
Baldwin	Thomas Home Health	Christina Crocker	Phone 5/14
Both	AL Rehab. Services	Manny Russo	Email, Phone 4/30
Both	Alabama Power	Hiram Templeton	Emails, phone 4/29

Both	Community Action Agency	Carjetta McWilliams	Emails 4/7, 4/28
Both	Homeless Coalition	Dan Williams	Email, Phone 4/18
Both	Public Health	Teresa Porter	Email 4/4, 4/15
Mobile	15 Place	Lynn Walters	Email 4/7
Mobile	15 Place – Mobile	Lynn Walters	4/4 email 4/15 phone
Mobile	Amedisys #1025 Mobile		Phone 5/18
Mobile	Amedisys #1054 Mobile		Phone 5/18
Mobile	Amedisys Health Care	Nancy Hessert	Phone 5/14
Mobile	Amedisys Home Health #1006 Mobile		Phone 5/18
Mobile	Area Agency on Aging	Della Sanchez	Email 4/7
Mobile	Assoc for Retarded Adults	Donnie Frank	Phone 4/7
Mobile	Bay Area Food Bank		Phone 5/15
Mobile	Bay Minette Housing Authority	Regina	Phone 5/14
Mobile	BRATS	Cathy Weeks	Phone 5/19
Mobile	Catholic Social Services	Marilyn King	Phone and Email 5/28,6/14,7/01
Mobile	Center for Fair Housing		Phone 5/18
Mobile	Community Action Agency	Gwen Darty	Phone 5/14
Mobile	Cottage Hill Baptist (Meals on Wheels)	Alice Harvill	Phone 5/19
Mobile	Dauphin Way United Methodist		Phone 5/19
Mobile	Family Promise	Mike Brokowsky	Phone 5/15
Mobile	Government Street Presbyterian		Phone 5/18
Mobile	Govt. St. Presbyterian (Meals)	Sally Pearsall	Phone 5/19
Mobile	Habitat for Humanity	Sandy	Phone 5/14
Mobile	Housing First	Don Williams	Phone, Email 4/18
Mobile	Infirmery Home Health		Phone 5/18
Mobile	Lighthouse	Ryan Ervin	Phone 5/15
Mobile	Lighthouse (Shelter)	Jessie Howell	Phone 5/15
Mobile	Loaves and Fish		Phone 5/18
Mobile	Marim Home Health		Phone 5/18
Mobile	Maxim Home Health		Phone 5/18
Mobile	Meals on Wheels	Pat Harris	Phone, Email
Mobile	Mobile Assoc for Blind	James Bullock	Phone 4/7
Mobile	Mobile Co. Health	Monica Knight	Email 4/3,4/29
Mobile	Mobile Housing Board	Ms. Washington	Phone 5/18
Mobile	Mobile Public Housing	Frank Nelson	Phone 5/19
Mobile	Mobile VOAD	Mark Johnson	Phone, Emails 4/6, 4/28
Mobile	No. Baldwin Utilities	Jason Padgett	Phone 4/28

Mobile	Riviera Utilities	David Horton	Phone 4/4
Mobile	Salvation Army	Trinitius Picket	Phone 5/7,4/13,4/20
Mobile	Saraland Sr. Ctr	Teresa	Phone 5/20
Mobile	Satsuma City Hall	Sharon	Phone 5/20
Mobile	Southern Co	Jeffrey Schmit	Phone, Email 4/29
Mobile	Southern Electric	Rick Russell	Emails, Phone 4/29
Mobile	Southern Pine	Melody Harrison	Email 4/28
Mobile	The WAVE	Sheryl Hollyfield	Phone 5/18
Mobile	United Cerebral Palsy	Susan Watson	Emails 4/6-4/28
Mobile	United Way	Jan Preslar	Email 4/4.Phone 4 /27
Mobile	Volunteer Mobile	Diana Brinson	Emails 4/3, 4/6
Mobile	Waterfront Rescue Mission	Sam Bradley	Phone 5/20
Mobile	Waterfront Rescue Mission	Jessica Howell	Phone 5/14
Mobile	Assoc for Blind	Jim Bullard	Phone 4/7
Mobile	Mid-South Home Health - Mobile		Phone 5/18

BEHAVIORAL ANALYSIS FOR VARIOUS STORMS			
Post-Storm Report	Report Year	Evacuation Average	Percentage of Population Requiring Assistance
Georges	1999	67%	3.0%
Floyd	2000	55%	3.5%
Isabel	2005	37%	3.7%
Lilli	2003	44%	4.0%
<b>TOTAL AVERAGE</b>		<b>51%</b>	<b>3.6%</b>

BEHAVIORAL ANALYSIS FOR AL COAST				
	Beach Average	Inland Surge Average	Inland Non-Surge Average	TOTAL AVERAGE
Mobile / Baldwin	88%	39%	15%	47%
Regional Area	85%	57%	30%	57%
<b>OVERALL AVERAGES</b>				
	87%	48%	23%	52%

OVERALL AVERAGES			
	Evacuation Average	Percentage of Population Requiring Assistance	
Post Storm Reports	51%	3.6%	
Behavioral Analysis	52%		
<b>PLANNING AVERAGE</b>	<b>52%</b>	<b>3.6%</b>	

	Population	Evacuation Percentage	Total Estimate Evacuating	Percentage Requiring Assistance	Total Estimate of Persons Requiring Assistance
Baldwin	174,439	52%	89,909	4%	3,192
Mobile	406,309	52%	209,418	4%	7,434
<b>TOTALS</b>	<b>580,748</b>		<b>299,327</b>		<b>10,626</b>

Evacuation Capacity for School Bus	Total Persons Assistance	Total Bus Estimates
35	10,626	<b>304</b>

**Figure E-1 Evacuation Decision Process and Resource Needs in Past Storms**

## APPENDIX F: SUPPLEMENTAL MATERIALS FOR TASK 1F

**Table F-1 Contacts for Critical Transportation Needs Registries**

Agency	Person	Email or Phone
Broward County, FL	Chuck Lanza	<a href="mailto:clanza@broward.org">clanza@broward.org</a>
	Gary Friedman	<a href="mailto:gfriedman@broward.org">gfriedman@broward.org</a>
Charlotte County, FL	Wayne Sallade	<a href="mailto:Wayne.sallade@charlottefl.com">Wayne.sallade@charlottefl.com</a>
	Lynn Stickley	<a href="mailto:Lynn.stickley@charlottefl.com">Lynn.stickley@charlottefl.com</a>
Collier County, FL	Dan Summers	<a href="mailto:DanielSummers@colliergov.net">DanielSummers@colliergov.net</a>
	Judy Scribner	<a href="mailto:judyScriber@colliergov.net">judyScriber@colliergov.net</a>
Corpus Christi, TX	Mike Beavers	<a href="mailto:mikebea@cc.texas.com">mikebea@cc.texas.com</a>
FL Dept. of Health	Luke Wood	<a href="mailto:Luke_wood@doh.state.fl.us">Luke_wood@doh.state.fl.us</a>
Lee County, FL	John Wilson	<a href="mailto:WilsonJ@leegov.com">WilsonJ@leegov.com</a>
	Debbie Quimby	<a href="mailto:DQuimby@leegov.com">DQuimby@leegov.com</a>
Miami-Dade County, FL	Frank Reddish	<a href="mailto:Frank.reddish@miamidadegov">Frank.reddish@miamidadegov</a>
	Roberto Cepeda	(305) 468-5421
Monroe County, FL	Irene Toner	<a href="mailto:Toner-irene@monroecounty.fl.gov">Toner-irene@monroecounty.fl.gov</a>
	Anna Haskins	<a href="mailto:Haskins-Anna@monroecounty.fl.gov">Haskins-Anna@monroecounty.fl.gov</a>
Mobile County, AL	Diana Brinson	<a href="mailto:dbrinson@volunteermobile.org">dbrinson@volunteermobile.org</a>
New Hanover, NC	Will Vignali	(910) 392-2353
	Brenda Brow	<a href="mailto:BBrow@nhcgov.com">BBrow@nhcgov.com</a>
New York City	Nick Lobel-Weiss	(347) 809-2353
Pinellas County, FL	David MacNamee	<a href="mailto:dmacnamee@co.pinellas.fl.us">dmacnamee@co.pinellas.fl.us</a>
SE Texas	Patrick Grimes	<a href="mailto:paalgr@gmail.com">paalgr@gmail.com</a>
TX Dept. of Public Safety	Mary Lenz	<a href="mailto:Mary.Lenz@txdps.state.tx.us">Mary.Lenz@txdps.state.tx.us</a>
Texas 211	Mary Mays	<a href="mailto:Mary.mays@hhsc.state.tx.us">Mary.mays@hhsc.state.tx.us</a>

**APPENDIX G: SUPPLEMENTAL MATERIALS FOR TASK 1G**  
**GIS DATABASE OF ORGANIZATIONS CURRENTLY SUPPORTING CTNS IN**  
**MOBILE AND BALDWIN COUNTIES (ON CD)**

## APPENDIX H: SUPPLEMENTAL MATERIALS FOR TASK 1H

### Table H-1 Attendees at Baldwin County Mid-Project Briefing

First Name	Last Name	Affiliation	Phone	Email
William	Winn	FEMA Representative Beaufort County Director of Public Safety)	843.470.3100	<a href="mailto:wwinne@bc.gov.net">wwinne@bc.gov.net</a>
Cresitello	Donald	USACE	917.790.8608	<a href="mailto:Donals.c.cresitello@usace.army.mil">Donals.c.cresitello@usace.army.mil</a>
Patrick	Tritz	AEMA	205.280.2270	<a href="mailto:patrick.tritz@ema.alabama.gov">patrick.tritz@ema.alabama.gov</a>
Charlisa	Ussery	AEMA	205.280.2220	<a href="mailto:charlisa.ussery@ema.alabama.gov">charlisa.ussery@ema.alabama.gov</a>
Paula	Tillman	BCEMA	251.597.8923	<a href="mailto:ptillman@co.baldwin.al.us">ptillman@co.baldwin.al.us</a>
Renee	Cook	BCEMA	251.972.6807	<a href="mailto:drcook@co.baldwin.al.us">drcook@co.baldwin.al.us</a>
Jan	Byrd	BCEMA	251.972.6807	<a href="mailto:jmbyrd@co.baldwin.al.us">jmbyrd@co.baldwin.al.us</a>
Roy	Wulff	BCEMA	251.972.6807	<a href="mailto:rwulff.co.baldwin.al.us">rwulff.co.baldwin.al.us</a>
Leigh Ann	Ryals	BCEMA	251.972.6807	<a href="mailto:lryals@co.baldwin.al.us">lryals@co.baldwin.al.us</a>
Bill	Massey	Dewberry	678.530.0022	<a href="mailto:bmassey@dewberry.com">bmassey@dewberry.com</a>
Lauren	Hand	Dewberry	678.530.0022	<a href="mailto:lhand@dewberry.com">lhand@dewberry.com</a>
Betty	Morrow	Dewberry	678.530.0022	<a href="mailto:bmorrow@dewberry.com">bmorrow@dewberry.com</a>

**Table H-2 Attendees at Mobile County Mid-Project Briefing**

First Name	Last Name	Affiliation	Phone	Email
William	Winn	Beaufort FEMA Representative Beaufort County Director of Public Safety)County	843.470.3100	<a href="mailto:wwinne@bcgov.net">wwinne@bcgov.net</a>
Cresitello	Donald	USACE	917.790.8608	<a href="mailto:Donals.c.cresitello@usace.army.mil">Donals.c.cresitello@usace.army.mil</a>
Patrick	Tritz	AEMA	205.280.2270	<a href="mailto:patrick.tritz@ema.alabama.gov">patrick.tritz@ema.alabama.gov</a>
Mike	Evans	MCEMA	251.460.8000	<a href="mailto:mevans@mcema.net">mevans@mcema.net</a>
Ronnie	Adair	MCEMA	251.460.8000	<a href="mailto:radair@mcema.net">radair@mcema.net</a>
Walt	Dickerson	MCEMA	251.460.8000	<a href="mailto:wdickerson@mcema.net">wdickerson@mcema.net</a>
Jan	Preslar	United Way 2-1-1	251-431-5100	<a href="mailto:jpreslar@lifelinesmobile.org">jpreslar@lifelinesmobile.org</a>
Monica	Knight	MCHD	251-690-8135	<a href="mailto:mknight@mobilecountyhealth.org">mknight@mobilecountyhealth.org</a>
Sharon	Lavender	MCDHR	251-415-3509	<a href="mailto:sharon.lavender@dhr.alabama.gov">sharon.lavender@dhr.alabama.gov</a>
Percy	Harris Jr.	MCMDTF	251-208-5818	<a href="mailto:percy.harris@cityofmobile.org">percy.harris@cityofmobile.org</a>
Raphael	Maharaj	ALSDF	251-586-3744	<a href="mailto:maharaj@cityofmobile.org">maharaj@cityofmobile.org</a>
Bill	Massey	Dewberry	678.530.0022	<a href="mailto:bmasley@dewberry.com">bmasley@dewberry.com</a>
Lauren	Hand	Dewberry	678.530.0022	<a href="mailto:lhand@dewberry.com">lhand@dewberry.com</a>
Betty	Morrow	Dewberry	678.530.0022	<a href="mailto:bmorrow@dewberry.com">bmorrow@dewberry.com</a>

**BALDWIN COUNTY MID-PROJECT BRIEFING POWERPOINT PRESENTATION  
(ON CD)**

**MOBILE COUNTY MID-PROJECT BRIEFING POWERPOINT PRESENTATION  
(ON CD)**

## APPENDIX I: SUPPLEMENTAL MATERIALS FOR TASK 2A

### RAPID CAST TELEPHONE SURVEY QUESTIONS HIGH GROUND SOLUTIONS

*Walter Dickerson, Mobile County*  
*Leigh Anne Ryals, Baldwin County*

Hello this is \_\_\_\_\_, \_\_\_\_\_ County emergency manager. I have a few questions for you that would help me plan for hurricane evacuations. You can use your telephone touchpad to answer these questions. Thank you for your willingness to help in this important process.

1. Would you evacuate your home for a Category 1 or 2 hurricane? Press 1 for Yes, 2 for No, 3 if you want to hear the question again.

2. Would you evacuate your home for a major Category 3, 4 or 5 hurricane? Press 1 for Yes, 2 for No, 3 if you want to hear the question again.

3. If you or members of your household had to evacuate for a hurricane, where would you be likely to go? Press 1 for in-county shelter, 2 Outside county shelter, 3 Stay with friends or family in-county, 4 Stay with friends or family outside county, 5 Stay in hotel or some other arrangement, 6 if you want to hear the question again.

4. If you had to evacuate, would you or someone in your household need transportation assistance? Press 1 for Yes, 2 for No, 3 if you want to hear the question again.

[skip this question if answer to preceding is "no"]

5. Would you or someone in your household require special equipment, such as a wheelchair, stretcher or something like that. Press 1 for Stretcher, 2 for Wheelchair, 3 for Both, 4 Other types of equipment, 5 Would not require any special medical equipment, 6 if you want to hear the question again.

*ask only of people who answered 1 or 2 to question #3*

5. Does anyone in your household have medical conditions that would require them to go to a Medical Needs shelter or a shelter providing electrical support? Press 1 for Yes, 2 for No, 3 if you want to hear the question again.

*[ask if preceding answer is yes]*

6. If so, how many people in your household would require an Electrical or Medical Support Shelter? Enter the number on your telephone key pad

7. This survey is not registration for transportation assistance. If you would like a person to call you back to register someone from your household for transportation in the event of a hurricane evacuation, press 1, if not press 2.

This concludes the questions. Thank you again for your help.

**INSTITUTE FOR PUBLIC OPINION RESEARCH TELEPHONE SURVEY  
QUESTIONS FLORIDA INTERNATIONAL UNIVERSITY**

*[Q1] INTRO*

**We are calling for the \_\_\_\_\_ County Emergency Management Agency to collect information to help plan for the transportation needs for our community during hurricane evacuations. We have a few questions that will help officials plan for your safety. It will take no more than 5 minutes of your time and your answers will be confidential. You do not have to give your name or address.**

**We are interviewing \_\_\_\_ county residents 18 and older. May we continue? [INTERVIEWER, RESPONDENT MAY SAY THAT THEY ALREADY GOT QUESTIONS LIKE THIS FROM AN AUTOMATED TELEPHONE SURVEY FROM COUNTY EMERGENCY MANAGEMENT. IF THEY DO, TELL THEM THAT WE ARE ASKING THE SAME QUESTIONS ON THE PHONE TO TEST THE SYSTEM. ASK THEM TO PLEASE GO AHEAD AND ANSWER OUR QUESTIONS. ALSO CHECK AT THE END THAT THEY HAD DONE THE AUTOMATED SURVEY]**

- 1 YES
- 2 NO
- 3 DONT KNOW
- 4 NO RESPONSE

*[Q2] EVACUATION FOR A MAJOR STORM*

**If an evacuation were advised for a Category 1 or 2 hurricane, would you leave your home?**

- 1 YES
- 2 NO
- 3 NO, EVACUATION NOT REQUIRED WHERE I LIVE
- 4 WOULD DECIDE AT THE TIME
- 5 DONT KNOW
- 6 NO RESPONSE

*[Q3] EVACUATION FOR A LESS SEVERE STORM*

**If an evacuation were advised for a Category 3, 4, or 5 hurricane, would you leave your home?**

- 1 YES
- 2 NO
- 3 NO, EVACUATION NOT REQUIRED WHERE I LIVE
- 4 WOULD DECIDE AT THE TIME
- 5 DONT KNOW
- 6 NO RESPONSE

*[Q4] EVAC DESTINATION*

**If you or members of your household had to evacuate for a hurricane, where would you be likely to go? Would you go a shelter in this county, a shelter outside \_\_\_\_\_ county, stay with friends or family in \_\_\_\_ county, stay with friends or family outside \_\_\_\_\_ county, or stay in hotel or have some other arrangement.**

- 1 GO A SHELTER IN THIS COUNTY
- 2 SHELTER OUTSIDE COUNTY
- 3 STAY WITH FRIENDS OR FAMILY IN COUNTY
- 4 STAY WITH FRIENDS OR FAMILY OUTSIDE COUNTY
- 5 STAY IN HOTEL
- 6 OTHER, SPECIFY
- 7 DON'T KNOW
- 8 NO RESPONSE

*[Q5] TRANSPORTATION ASSISTANCE NEED*

**If you had to evacuate, would you or someone in your household need transportation assistance?**

- 1 YES
- 2 NO
- 3 DON'T KNOW
- 4 NO RESPONSE

*[Q6] SPECIAL EQUIPMENT NEED*

**Would you or someone in your household require special equipment, such as a wheelchair, stretcher or something like that.**

- 1 YES
- 2 NO
- 3 DON'T KNOW
- 4 NO RESPONSE

*[Q7] COUNTY BUS NEED*

**County buses are available to provide assistance to pick up points or to county shelters. How many in your household would likely use this service?**

[numeric, range: 0-99]

*[Q8] SPECIAL MEDICAL NEED*

**Does anyone in your household have medical conditions that would require them to go to a Medical Needs shelter or a shelter providing electrical support?**

- 1 YES
- 2 NO
- 3 DON'T KNOW
- 4 NO RESPONSE

*[Q9] ELECTRICAL OR MEDICAL SUPPORT SHELTER*

**How many people in your household would require an Electrical or Medical Support Shelter?**

[numeric, range: 0-99]

*[Q10] OFFICIAL HURRICANE EVACUATION ZONE*

**This survey is not registration for transportation assistance. Would you like to have a person call you back to register someone from your household for transportation in the event of a hurricane evacuation**

- 1 YES
- 2 NO
- 3 DON'T KNOW
- 4 NO RESPONSE

*[Q11] BEST NUMBER TO CALLBACK*

**Shall this person call you back on the same number we called you now or do you have another number that you prefer us to call?**

[open-end]

*[Q12] CONTACT NAME*

**Could I have the first name of the person that we should contact?**

[open-end]

*[Q13] HURRICANE EVACUATION ZONE*

**Do you live in an official Hurricane Evacuation Zone?**

- 1 YES
- 2 NO
- 3 DON'T KNOW
- 4 NO RESPONSE

*[Q14] LEVEL OF HURRICANE THAT YOU NEED TO EVACUATE*

**Do you know what level of hurricanes you need to evacuate for?**

- 1 Cat 1 and higher
- 2 Cat 2 and higher
- 3 Cat 3 and higher
- 4 Cat 4 and higher
- 5 Cat 5
- 6 DON'T KNOW
- 7 NO RESPONSE

*[Q15] HAVE YOU HAD TO EVACUATE*

**Have you ever had to evacuate for a hurricane?**

- 1 YES
- 2 NO (IF NO/DK - SKIPTO Q18)
- 3 DON'T KNOW
- 4 NO RESPONSE

*[Q16] INDIVID/HH PROBLEMS IN EVACUATION PROCESS*

**Were there any major problems in the evacuation process for you or your household?**

- 1 YES
- 2 NO (IF NO/DK - SKIPTO Q18)
- 3 DON'T KNOW
- 4 NO RESPONSE

*[Q17] MAJOR PROBLEM*

**What were the problems?**

[open-end]

*[Q18] HOUSEHOLD SIZE*

**We are almost done! We just have a few more questions to let us know how many people in the survey live in different areas of \_\_\_\_\_ County. How many people live in your household, including yourself?**

[numeric, range: 0-99]

*[Q19] UNDER 13*

**How many of the people living in your household are 12 years old or younger?**

[numeric, range: 0-99]

*[Q20] AGE 65 OR OLDER*

**And how many people living in your household are 65 OR OLDER?**

[numeric, range: 0-99]

*[Q21] ZIP CODE*

**What is your zip code? [INTERVIEWER ENTER THE ACTUAL NUMBER, DON'T KNOW/REFUSED = 999**

[numeric, range: 1-99999]

*[Q22] TOWN OR CITY*

**If you don't want to give us your zip code, could you please tell us the name of your town or city?**

[open-end]

*[Q23] GENDER*

**[INTERVIEWER PLEASE ENTER THE GENDER OF THE RESPONDENT]**

1 MALE

2 FEMALE

*[Q24] RESPONDENT INTERVIEWED IN THE RAPID CAST*

**[INTERVIEWER CHECK YES IF THE RESPONDENT SAID THAT HE/SHE HAD BEEN PREVIOUSLY ASKED SIMILAR QUESTIONS IN AN AUTOMATED SURVEY]**

1 YES

2 NO

*[Q25] HAVE COMMENTS*

**Well, that concludes the interview. I'd like to thank you for taking the time to complete the survey. Do you have any comments that you would like me to write down about this survey?**

1 YES

2 NO

*[Q26] COMMENT*

**TYPE COMMENT** [open-end]

**APPENDIX J: SUPPLEMENTAL MATERIALS FOR TASK 2E**

**BALDWIN COUNTY PRESS RELEASE—MARCH 25, 2009**



**Baldwin County Emergency Management Agency**

Baldwin County Commission

**FOR IMMEDIATE RELEASE**

**CONTACT:**  
Paula Tillman  
Public Information Coordinator  
(251) 580-1695 wk  
(251) 597-8923 cell  
ptillman@co.baldwin.al.us

**BCEMA CRITICAL TRANSPORTATION NEEDS MEETING**

**Baldwin County, AL, March 25, 2009** – The Baldwin County Emergency Management Agency (BCEMA), in conjunction with the Alabama Emergency Management Agency, will be hosting a meeting to discuss disaster and evacuation planning for **transportation dependent citizens in Baldwin County.**

Agencies that can assist BCEMA with providing the below needed information are requested to attend the following meeting and bring any current information and available data or reports to support this venture.

**Baldwin County Critical Transportation Needs Meeting**  
**Wednesday, April 1, 2009**  
**9:00 a.m.**  
**Baldwin County Central Annex**  
22251 Palmer Street  
Robertsdale, AL

Please RSVP to 251.972.6807 or via email at [bcema@co.baldwin.al.us](mailto:bcema@co.baldwin.al.us).

Dewberry & Davis, a national professional services firm, has been contracted by FEMA and the United States Army Corps of Engineers to determine the:

- **Number of transportation dependent citizens requiring transportation during hurricane evacuations**, such as low income, homebound, immobile, disabled, physically or mentally impaired, power dependent, or any other vulnerable individuals that would require *special assistance* during emergency evacuations;
- **Locations** of where these citizens reside in Baldwin County;
- **Type of transportation assistance required** for emergency evacuation, such as ambulances, buses that accommodate wheelchairs, etc.

The following organizations are encouraged to attend:

VOAD	Board of Education	BRATS	Ambulance Providers
Hospitals	Power Companies	Utility Companies	Elderly or Senior Service Agencies
Dialysis Centers	Homeless Coalitions	Social Service Agencies	Nursing Homes
Hospice Agencies	Home Health Agencies	Medical Supply Companies	Assisted Living Providers
Cancer Treatment Centers			

###

## CONTACT LIST FOR BALDWIN COUNTY EMA CTN GROUPS

### *From Baldwin County Social Service Agencies, Task 1G*

Alabama Department of Public Health  
23280 Gilbert Drive  
Robertsdale AL 36567  
(251) 947-6206  
Peggy Thompson

American Red Cross  
300 N. Hoyle Avenue  
Bay Minette AL 36507  
(251) 937-3801  
Diane Clewell

American Red Cross  
412 E. Laurel Avenue  
Foley AL 36535  
(251) 943-3844

Baldwin Council on Aging  
22251 Palmer Street  
Robertsdale AL 36567  
(251) 972-8506  
Kelly Childress

Community Action Agency  
26440 N. Pollard Road  
Bay Minette AL 36507  
(251) 626-2649  
Carjetta Williams

BRATs  
18100 County Road 54E  
Robertsdale AL 36567  
(251) 872-8576  
Taylor Rider

Catholic Social Services  
23010 Highway 59N  
Robertsdale AL 36567  
(251) 987-2293  
Michelle Prockup

Lighthouse  
23306 Chicah Street  
Robertsdale AL 36567  
Jerry Sommer

Alabama Power  
600 D'Olive Street  
Bay Minette AL 36507  
(251) 937-0992  
Hiram Templeton  
Electrically Dependent Registry

Bay Minette Housing Authority  
400 South Street  
Bay Minette AL 36507  
(251) 937-2211

Thomas Home Health  
27961 U.S. Highway 98 -Ste 16  
Daphne AL 36526  
(251) 626-6646  
Christina Crocker

Mercy Medical Home Health  
177 Baldwin Square  
Fairhope AL 36532  
(251) 928-5514  
Julie Wagner

Mid-South Home Health  
9037 Independence Ave Ste B  
Daphne AL 36526  
(251) 621-0082  
Angela Lambert

Mid-South Home Health  
1390 N. McKenzie Street  
Foley AL 36535  
(251) 743-3002  
Alma Outlaw

Amedisys Home Health  
100 Elecia Lane  
Foley AL 36535  
(251) 971-1436  
Nancy Hessert

South Baldwin Medical Center  
1613 N. McKenzie  
Foley AL  
(251) 949-3400  
Carolyn Phillips

La Clinica de Baldwin  
1628 N. McKenzie Street Ste 102  
Foley AL 36535  
(251) 947-1083  
Mike Trainor

Family Promise  
23010 Highway 59N Bldg C  
Robertsdale AL 36567  
(251) 947-5641  
Mike Brokowsky

Riviera Utilities  
700 Whispering Pine Road  
Daphne AL 36526  
(251) 626-5000  
Tom Byrne  
Electrically Dependent Registry

Baldwin EMC  
19600 Highway 59  
Summerdale AL 36580  
(251) 989-6247  
Tom Page  
Electrically Dependent Registry

Fairhope Utilities  
555 S. Section Street  
Fairhope AL 36533  
(251) 928-8003  
Scott Sligh  
Electrically Dependent Registry

# MAP OF MOBILE COUNTY SOCIAL SERVICE AGENCIES

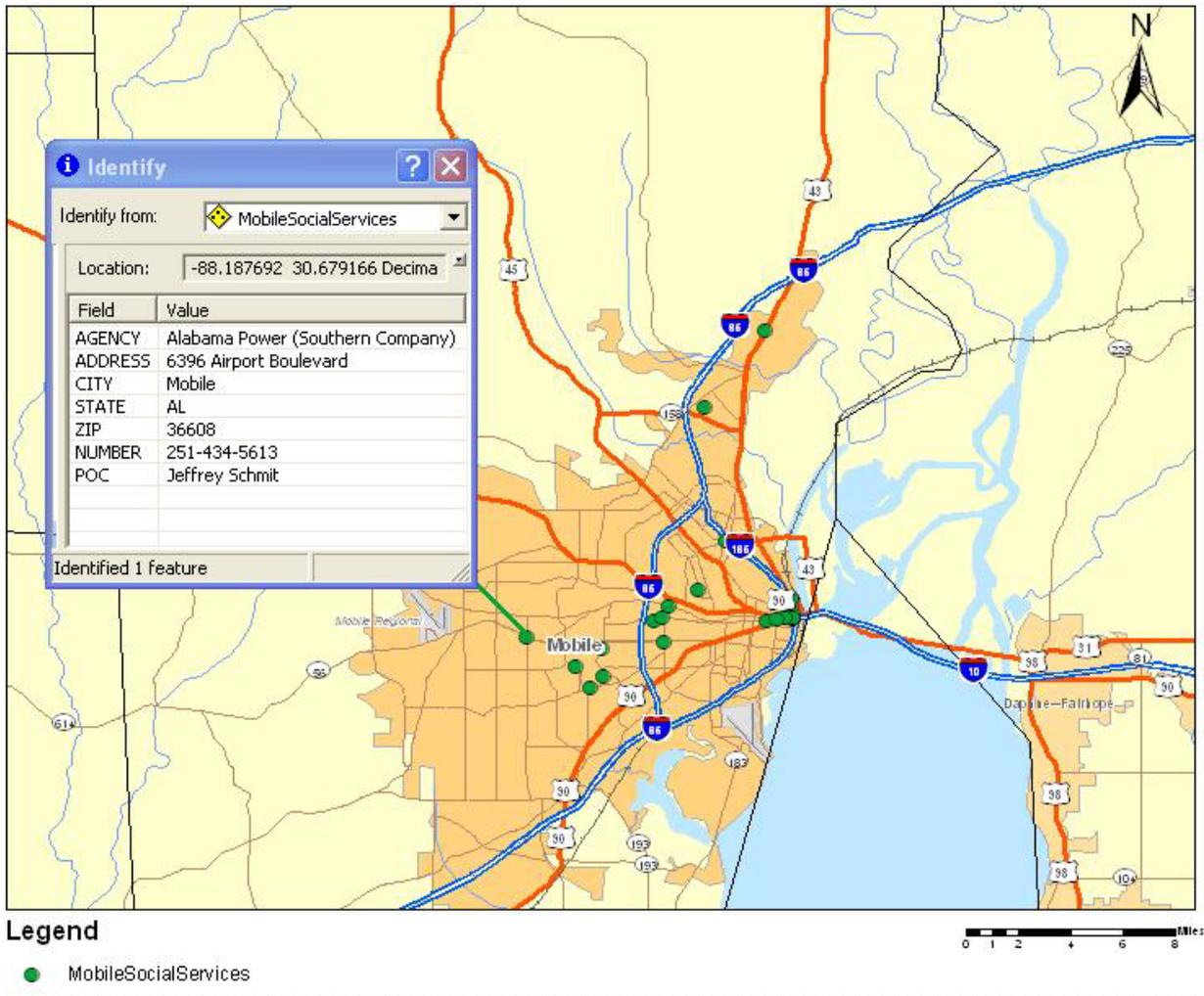


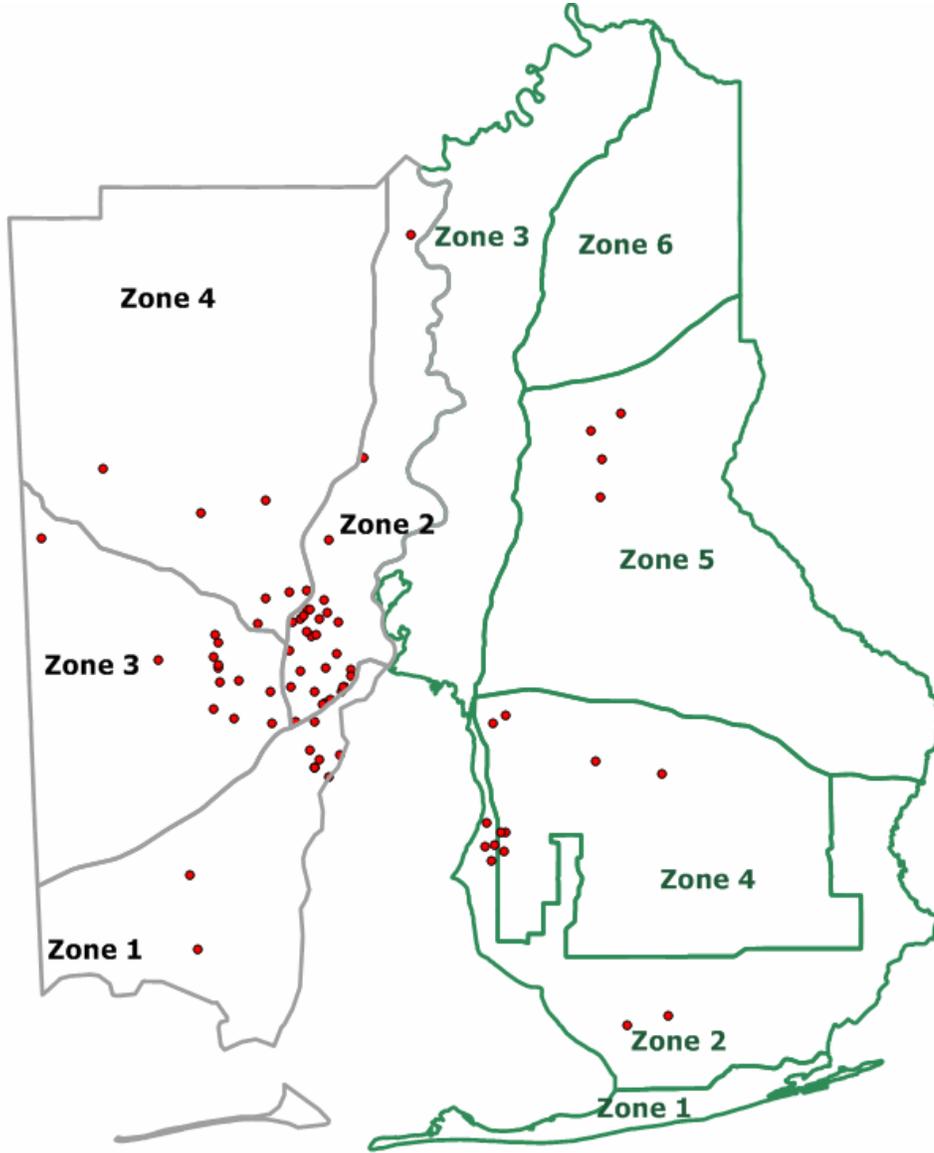
Figure 1-13. Social Service Agencies, Mobile County, Task 1G

## TABLE OF CTN POPULATIONS

**Table 1-10 Services Provided to Vulnerable Groups in Mobile County, Task 1E**

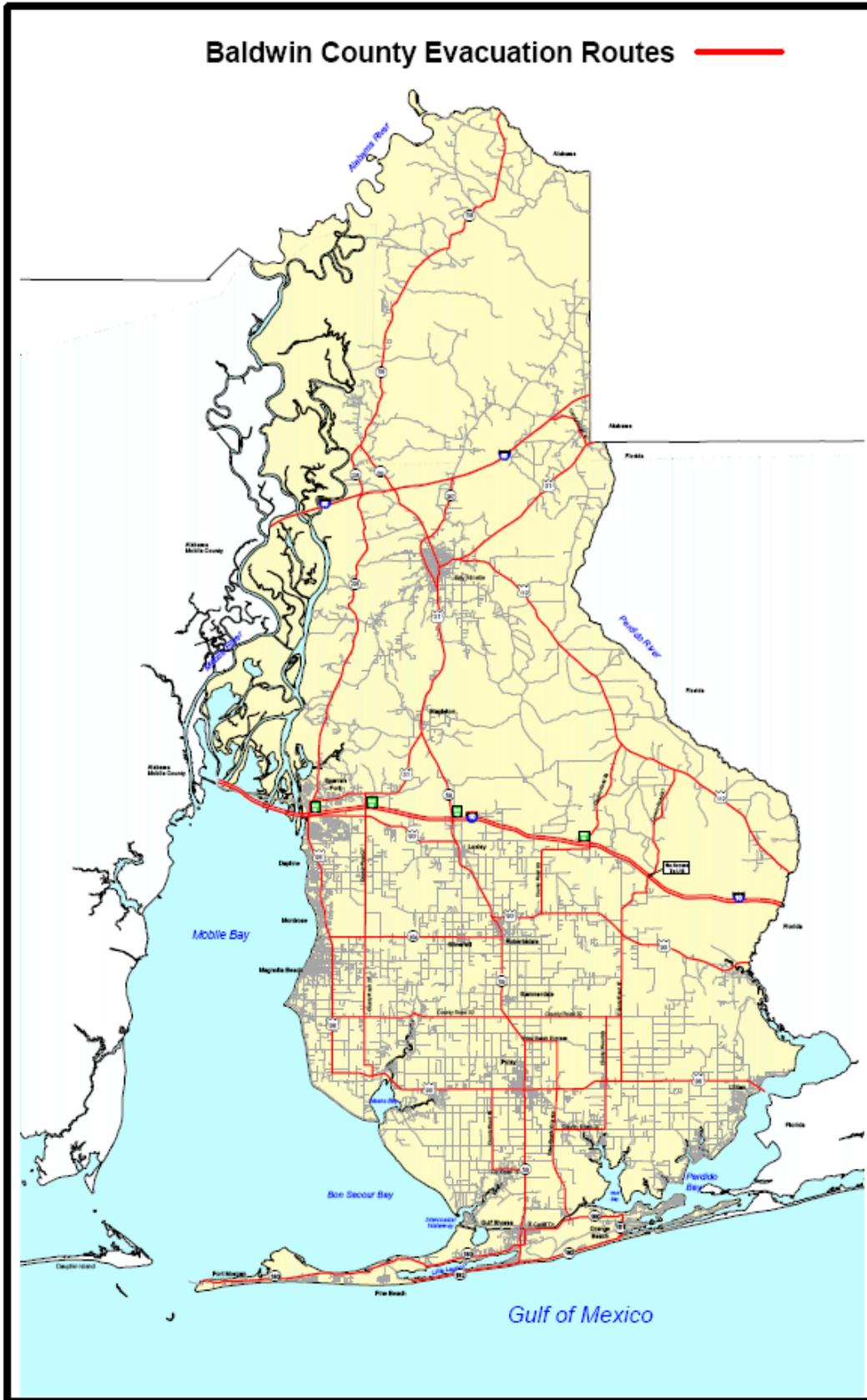
Agencies/Companies		Total Persons or Households Served
<b>Dept. of Rehabilitative Services (Current Clients)</b>		<b>2932</b>
<b>Home Health Agencies (Current Census)</b>		<b>1161</b>
Amedisys #1006	233	
Amedisys #1054	99	
Amedisys #1025, Citronelle	160	
Maxim Home Health	28	
Mid-South Home Health	329	
Infirmiry Home Health	312	
<b>Utilities (Electrically Dependent Registrants)</b>		<b>1021</b>
Southern	1021	
<b>Public Housing (Current Census)</b>		<b>2976</b>
Mobile Housing Board	2526	
Mobile County Housing	450	
<b>Area Agency on Aging (Units of Service 2008)</b>		<b>24027</b>
<b>Community Action Agency (Units of Service 2008)</b>		<b>4083</b>
<b>Home-Delivered Meals (Daily)</b>		<b>1030</b>
Area Agency on Aging	793	
Cottage Hill Baptist Church*	120	
Dauphin Way United Methodist	2	
Government Street, Mobile	50	
Saraland Senior Center	40	
Satsuma City Hall	25	
<b>Feeding Kitchens (Daily)</b>		<b>260</b>
Loaves and Fish (Lunch 5 days a week)	150	
Government Street Presbyterian (Breakfast)	110	
<b>Homeless (Census – Sheltered and Unsheltered)</b>		<b>645</b>
<b>Public Transportation (Weekday riders)</b>		<b>3992</b>
WAVE	3692	
Paratransit	300	

### MAP OF CTNS BY EVACUATION ZONE



**Figure 2-17 Locations of Households with Transportation Needs (IPOR), Task 2D**

# BALDWIN COUNTY EVACUATION ROUTE MAP





**APPENDIX K: SUPPLEMENTAL MATERIALS FOR TASK 2F**  
**FINAL PROJECT BRIEFING POWERPOINT PRESENTATION**  
**(ON CD)**