



# Bp Humanitarian Assistance & Hurricane Response Effort 2005

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# Agenda



## What we did?

- Humanitarian effort to help our employees

## Why we did it?

- Inadequacy of manual methods of mapping

## How we did it?

- GIS Technology

## What we learned?

- Awareness and Preparedness
- Integration of Applications

# Humanitarian Assistant Team



**Provide resources and assistance to BP employees impacted by Hurricanes Katrina and Rita:**

- Salary continuation
- Supplies: food, fuel, generators
- Cash, Wal-Mart gift-cards for basic replacement needs
- Interest free loans until homeowner's insurance delivers
- Temporary lodging for employee & immediate family
- Clearinghouse for volunteer housing offers



# Initial Problem



Manually identifying employee location was proving to be inefficient and frustrating...

- Road maps & markers
- Prioritize critically impacted employees

Potential benefits of GIS technology was recognized and implementation began *several days after* Katrina's landfall

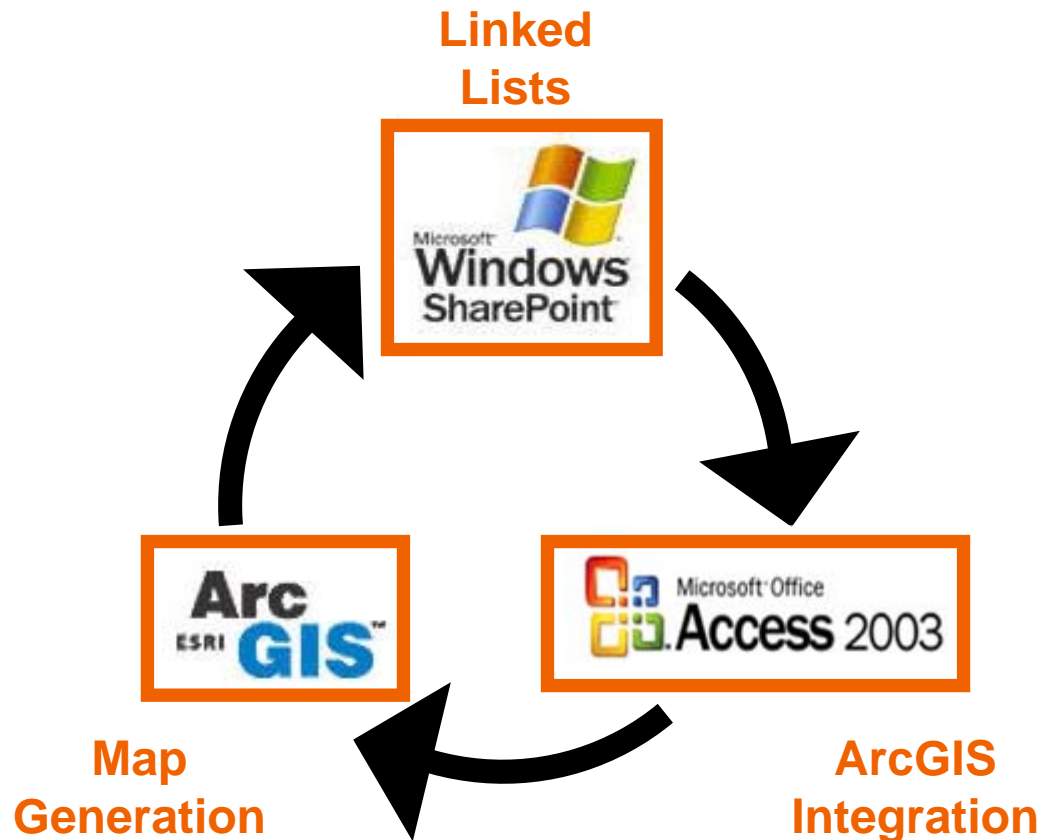


# GIS for Hurricane Response



- **Visualization**
  - Dynamic symbology
  - Integration of a variety of layers
- **Dynamic Data**
  - SharePoint Lists
  - MS Access Tables and Queries
- **GIS Tools**
  - Geocoding
  - Geoprocessing
  - Dynamic Mapping

# Integration of Applications



# SharePoint to MS Access 2003



Home Documents and Lists Create Site Settings Help Up to US HR

Katrina Humanitarian Assistance  
Case Mgmt System

Select a View  
All Cases

800 Hotline Intake Form

New Row Show in Standard View Task Pane Totals Refresh Data

Employee Name (last, first)	Case Status	Area of need	Category	
Aaron, Tom L D	Closed	Is your house damaged?; House damage not specified	to be determined	D
Alberola, Kimberly N	Closed	Is your house damaged?; Supplies; House damage not specified	to be determined	D
Alshina Jr, Alfred	Closed	Is your house damaged?; House damage not specified	to be determined	G
Account, Doree	Closed	Wal-Mart Card	WalMart Card	Jc
Arenas, Denise (sprawl)	Closed	Wal-Mart Card	WalMart Card	H
Arbore, Phyllis L	Closed	Supplies	Non-Life Threatening	Ja
Arcese, Quenton	Closed	Is your house damaged?; House damage not specified	to be determined	Fa
Adams, Ralph Gilbert	Closed	Is your house damaged?; House damage not specified	to be determined	D
Adams, William F	Closed	Is your house damaged?; House damage not specified	to be determined	D
Aduse, Sr, Mike	Closed	Wal-Mart Card	WalMart Card	H
Aguiar, Luis	Closed	Wal-Mart Card	WalMart Card	H
Aguiar, Victor	Closed	Wal-Mart Card	WalMart Card	H
Ahlf Jr, Thomas	Closed	Is your house damaged?; House damage not specified	Non-Life Threatening	Jc
Albany, Richard C	Closed	Is your house damaged?; House damage not specified	to be determined	D
Alvarado, Yvette L	Closed	Wal-Mart Card	WalMart Card	Fa
Alvarez, Mark	Closed		to be determined	
Alfred, E, John	Closed	Is your house damaged?; House damage not specified	to be determined	Fa

For assistance with Datasheet view, see Help.

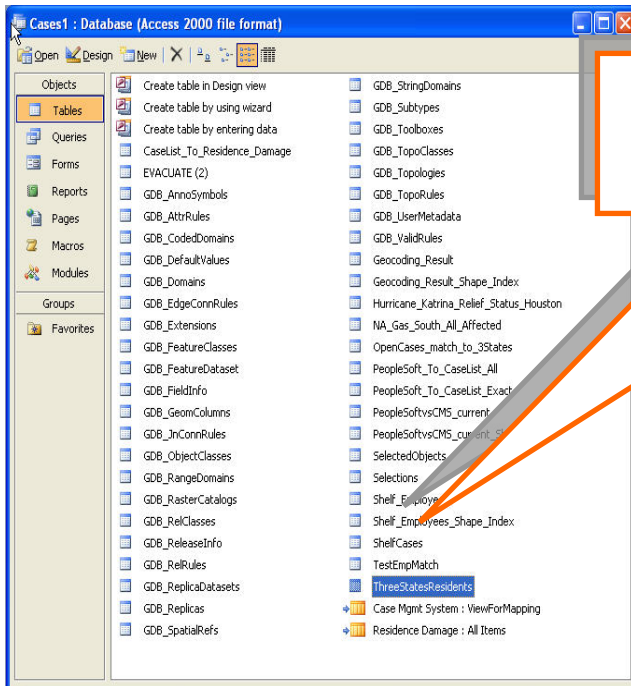
## Office links



- Export and Link to Excel
- Print with Excel
- Chart with Excel
- Create Excel PivotTable Report
- Export to Access
- Create linked table in Access
- Report with Access

SharePoint linking feature allows dynamic link to MS Access 2003

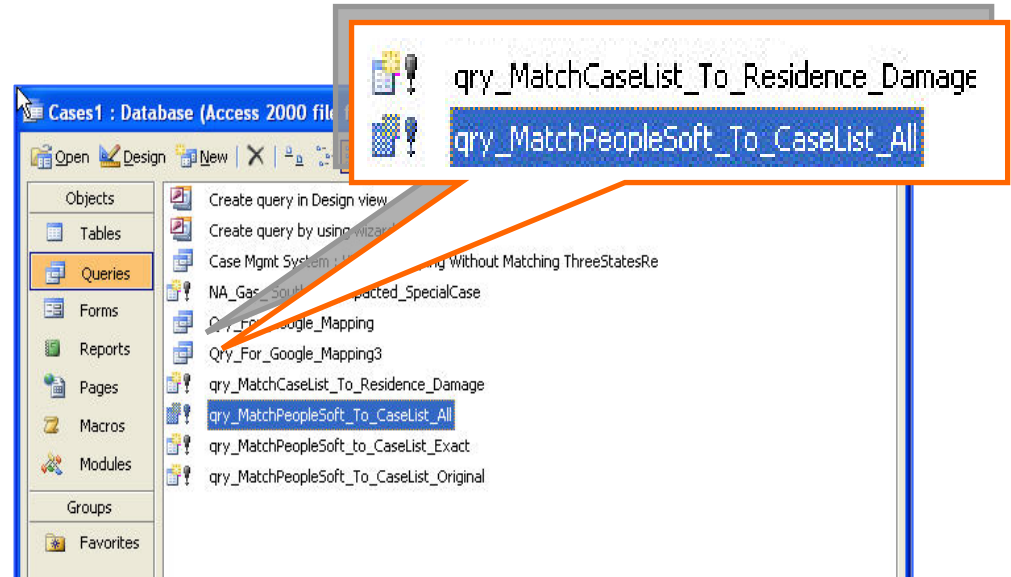


# Dataset Structure in MS Access 2003



 Case Mgmt System : ViewForMapping  
 Residence Damage : All Items

Virtual tables from SharePoint appear in the Table Objects in MS Access and are dynamically linked to SharePoint.



 qry\_MatchCaseList\_To\_Residence\_Damage  
 qry\_MatchPeopleSoft\_To\_CaseList\_All

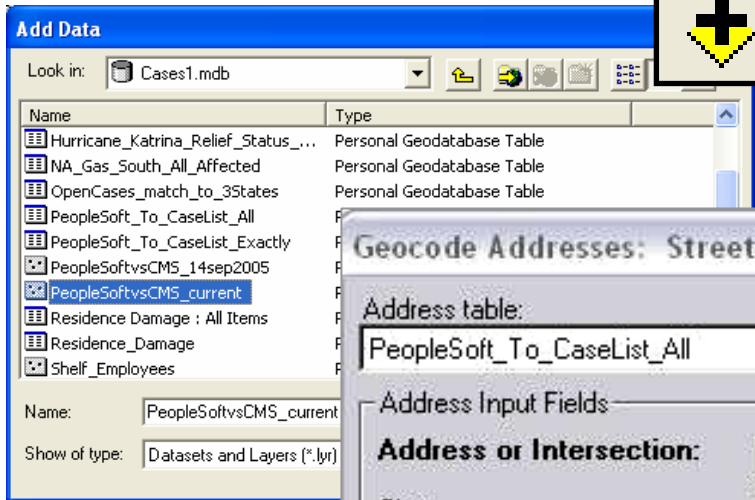
## Access Queries:

- Required to import into ArcGIS
- Join SharePoint linked lists and HR tables
- Allow data formatting



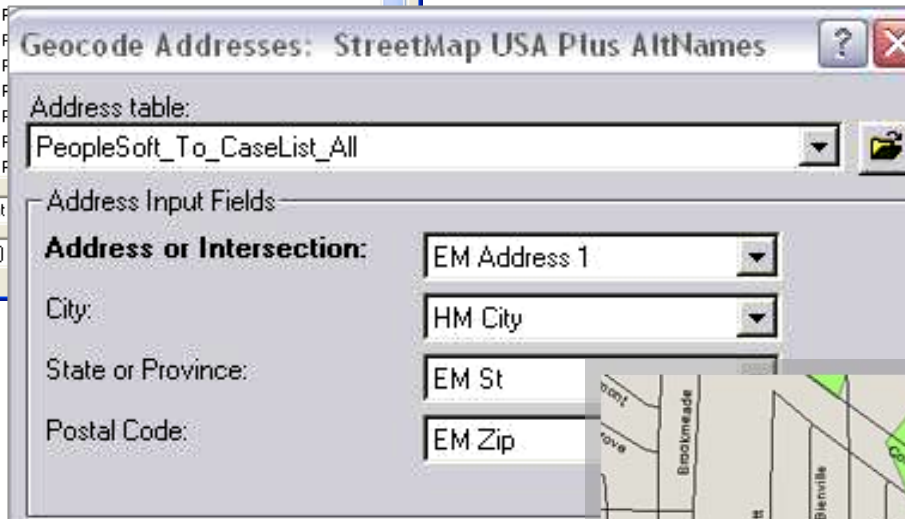


# Access to ArcGIS Data



ArcGIS Streetmap extension generated point data from address

Add HR Dataset from Access Tables



# ArcGIS Map Layers & Symbology



## People & Facilities Layers

**Layers**

- Bp\_Facilities
  - BP\_Facilities
- IMT\_Centers\_25SEP05
- Distribution\_Stations2005-09-09
  - Site status
  - ★ Active
  - ★ Cancelled
  - ★ Demobilization in Progress
- Employee
  - CMS\_ResidenceDamage\_09-20
    - Damage\_Status
    - Minimum
    - Not Specified
    - See Comments
    - Severe
  - PS\_CMS\_All\_09-20
    - EmpAtHomeStatus
    - 🏠 No match in case list
    - 🏠 Case list: unknown location
    - 🏠 Case list: at home
    - 🏠 Case list: not at home

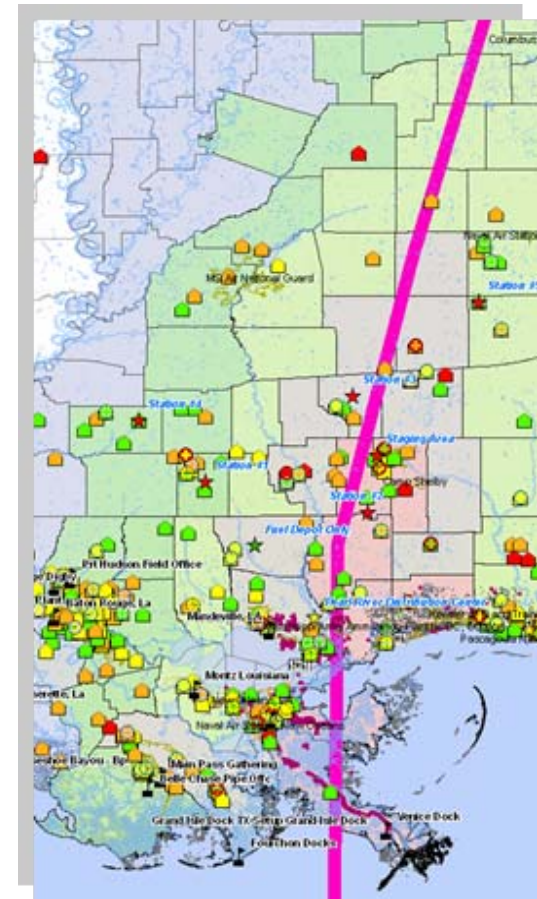


## Situation Layers

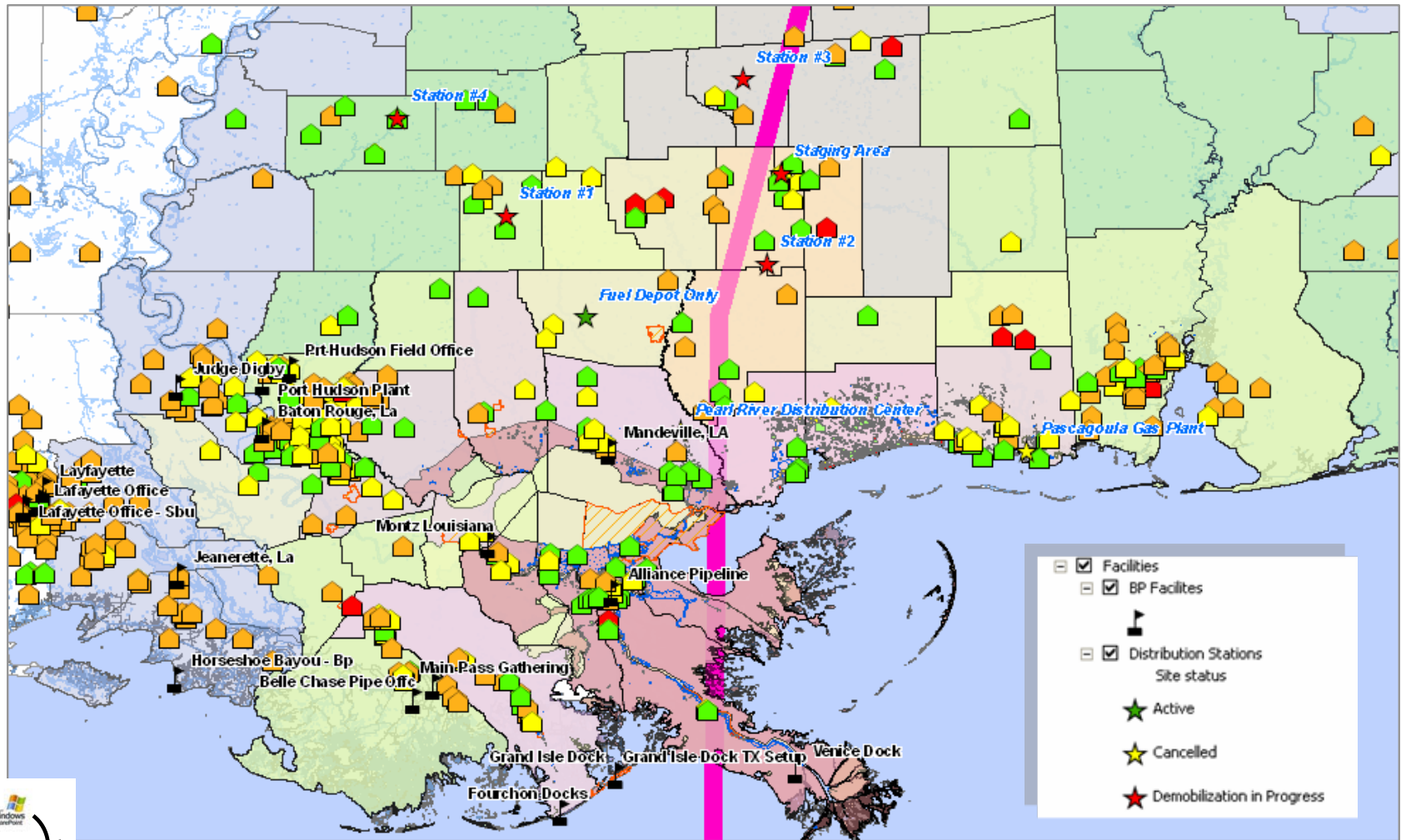
- FEMA Damage\_08sep05
  - 🔴 Catastrophic Damage
  - 🟠 Extensive Damage
  - 🟡 Moderate Damage
  - 🟢 Light Damage
  - 🌊 Flooding
- Katrina Wind Swath
  - Katrina\_Storm\_Track
  - MaxSustainWinds\_103-122mph
  - MaxSustainWinds\_82-102mph
  - MaxSustainWinds\_62-81mph
  - MaxSustainWinds\_21-61mph
  - MaxSustainWinds\_0-20mph
- Affected Areas
  - PowerOut\_La\_Energy\_05sep05
  - Evacuated Counties & Parishes
  - Impacted Area Counties & Parishes
  - AreaofConcern\_Counties\_Parishes



## Dynamic Map



# ArcGIS Map Layers



# Access to ArcGIS to SharePoint



## Join Employee Address with Case List

The screenshot shows the ArcMap interface with the 'Add Data' dialog box open. The dialog box lists several geodatabase tables and feature classes. The 'PeopleSoftvsCMS\_current' table is selected. A yellow lightning bolt icon is highlighted on the map, indicating a hot-linked icon.

The 'Join Data' dialog box is shown, with the following steps:

1. Choose the field in this layer that the join will be based on:
2. Choose the table to join to this layer, or load the table from disk:  
[MT\_Centers]
3. Choose the field in the table to base the join on:

Add Data from Access Tables

Hot-linked Icons

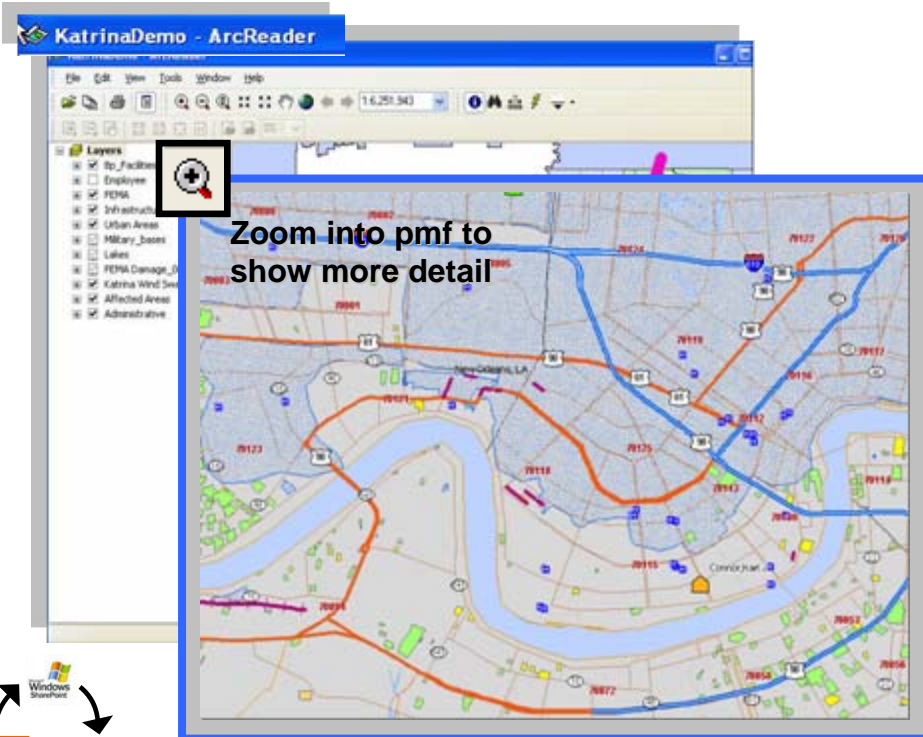
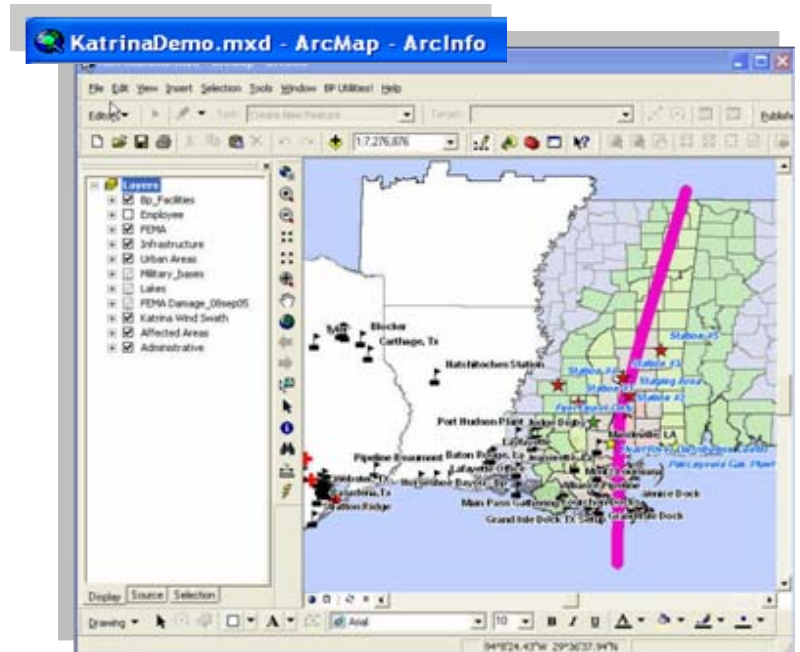
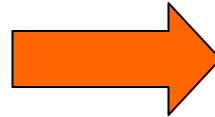
The screenshot shows a Microsoft Internet Explorer browser window displaying a web page with a list of damage items and their status. The page title is 'Residence Damage: Does not have cell coverage at house, but...'. The list includes items such as 'Phone System?', 'Roof Accessibility?', 'Electrical Power (on)?', 'Potable Water (on)?', 'Sewage System Operational?', 'Local Schools Open?', 'Homeowner Insurance?', 'Insurance Company?', 'Flood Insurance?', 'Contacted Adjuster?', and 'Your Immediate Needs?'. The status for each item is listed as 'Yes' or 'No'.



# ArcGIS to ArcReader



Map layers are created and grouped as an MXD in ArcGIS



ArcPublisher produces a PMF viewable in ArcReader



# Data Sources



- FEMA Damage assessments
- Navy storm tracks
- USGS elevations
- Entergy, Web power outages
- ESRI base map data (roads, cities, hospitals)

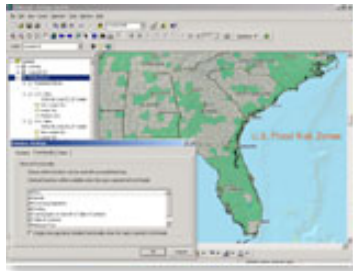


# Vendor Support



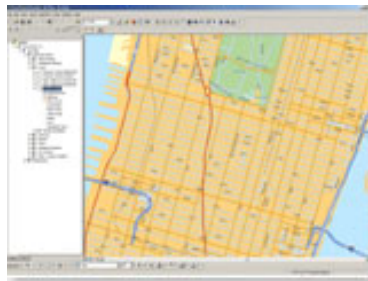
## ESRI Support was Exceptional:

- Provided software
- Web Resources



**Publisher  
Extension**

**StreetMap  
Extension**



### Get Maps, Images, and Data

[For Responders and People Affected](#) | [For Journalists](#) | [General Interest](#)

#### Maps, Images, and Data for Responders and People Affected

- Organizations responding to Hurricane Katrina and Hurricane Rita can access data, maps, images, and resources from the [geodata.gov—Hurricane Community](#). Categories include: Responder Resources, GIS Data, Public Interest, Map Gallery, and more.
- The [U.S. Federal Emergency Management Agency \(FEMA\)](#) provides the latest disaster declarations and maps of the designated areas.
- [Katrina Data Resource Guide](#) (PDF-135 KB)—Catalog of data resources available for Hurricane Katrina.
- [Rita Data Resource Guide](#) (PDF-144 KB)—Catalog of data resources available for Hurricane Rita.
- The [U.S. Department of Health and Human Services—Katrina Relief Map Viewer](#) lets you find available shelters, food, and clean up and recovery efforts.
- [U.S. Census Bureau Fast Facts on Areas Affected by Hurricane Katrina](#)—Thematic [maps](#) showing population density, housing, poverty rates, and age percentages.
- The Missouri Economic Research and Information Center (MERIC) within the Department of Economic Development has produced specialized maps detailing the [economic impacts of Hurricane Katrina on workers and businesses on the Gulf Coast](#).
- [Hurricane Disaster Viewer](#)—A map application that shows a variety of data and imagery for the affected areas and the southeastern U.S.

# Lessons Learned



- Anticipate the need for GIS *before* the storm.
- Communicate GIS capabilities to leadership team.
- Define unique ID's for datasets.
- Capture accurate data to ensure a clean dataset
- Develop a backup plan.



# Humanitarian Assistance Team 2005

