National Hurricane Program

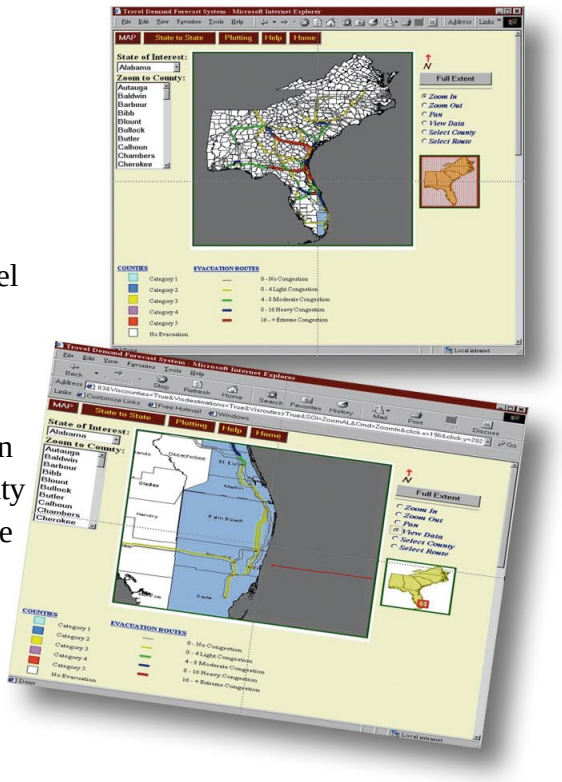
Working for Safer Communities

Evacuation Travel Demand Forecasting System

One product to emerge from the Southeast U.S. Hurricane Evacuation Study (HES) is a web-based evacuation travel demand model, which could allow major traffic congestion areas and traffic flows to be anticipated and monitored for an event like Hurricane Floyd. This important tool was developed using Microsoft's Visual Basic and ESRI's Map Objects, Map Objects IMS, and Arcview GIS. Out-of-county evacuation traffic data calculated in FEMA/U.S. Army Corps of Engineers hurricane evacuation study products and Regional Planning Council hurricane studies were used as a baseline for the model.

The model is set up so that a state would access it through a website during an actual storm threat and input the following information for each responding county:

- Category of hurricane
- Expected evacuation participation rate/compliance rate
- Tourist occupancy
- Destination percentages (optional/defaults encouraged)



Once these data are submitted for each responding county, the model updates a number of system forecasts and graphics, providing key information for a significant hurricane threat. Hour-by-hour traffic counts at locations where states have the ability to collect and communicate such information can also be entered into the model in real time. Florida and South Carolina currently have such a capability at many strategic evacuation roadway locations. As traffic counts are entered, accumulated traffic can be compared to system forecasts.

Output of the model includes the following:

- Expected congestion levels, by major highway segment
- Tables of expected vehicles crossing state lines, by direction
- Comparisons of traffic count station data to forecast conditions
- Numbers of vehicles generated by each county traveling to specific inland locations
- Route information, by segment, including number of lanes, facility type, service volume, and congestion measure

As the travel demand model is developed, the goal is to have it housed at the FEMA Region IV Regional Operations Center, where it will become the primary tool by which an Evacuation Liaison Team (ELT) collects and disburses traffic and evacuation information to the states.