

## Hurri-over

*Florida's quick response to a brutal hurricane season ends trouble on road and bridge network*

*A blur of 18-hour days for Florida Department of Transportation (FDOT) workers and private contractors started Aug. 13 when Charley struck Cayo Costa, a barrier island in southwest Florida.*

- Deborah White, Contributing Author

Preparing for disasters and recovering from them became a lifestyle for road and bridge professionals in 2004 as four hurricanes pounded Florida in six weeks. It was the state's worst hurricane season in recorded history.

A blur of 18-hour days for Florida Department of Transportation (FDOT) workers and private contractors started Aug. 13 when Charley struck Cayo Costa, a barrier island in southwest Florida. Frances slammed into the Atlantic coast Sept. 5 at Hutchinson Island in southeast Florida. Only 11 days later, on Sept. 16, Ivan brought devastation to Florida's panhandle when it made landfall at Gulf Shores, Ala. Then Jeanne damaged southeast Florida again on Sept. 25 when it hit South Hutchinson Island.

By late fall, the damage brought by these storms totaled \$42.3 billion in the U.S.—most of it in Florida, according to the National Weather Service. Insurance claims payments in the U.S. will total \$22-23 billion, exceeding the \$15.5 billion record set by Hurricane Andrew in 1992, the Insurance Information Institute estimated. More than one out of every five homes in Florida was damaged.

For Florida's transportation infrastructure, the biggest tasks have been repairing or replacing thousands of signs and traffic signals, clearing millions of yards of debris from the roadways and repairing washed-out bridge approaches or road shoulder areas. Extensive damage occurred in only a few spots including the Florida panhandle where the I-10 Escambia Bay Bridge was hit with a wall of water about 20 ft high.

"The worst we had seen was Andrew, which was confined to south Florida," said Frank Day, emergency management coordination officer for FDOT. "This was many times worse because it virtually impacted all of Florida. Resources were spread so thin."

## Favorable contract

Using private contractors and subcontractors proved to be one of the keys to a successful recovery for the transportation system, FDOT officials said. Over the past four years the state has been contracting out larger sections of roadway or transportation assets to private companies. At the same time, FDOT has reduced internal resources.

"Without our ability to use the contracting industry, it would have made it much more difficult to perform as well as we have," said Bill Albaugh, director of highway operations for FDOT. "If we tried to handle it internally, with four hurricanes it would get overwhelming."

A new type of contract known as asset management eased the demands on state transportation officials, freeing them to focus on top priorities such as re-opening the I-10 bridge. In an asset management contract, private companies in essence act as an extension of the transportation department by assuming total responsibility for maintenance functions. They provide round-the-clock response to roads, bridges, right-of-way, median, rest areas, call boxes and tollbooths.

Infrastructure Corp. of America (ICA) based in Nashville became Florida's first asset management contractor in 2000 and now is the state's largest provider of building and roadway asset management services. ICA manages approximately 3,000 lane-miles of interstate and state roads for FDOT, the Turnpike Enterprise and the Orlando/Orange County Expressway Authority. ICA also provides total maintenance of 70% of Florida's rest areas and welcome stations and inspects and maintains more than 2,000 bridges.

Including ICA, Florida has 18 asset management contracts totaling \$58 million a year, which accounts for 17-18% of the state's system, Albaugh said. Other firms with asset management contracts are VMS Maintenance Systems Inc. of Virginia, Roy Jorgensen and Associates of Maryland and DeAngelo Brothers of Pennsylvania.

"One of the differences is that they are performance-based. We judge them by the results of how they maintain the system not how much work they do," Albaugh explained.

FDOT has realized annualized savings of about 17% with using asset management contracts compared with what the department would have spent using its own forces.

## Strong wind of action

Although asset management is still in its infancy nationwide, a number of other states are looking at the concept. Originally FDOT had reservations about incident response with an asset management contract.

"You have to be very responsive. You have to be out there in minutes," Albaugh said.

Just like FDOT, the first responsibility for asset management companies is to get roads open and clear of debris. The second responsibility is to repair any washed-out or damaged areas.

Florida's record hurricane season provided a big test for the concept, particularly since the state has more asset management contracts than the rest of the nation combined. The test turned into a success story, which Albaugh has shared with officials in other states.

"They have done really well," he said. "They have done as well as we do in handling emergencies. Asset management people were out there working 18- or 20-hour days. They do whatever it takes to get the job done."

Coping with the hurricanes for FDOT and asset management firms meant making detailed preparations as each storm approached and then mobilizing resources quickly after winds subsided. That's critical after a major hurricane because no other recovery efforts can take place until the roads are at least passable.

"We focus on the roads that we are maintaining and look to them to open the roads they are maintaining," Albaugh said. "We target to have the state highway system traffic restored in 24 hours or less and we have been able to do that." Before each hurricane, FDOT and asset managers closely monitored the storm and got ready with barricades, road closure signs, generators and portable toilets. They also stocked canned food, rented generators and bought two-way radios. "We spent a lot of money before the storms hit," said Ken McEntire, senior operations manager for ICA. ICA's managers made assignments for employees before hurricanes hit in case communications technology failed. "Everyone had to be able to take assignments and do them on their own," said Ernie Molina, ICA's regional manager for southern Florida. When landfall was imminent, FDOT entered into "pre-event contracts" with additional private companies for specific tasks. Having contracts in place before hurricanes hit was one of the biggest changes for FDOT, Albaugh said. "It took a lot of planning and foresight. As we were reducing in-house resources we had to have other resources in place."

### Generating response

Everyone had to prepare for extensive documentation. Most of the cleanup and repair work will be covered by the federal government's emergency relief packages totaling \$13.6 billion for the hurricanes. But receiving this money requires detailed evidence of the work.

"It was very important to instill in employees to document, document, document," said Derrick Jenkins, ICA's regional manager for northern Florida. "We took pictures before and after."

Firms with asset management contracts submit reimbursement paperwork to FDOT, which in turn asks for funds from the federal government. "Not everything is reimbursed. The initial emergency response is not," McEntire explained. ICA has not yet determined the total amount of reimbursement.

Once winds died down to less than 40 mph after each hurricane, FDOT officials and asset managers mobilized resources. For ICA, it meant subcontracting 60-80% of the work.

"What we're proving is that the private sector will respond," McEntire said, adding that ICA has a strong contractor outreach program.

Challenges to the massive cleanup effort included communication.

"In Orlando we had neither radio contact nor cellular phone contact," Jenkins said. "We would have meetings in the morning. We bought Motorola radios and utilized them to establish contact with our crews. We worked for four days without power and moved operations to a hotel conference room until power was established."

The wind from Charley was so strong that it pushed a 5-ton air-conditioning unit off the roof of ICA's office and onto an empty parking lot.

Charley caused the most damage in Orlando, but the city also suffered effects from Frances and Jeanne.

"Orlando kept getting hit from every direction," McEntire said. He joked that they should have just left the bent signs alone so that the next hurricane would push them the opposite direction.

FDOT needed closer communication with local governments, Day said.

For example, some governments mistakenly made debris removal contracts for roads maintained by the state.

"We had contractors out there arguing over who that trash belonged to," Day said. "It got pretty tense, but it got resolved." Ordering the correct amount of equipment was another difficult task. Day ordered 1,000 generators to restore power quickly to mast-arm traffic signals that withstood the winds. "All we had to do was bring in a generator and get signals operating," he said.

That many generators would have been appropriate for all the traffic signals in south Florida if Ivan had struck there as originally predicted. But it veered off to the panhandle, which doesn't have many traffic signals. So Day cut the order to 500. "As soon as I got it canceled, the last storm came in. I spent a week ordering and canceling generators."

Finally, FDOT came within five or six of the number of generators needed, which turned about to be about 1,000.

### Florida's best

A much more serious challenge for FDOT was reopening the I-10 bridge. Ivan caused a surge that knocked 58 spans off the eastbound and westbound bridges and misaligned another 66 spans. The department signed a \$26.2 million emergency contract Sept. 18 with Gilbert Southern of Nebraska and Massman Construction of Missouri to form a joint venture to repair and reopen the bridge within 24 days. They completed temporary repairs and had one lane open each way in 17 days, which drew praise from Florida Gov. Jeb Bush.

The contractors drove 28 new piles to support the roadway, then lifted existing spans off the eastbound bridge and placed them on missing sections of the westbound bridge. They also corrected misaligned spans on the westbound side. A second phase of the contract called for repairing the eastbound bridge with existing spans and alternating Acrow panels, which are prefabricated modular steel bridges.

"This type of challenge always brings out the best in construction people," said Scott Cassels of the joint-venture contractor. In southern Florida, ICA had teams of inspectors checking more than 400 bridges. More than 30 structures required diving inspections to check for scour. ICA teamed with Volkert & Associates, which contracted with Bolt Underwater for the divers. Chain-link fencing was twisted like tin foil and decorative lighting was blown down, but none of the structures had significant damage. "There was nothing like I-10," Molina said.

In late fall, recovery work continued in Florida with tasks such as replacing signs, clearing trees from the right-of-way, establishing light poles and removing debris. Most of the roads or facilities were operating or back up within a day.

"We have to put a limit on the number of hours crisis management people can work. We need to train more people to do the same job," Day said.

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